MMS 89-0029

Final Report

Potential Impacts of OCS Oil and Gas Activities on Fisheries

Volume I
Annotated Bibliography and Database Descriptions for Target Species Distribution and Abundance Studies

Section 1, Part 2

United States Department of the Interior
Minerals Management Service
Atlantic OCS Regional Office
Herndon, Virginia

1989

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Potential Impacts of OCS Oil and Gas Activities on Fisheries

Volume I - Annotated Bibliography and Database Descriptions for Target Species Distribution and Abundance Studies
Section 1, Part 2

Project Managers:
Eulalie E. Sullivan
Andrew W. Zacherle

Principal Investigator:
Lucinda M. Tear

Contracting Officer's Technical Representative:
Robert E. Miller, Ph.D.

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Technical Resources, Incorporated
3202 Tower Oaks Boulevard
Rockville, Maryland 20852

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16. Abstract (Limit: 200 words)

The purpose of this volume is to present an annotated bibliography of unpublished and grey literature related to the distribution and abundance of select species of finfish and shellfish along the coasts of the United States. This volume also includes descriptions of databases that contain information related to target species' distribution and abundance. An index is provided at the end of each section to help the reader locate studies or databases related to a particular species.

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-1514-
AUTHOR(S): MACCALL, A.
YEAR: 1979
TITLE: Methods of Anchovy Biomass Estimation and Stock Assessment
PUB: NOAA/NMFS, SWFC Admin. Rep. LJ-79-30
ABSTRACT:
A variety of techniques has been used to monitor the anchovy resource on a continuing basis. The principal ones have been California Cooperative Oceanic Fisheries Investigations egg and larva surveys, California Department of Fish and Game acoustic-trawl Sea Surveys, the aerial fish spotter logbook system, and sampling of fish landings. The discussion covers each technology in turn, first reviewing existing methods, and then examining some alternatives and problems.

-1515-
AUTHOR(S): MACCALL, A.D.
YEAR: 1973
TITLE: The Mortality Rate of Engraulis mordax in Southern California
PUB: Calif. Fish Game Mar. Res. Tech. Rep. 4, 23 pp.
ABSTRACT:
Instantaneous (Z) and annual natural mortality rates (a) are estimated for the northern anchovy, Engraulis mordax, in southern California waters. Estimates are made using sea survey cruises and commercial landings. The assumptions on which this analysis is based are poorly met. The data at present are insufficient to estimate definitive mortality rates-at-age.

-1516-
AUTHOR(S): MACCALL, A.D.
YEAR: 1974
TITLE: The Mortality Rate of Engraulis mordax in Southern California
PUB: CalCOFI Rep. 17:131-135
ABSTRACT:
Catch curves were used to estimate instantaneous and annual mortalities of the northern anchovy, Engraulis mordax, in southern California waters. Three assumptions to the method must be met: year classes must not vary in strength, survival must be constant over all ages, and survival must not vary on a seasonal or yearly basis. Assumptions of this analysis are met very poorly by northern anchovies in southern California. Due to collections over many reproductive seasons being combined, the effects of this are minimized. The future exploitation of this fishery is discussed briefly.

-1517-
AUTHOR(S): MACCALL, A.D.
YEAR: 1980
TITLE: Population Models for the Northern Anchovy (Engraulis mordax). The Assessment and Management of Pelagic Fish Stocks: A Symposium Aberdeen (UK)
PUB: RAPP, P.-V., REUN. CIEM, VOL. 177, pp. 292-306
ABSTRACT:
The northern anchovy (Engraulis mordax, Girard) is abundant off the coast of California and Baja California. The central subpopulation, or central stock, extends from 30 degree N to 38 degree N, and has been estimated at 3 to 4 million short tons of spawning biomass in recent years. Determination of optimum yield requires an analysis of the trade-offs between yield and stock size. The CalCOFI program conducted rigorous egg and larval surveys since 1950, providing an independent source of population size estimates. The author hypothesizes that the anchovy encountered a prolonged series of poor

recruitments during the late 1940s, and the subsequent CalCOFI records document the recovery to more normal levels of abundance.

-1518-
AUTHOR(S): MACCALL, A.D.
YEAR: 1984
TITLE: Report of a NMFS-CDF&G Workshop on Estimating Pelagic Fish Abundance
PUB: NOAA/NMFS, SWFC Admin. Rept. LJ-84-40
ABSTRACT:
The purpose of the Workshop was to suggest alternative methods of abundance estimation for anchovy, sardine and Pacific mackerel, and to outline the information needed to evaluate the cost-effectiveness of these methods. The ultimate goal is to help managers make informed and rational decisions regarding techniques and resources (e.g., manpower, money, and ship time) allocated to abundance estimation.

-1519-
AUTHOR(S): MACCALL, A.D.
YEAR: 1985
TITLE: Review of Southern California Groundfish Fisheries: Current Data, Research, Issues, and Problems
PUB: NOAA/NMFS/SWFC, La Jolla, CA, Admin. Rep. LJ-85-19
ABSTRACT:
Groundfish are harvested in both northern and southern California in significant quantities. Both recreational and commercial fisheries constitute important user groups. During 1980-1982 commercial landings of groundfish averaged 36,096 mt per year in northern California and 6570 mt in southern California (Tables 1-3). During the same period, the dockside value of these commercial landings averaged $18,110,000 and $6,133,000 in the northern and southern portions of the state respectively (Table 4).

-1520-
AUTHOR(S): MACCALL, A.D.
YEAR: 1986
TITLE: Changes in the Biomass of the California Current Ecosystem
PUB: In: Variability and Management of Large Marine Ecosystems. Shermman, K. and L.M. Alexander, eds. Westview Press, Boulder, CO, (USA), May 1986, pp. 33-54, AAAS Select. Symp. Ser., No. 99.
ABSTRACT:
California current pelagic fishes have been monitored for 30 to 50 years, and a paleosedimentary record extends back 200 to 2000 years. Large natural fluctuations in abundance occur at all time scales. Overharvest of sardines removed a major component of the ecosystem; the extent to which it was replaced by other species is not clear. Large predatory fishes have declined in abundance due to exploitation. Pinnipeds were depleted in the last century, but now are abundant and are increasing rapidly. Seabird reproductive success is closely related to availability of small forage fish such as anchovy. Despite a wealth of scientific information, species interactions are poorly understood, and are difficult to separate from independent differential responses to varying environmental conditions. The biological basis of fishery management is likely to remain single-species models in the foreseeable future. Ecosystem management requires coordinated consideration of both fished and non-fished species, but faces conflicting jurisdictions and other institutional difficulties.

-1521-
AUTHOR(S): MACCALL, A.D. AND R. METHOT
YEAR: 1983
TITLE: The Historical Spawning Biomass Estimates and Population Model in the 1983 Anchovy Fishery Management Plan
PUB: SWFC/NMFS/NOAA, LaJolla, Calif. Admin. Rep. LJ-83-17, 53 pp.
ABSTRACT:
Existing time series of anchovy (Engraulis mordax) spawning biomass contain years of missing data. These series include CalCOFI-based estimates of egg production and larva production, acoustic surveys and aerial fish spotter logbook indices of abundance. Missing data in the two CalCOFI-based data sets are filled in with appropriately scaled acoustic and aerial data to produce complete time series for the period 1951-1982.

-1522-
AUTHOR(S): MACCALL, A.D., ED.
YEAR: 1984
TITLE: Management Information Document for California Coastal Pelagic Fisheries
PUB: NOAA/NMFS/SWFC, Admin. Rept. LJ-84-39.
ABSTRACT:
This Management Information Document summarizes biological, economic, regulatory and other information relevant to management of six southern California coastal pelagic species. These species are northern anchovy. Pacific sardine, Pacific mackerel, jack mackerel, Pacific bonito and market squid.

-1523-
AUTHOR(S): MACCALL, A.D., G.D. STAUFFER AND J.P. TROADEC
YEAR: 1976
TITLE: Southern California Recreational and Commercial Marine Fisheries
PUB: Mar. Fish. Rev. 38(1):1-32
ABSTRACT:
This article examines the population trends of several California recreational and commercial fisheries. The current status of the following species are examined and recommendations are made on areas of necessary research and fishery regulations: northern anchovy (Engraulis mordax), California barracuda (Sphyraena argentea), Pacific bonito (Sarda chiliensis), jack mackerel, (Trachurus dorsalis), Pacific mackerel (Scomber japonicus), and Pacific sardine (Sardinops caeruleus). Also examined are the historical aspects of the fisheries and some trophic interactions which have a bearing on the fishery. Wetfish stocks of northern anchovy and jack mackerel Pacific mackerel are both considered underexploited. Yellowtail resources are only moderately exploited, but no increase in catch allowances is suggested. The white seabass populations appear to be slightly depleted, and could be partly blamed on overestimations of the populations. The present population trends of the California barracuda is difficult to assess, but recommendations are made that the 28 inch bag limit is a rational course of action. Pacific bonito appears to be at or slightly above its maximum sustainable yield. Present trends in rockfish and squid exploitation are lightly analyzed.

-1524-
AUTHOR(S): MACDONALD, K.B.
YEAR: 1969
TITLE: Molluscan Faunas of Pacific Coast Salt Marshes and Tidal Creeks
PUB: The Veliger 11:399-405.

ABSTRACT:

Pacific coast salt marshes and the tidal creeks that dissect them contain distinctive molluscan faunas. The taxonomy of most of the species represented in these faunas is well documented and in some cases papers describing aspects of the ecology of individual species, or of closely related species in other localities are available. These fauna deserve further study, not only because they occupy habitats that are rapidly disappearing on the Pacific Coast, but because the huge species populations found at several sites may play an important role in the cycling nutrients and detritus and thus indirectly affect offshore communities.

-1525-
AUTHOR(S): MACDONALD, K.B.
YEAR: 1969
TITLE: Quantitative Studies of Salt Marsh Mollusc Faunas from the North American Pacific Coast
PUB: Ecol. Monogr. 39:33-60.
ABSTRACT:

The primary aim of this study has been to describe quantitatively local, seasonal and latitudinal variations within the restricted molluscan faunas that occur in the Spartina-Salicorna salt marshes of the North American Pacific coast. Eleven of these marshes were examined at localities lying between latitudes 27 to 47 deg. N. Data pertaining to the physical environments, the salt marsh floor and the molluscan faunas of both the salt marshes and the tidal creeks that dissected them, were collected at each of these sites. Additional oceanographic and climatic data appropriate to this study were obtained from published records.

-1526-
AUTHOR(S): MACGREGOR, J.S.
YEAR: 1966
TITLE: Fecundity of the Pacific Hake, Merluccius productus (Ayres)
PUB: Calif. Fish Game 52(2):111-116
ABSTRACT:

Measurements of yolked eggs in the developing ovaries of female hake formed bimodal distributions. The numbers of advanced yolked eggs increased with both length and weight of the fish. The smallest of 22 hake, 346 mm long contained 80,000 eggs, while the longest, 688 mm, contained 496,000 eggs: The number of eggs may be estimated by multiplying fish length cubed by 0.00142, or by multiplying weight by 192. Weights ranged from 300 to 2750 g. and these fish contained 46,000 and 496,000 eggs respectively. There was considerable variation in numbers of advanced eggs produced regardless of size. A fish 395 mm. long that weighed 500 g contained only 64,000 eggs. Although two sizes of yolked eggs were present in the ovaries, the peculiarities of the distribution and the relatively short spawning season indicate the hake spawn only once a year.

-1527-
AUTHOR(S): MACINTOSH, R.A. AND D. SOMERTON
YEAR: 1981
TITLE: Marine Gastropods of the Eastern Bering Sea
PUB: In: Hood, D.W. and J.A. Calder, eds. The Eastern Bering Sea Shelf: Oceanography and Resources, Vol. II. USDOC/NOAA/OCSEAP, Office of Marine Pollution Assessment. University of Washington Press, Seattle, WA, pp. 1215-1228

ABSTRACT:
Gastropods make up 6-9% by weight of the invertebrates caught by reseach trawl surveys on the continental shelf and upper slope of the eastern Bering Sea.

-1528-
AUTHOR(S): MACIOLEK, N., J.F. GRASSLE, B. HECKER, P.D. BOEHM, AND B. BROWM
YEAR: 1987
TITLE: Study of Biological Processes on the U.S. Mid-Atlantic Slope and Rise Volume. Final Report. Rep. for Mar 84-Mar 86
PUB: Battelle Ocean Sciences, Duxbury, MA. Woods Hole Oceanographic Institution, MA. Lamont-Doherty Geological Observatory, Palisades, NY. Minerals ManagementService, Vienna, VA. Atlantic OCS Region, 473 pp.
ABSTRACT:
Box core samples were collected at 14 stations as part of a monitoring program to evaluate potential effects of exploratory drilling in water at depths of 1500 and 2100 m. The box core samples were analyzed for benthic infauna, hydrocarbons, sediment grain size, and total organic carbon, hydrogen, and nitrogen. Changes in diversity or similarity among stations over time could be explained by changes in the densities of a few dominant species, and were often related to differences in sediment texture, rather than drilling activities.

-1529-
AUTHOR(S): MACKAY, D.C.G.
YEAR: 1942
TITLE: The Pacific Edible Crab, Cancer magister
PUB: Fish. Res. Bd. Can. Bull. No. 62, 32 pp.
ABSTRACT:
The Pacific edible crab, on of the largest crustaceans on the west coast of North America supports an extensive fishery from Alaska to California. It is the purpose of the present bulletin to give a comprehensive account of the known facts concerning this valuable species.

-1530-
AUTHOR(S): MACKAY, D.C.G.
YEAR: 1943
TITLE: Temperature and the World Distribution of Crabs of the Genus Cancer
PUB: Ecology 24(1):113-115
ABSTRACT:
Crabs of the genus cancer are known to have been in existence since the Eocene epoch and the 19 living species have a world distribution roughly bonded by the surface water isotherms for 75 deg F. and 40 deg. F. If fossil numbers of the genus were similarly limited by temperature they would furnish an indication of water temperature for past geological periods.

-1531-
AUTHOR(S): MACKENZIE, C.L.
YEAR: 1982
TITLE: American Oyster, Crassostrea virginica
PUB: In: Fish Distribution MESA New York Bight Atlas, Monograph 15. New York Sea Grant Institute, Albany, New York, pp. 138-139
ABSTRACT:
The Middle Atlantic Bight is a complex ecosystem characterized by rapid latitudinal changes in water temperatures and associated fauna. Subtropical and boreal fish fauna overlap in the region from Cape Hatteras to Georges Bank, resulting in a highly diverse fish community with large seasonal

fluctuations in distributions. The general ecology of American Lobster, Crassostrea virginica species, fish, and shellfish in the Middle Atlantic Bight is summarized in terms of 1) distribution and seasonal movements, 2) population size and fisheries, 3) reproduction-growth-lifespan, 4) feeding interrelationships, and 5) environmental sensitivity to pollutants and natural environmental factors.

-1532-
AUTHOR(S): MACKENZIE, C.L., JR.
YEAR: 1979
TITLE: Biological and Fisheries Data on Sea Scallop, Placopecten magellanicus (Gmelin)
PUB: NMFS, Tech. Ser. Rep. 64 ref, 41 pp.
ABSTRACT:
The literature and raw data files are reviewed and synthesized on P. magellanicus. Information is given on nomenclature, taxonomy, morphology, distribution, biotic potential, life history, behavior, population structure and abundance, factors that limit population distribution and sizes (parasites and predators), mortality, exploitation and management.

-1533-
AUTHOR(S): MACKENZIE, C.L., JR., A.S. MERRILL AND F.M. SERCHUK
YEAR: 1978
TITLE: Sea Scallop Resources off the Northeastern U.S. Coast, 1975
PUB: NMFS, Northeast Fisheries Center, Mar. Fish. Rev. 40(2):19-23
ABSTRACT:
Length frequency data (both U.S. and Canada) of the commercial sea scallop, Placopecten magellanicus, indicate that the present scallop fisheries are dependent mainly on the 1972 year class. The high abundance shown by the 1972 year class does not, in itself, insure that the scallop stock will not be overfished. It is possible that growth overfishing (the removal of scallops before they have attained their maximum growth potential, i.e., yield per recruit) may have already transpired. From the little knowledge available of stock-recruitment relationships for sea scallop populations and given the characteristic irregularity of recruitment, it appears desirable to estimate the size of an adult spawning stock that is large enough for providing adequate recruitment in the future and then regulate for preserving it, in order that a viable fishery will be maintained. Management alternatives to reach this objective were to be considered by the newly established Regional Fishery Management Councils.

-1534-
AUTHOR(S): MACKETT, D. AND L. VLYMEN
YEAR: 1984
TITLE: Report of the Workshop on Strategic Planning for the NMFS West Coast Groundfish Research and Management Program
PUB: NOAA/NMFS/SWFC, La. Jolla, CA, Admin. Rep. LJ-84-07, 63 pp.
ABSTRACT:
A workshop to develop a strategic plan for guiding the NMFS southwest region and southwest fisheries center (SWFC) in their development of essential activities for the U.S. west coast groundfish fishery was held at the SWFC lab at Tiburon, CA, February 15-16, 1984.

-1535-
AUTHOR(S): MACPHERSON, K.A.
YEAR: 1977
TITLE: Shrimp Tagging Studies in the Cape Fear River
PUB: Carolina Power and Light Company, Raleigh, NC, 16 pp.
ABSTRACT:

The penaeid shrimp are North Carolina's most valuable fishery resource. In the ten-year period, 1964-1973, an average of 5.6 million pounds of shrimp was landed annually with a dockside value of approximately $30 million. The mean dockside value per pound (heads on) increased from $0.35 to $0.95 during this time. In Brunswick and New Hanover Counties, an average of 811,700 pounds/year was landed with a total value of over $4.1 million during this 10-year span. In addition to those sold at dockside, many shrimp are caught by "weekend shrimpers" for personal use or trucked to inland markets. Although second in poundage behind menhaden, shrimp are Brunswick and New Hanover Counties' most valuable fishery resource.

-1536-
AUTHOR(S): MACPHERSON, K.A., R.W. LANEY AND W.S. BIRKHEAD
YEAR: 1976
TITLE: Amended Shrimp Tagging Studies in the Cape Fear River
PUB: Carolina Power and Light Company, Raleigh, NC, 9 pp.
ABSTRACT:

Since the construction of the Carolina Power and Light Company's nuclear power plant in Southport, concern has been expressed about the environmental impact of withdrawing 2 billion gallons of water/day from the Cape Fear River and the entrained and impinged organisms that come with it. From January 1974 to January 1975, a continuous impingement monitoring program was conducted to determine the actual number and weight of the different species impinged. The Brunswick Stream Electric Plant was, however, still under construction and not all intake pumps were in operation during this time. Consequently, the full impact was not realized. This study did reveal that adult brown and white shrimp were impinged heavily in July and September, respectively. Further concern was expressed about the effect of the plant on the organisms leaving Walden Creek, since the intake canal cuts across the mouth of this creek. To examine this aspect of white and brown shrimp migration, a series of preliminary studies were conducted by members of North Carolina State's Department of Zoology and Carolina Power and Light Company's Environmental Unit with the cooperation of the State of North Carolina's Division of Marine Fisheries. This report deals with those studies.

-1537-
AUTHOR(S): MAEDA, T. AND H. HIRAKAWA
YEAR: 1977
TITLE: Spawning Grounds and Distribution Pattern of the Alaska Pollock in the Eastern Bering Sea
PUB: Bull. Jpn. Soc. Sci. Fish 43(1):39-45.
ABSTRACT:

Alaska pollock, Theragra chalcogramma, eggs were sampled by a vertical haul of the plankton net from the sea bottom to the surface and then measured. The specimens were caught by the bottom trawl from mid-April to the end of May during the spawning season of 1972 and 1973 in the eastern Bering Sea. Also examined were the spawning grounds of the Alaska pollock, by a study of the distribution of the larvae sampled by a larva net from June-August of 1966-1968. The distribution pattern of the fish shoals from the maturity stage of the gonads and the sex ratio in the spawning season were investigated. In 1972 and 1973, the spawning grounds were divided into two

parts by the shallow part of the Pribilof Islands and the sea valley of the southeastern part of the islands. The center part of the spawning grounds was formed in the northwestern area of the Unimak Island and the southwestern area of the Pribilof Islands. Other spawning grounds were formed in the near continental slope of the north western area of the Pribilof Islands as observed from the distribution of the spawning and fish larvae. The sex ratio of the fish varied at each station. The male fish predominated in comparison with the female fish at the center of the spawning grounds in the shallow part, but the male fish showed a slight decrease with the distance from the center; the females at the wintering grounds in the deep sea areas were more numerous than the males.

-1538-
AUTHOR(S): MAGDANZ, J.S.
YEAR: 1981
TITLE: Northern Berring Sea Subsistence Report
PUB: ADF&G., Tech. Pap. No. 4, 27 pp.
ABSTRACT:
This paper discusses the role of subsistence resources and activities in the lives of northern Bering Sea community residents. Demographic and per capita income data for each village is presented as well as subsistence harvest information for a variety of marine and terrestrial resources.

-1539-
AUTHOR(S): MAGDANZ, J.S.
YEAR: 1981
TITLE: Nome River Fishery II
PUB: ADF&G., Tech. Pap. No. 5, 47 pp.
ABSTRACT:
This report is a continuation of division work to document the Nome River subsistence salmon fishery. A permit holder survey and random sample interviews with users provided data on patterns of use, dependency on the fishery, methods of food preparation and storage, trade, barter, food sharing, and uses of subsistence caught salmon.

-1540-
AUTHOR(S): MAGDANZ, J.S.
YEAR: 1982
TITLE: Norton Sound-Bering Strait Subsistence King Crab Fishery Update
PUB: ADF&G., Tech. Pap. No. 6, 41 pp.
ABSTRACT:
This report reviews past and present subsistence and commercial harvest of king crab in the region, including 1981 permit and survey information on subsistence fishery participants in Nome, Golovin, Elim, and Savoonga.

-1541-
AUTHOR(S): MAGDANZ, J.S.
YEAR: 1983
TITLE: Norton Sound-Bering Strait Subsistence King Crab Fishery Update
PUB: ADF&G., Tech. Pap. No. 82, 37 pp.
ABSTRACT:
This report is an update of the Division of Subsistence's continuing research to document the Norton Sound-Bering Strait king crab fishery. The report discusses potential effects of commercial king crab fishery in the Norton Sound-Bering Strait region on traditional subsistence uses of king crab.

-1542-
AUTHOR(S): MAGDANZ, J.S.
YEAR: 1984
TITLE: Norton Sound-Bering Strait Subsistence King Crab Fishery Update
PUB: ADF&G., Tech. Pap. No. 101, 62 pp.
ABSTRACT:
This study is a continuation of the division's efforts to document the Norton Sound-Bering Strait subsistence king crab fishery. Data are presented in two parts: the first for villages in the Norton Sound Section, and the second for villages in the General Section of the Northern District of Statistical Area Q (Bering Sea).

-1543-
AUTHOR(S): MAGDANZ, J.S.
YEAR: 1985
TITLE: Bering Sea King Crab Update
PUB: ADF&G., Tech. Pap. No. 117, 20 pp.
ABSTRACT:
This report documents subsistence crab fishing in the Bering Strait area, a continuing project by the division that began in 1980. It would appear that a balance may have been achieved between the reproduction of local crab populations, on the one hand, and the harvests of crab by commercial and subsistence crabbers, on the other.

-1544-
AUTHOR(S): MAGHAN, B.W.
YEAR: 1967
TITLE: The Mississippi Oyster Industry
PUB: U.S. Fish Wildl. Serv. Fish. Leafl. 607, 12 pp.
ABSTRACT:
Mississippi coastal waters have been a source of oysters since precolonial days. The eastern oyster reaches marketable size in 2 years in Mississippi. All reefs are within the limits of the Mississippi Sound, and the Mississippi Marine Conservation Commission has jurisdiction over reef rehabilitation, preservation, and expansion. This report describes how productive areas are maitained and how certain reefs are lost because of municipal and industrial waste. It explains methods and equipment used in harvesting oysters since establishment of the fishery and shows annual landings, their value, and the number of fishermen in the fishery from 1928 to 1965.

-1545-
AUTHOR(S): MAHONEY, B.M.S. AND R.J. LIVINGSTON
YEAR: 1982
TITLE: Seasonal Fluctuations of Benthic Macrofauna in the Apalachicola Estuary, Florida, USA, The Role of Predation
PUB: Mar. Biol. (BERL), 69(2):207-214.
ABSTRACT:
Long-term monitoring studies revealed a negative correlation between the abundance of bottom-feeding fishes (Leiostomus xanthurus and Micropogonias undulatus) and benthic macrofaunal density suggesting a causal relationship. Large (3.times. 3 m) topless predator-exclusion cages (mesh opening = 6 mm) of a design that produced minimal physical artifacts were constructed at 2 shallow mud-bottom oligohaline stations. Two-sided control cages and uncaged control areas were also sampled. Experiments coincided with maximum abundances of bottom-feeding fishes in the spring and motile invertebrates (penaied shrimp) in the fall. During short-term (2 mo.) exclusion experiments in the spring and fall of 1980, large predators (those excluded by 6-mm mesh)

were not a major factor in regulating the densities of most macrofaunal species. Predation may be important during other seasons, although this possibility was not tested. Densities of L. xanthurus and Penaeus setiferus during 1980 were lower than in previous years. Despite the reduced abundance of bottom-feeding fishes, macrofaunal densities still declined during late winter/early spring. Increased river flow and lowered salinities during the late winter/early spring may contribute to the decline of macrofaunal densities by reducing larval recruitment.

-1546-
AUTHOR(S): MAINE DEPARTMENT OF MARINE RESOURCES
YEAR: 1979
TITLE: Lobster Research Project 3-235-R: April 1975 through September 1978
PUB: NMFS, Grant-in-Aid Reports, Maine, 9 pp.
ABSTRACT:
This project has sampled from 15 to 20 tons of lobsters each year from 1975 through
1977. This information coupled with interview questions on effort have given us the basic data to make management recommendations to administrators, legislators, fishermen, and the interested public. The collected information has been compiled, summarized, analyzed, and disseminated through scientific publications and informational leaflets, as well as through individual and public meetings with lobstermen.

-1547-
AUTHOR(S): MAINS, E.M.
YEAR: 1964
TITLE: Distribution, Size, Time and Current Preferences of Seaward Migrant Chinook Salmon in the Columbia and Snake Rivers
PUB: Wash. Dept. Fish. Fish Res. Pap. Mar., 1964, pp. 5-46.
ABSTRACT:
If man is to guide seaward migrant salmon into safe bypass channels around major river obstructions, effective methods of deflection must be defined and determinations made as to where, when, and how the deflectors should be installed and operated. The ultimate creation of such methods requires a number of basic facts including the normal stream distribution of Chinook salmon, both vertical and horizontal, the size range of the migrants, the time of annual migration, the diurnal fluctuations in migration, and the current preferences of each species.

-1548-
AUTHOR(S): MAIS, K.F.
YEAR: 1973
TITLE: California Department of Fish and Game Fisheries Resources Sea Survey Cruises, 1972
PUB: In: California Cooperative Oceanic Fisheries Investigations, Data Report No. 22. Calif. Dep. Fish Game, 88 pp.
ABSTRACT:
This project is directed toward determining the total pelagic and bathypelagic fisheries resources available in the California Current System, their abundance, distribution, and potential yield. Cruises are conducted from the California-Oregon border to central Baja California, Mexico, with the most effort in central and southern California waters. We are presenting the data in relatively unanalyzed form so that any user will be able to interpret and summarize them as he wishes.

-1549-
AUTHOR(S): MAIS, K.F.
YEAR: 1974
TITLE: Pelagic Fish Surveys in the California Current
PUB: Calif. Fish Game, Fish Bull. 162, 79 pp.
ABSTRACT:
This report covers the years 1966-1973 of acoustic surveying, by means of the California current system for some of the schooling pelagic fish resources. These surveys were conducted by the California Department of Fish and Game. The purpose of the surveys was to determine certain biological and commercial information, including distribution, abundance availability, and population trends of northern anchovy (Engraulis mordax), jack mackerel (Trachurus symmetricus), Pacific sardine (Sardinops sagax), Pacific mackerel (Scomber japonicus), Pacific saury (Cololabis saira), Pacific hake (Merluccius productus), squid (Loligo opalescens), and pelagic red crab (Pleuroncodes planipes). Results of the surveys show that the northern anchovy stock far surpasses all the other stocks in biomass. Fishery availability of the stock is variable due to the behavior of the schooling fish. Jack mackerel abundance was limited to rocky banks and island coasts. Pacific mackerel and Pacific sardine population levels off California were apparently too low to estimate accurately. The squid and pelagic crab population levels appeared to be suitable for future exploitation.

-1550-
AUTHOR(S): MAIS, K.F.
YEAR: 1976
TITLE: California Department of Fish and Game Assessment of Commercial Fisheries Resources Cruises, 1975
PUB: In: California Cooperative Oceanic Fisheries Investigations, Data Report No. 25. Calif. Dep. Fish Game, 122 pp.
ABSTRACT:
This project is directed toward determining the total pelagic and bathypelagic fisheries resources available in the California Current System, their abundance, distribution, and potential yield. Cruises are conducted from the California-Oregon border to central Baja California, Mexico, with the most effort in central and southern California waters. We are presenting the data in relatively unanalyzed form so that any user will be able to interpret and summarize them as he wishes.

-1551-
AUTHOR(S): MAIS, K.F.
YEAR: 1977
TITLE: California Department of Fish and Game Assessment of Commercial Fisheries Resources Cruises, 1976
PUB: In: California Cooperative Oceanic Fisheries Investigations, Data Report No. 26. Calif. Dep. Fish Game, 131 pp.
ABSTRACT:
This project is directed toward determining the total pelagic and bathypelagic fisheries resources available in the California Current System, their abundance, distribution, and potential yield. Cruises are conducted from the California-Oregon border to central Baja California, Mexico, with the most effort in central and southern California waters. We are presenting the data in relatively unanalyzed form so that any user will be able to interpret and summarize them as he wishes.

-1552-
AUTHOR(S): MAIS, K.F.
YEAR: 1977
TITLE: Acoustic Surveys of Northern Anchovies in the California Current System, 1966-1972
PUB: Presented at Sumposium on Hydro-Acoustics in Fisheries Research, Bergen, Norway, Jun. 19, 1973, Rapp. P.-V. Reun. Cons. Int. Explor. Mer 170:287-295
ABSTRACT:
The California Department of Fish and Game has been routinely utilizing a vertical echo-sounder and horizontal sonar to survey the northern anchovy (Engraulis mordax) population in the California Current System. Since 1966, 38 survey cruises covering nearly 40,000 miles of acoustic transects have been completed. Acoustically detected anchovy schools were enumerated per unit of surface area insonified and estimates of the total population of schools were made for the entire survey region. These surveys have produced valuable information on relative abundance, distribution, migration, availability, and behavior. Surveys consistently found the bulk of the population residing in southern California and northern Baja California, with relatively minor quantities over the remainder of its range. A southward and offshore movement coinciding with the spawning season was also detected. Availability or vulnerability to harvest by purse-seining behaviors are unfavorable for capture by purse-seine. Occurrence of favorable behaviors was erratic and unpredictable. Estimates of anchovy school numbers based on acoustic surveys have varied greatly within regions, and cannot be used to measure changes in the absolute population. These large variations are undoubtedly due to fluctuations of school biomass which unfortunately cannot yet be accurately measured. Solution of this problem would provide reasonably accurate and timely estimates of absolute biomass.

-1553-
AUTHOR(S): MAJOR, R.L.
YEAR: 1986
TITLE: Condition of Groundfish Resources in the Gulf of Alaska Region as Assessed in 1986
PUB: U.S. Dept. of Commerce, NOAA/NMFS/NWAFC, Seattle, WA, NOAA Tech. Memo. NMFS F/NWC-119, 204 pp.
ABSTRACT:
Presented here are 14 contributions by U.S. scientists dealing with the Gulf of Alaska groundfish resources. Ten papers summarize information on the commercially important species or group of species. There are also descriptions of 1) the commercial fishery for pollock in 1985 and 1986, 2) research on the age composition and recruitment of Pacific ocean perch, and 3) the 1986 acoustic assessment of the pollock population. Finally, the 1986 U.S. research surveys are reviewed and plans for 1987 are outlined.

-1554-
AUTHOR(S): MAJOR, R.L.
YEAR: 1986
TITLE: Condition of the Groundfish Resources of the Gulf of Alaska Region as Assessed in 1985
PUB: NOAA Tech. Mem. NMFS F/NWC 106, 309 pp.
ABSTRACT:
Ten of the 15 papers summarize information on commercially important species or groups of species--walleye pollock, Pacific cod, sablefish, Atka mackerel, Pacific ocean perch, thornyhead rockfish, other rockfish, flatfish, squid, and the category known as "other species." There are also descriptions

of the commercial fisheries for walleye pollock in 1984 and 1985, the 1984 U.S.-Japan cooperative survey, and the 1985 acoustic-midwater trawl surveys on the spawning populations of walleye pollock in Shelikof Strait.

-1555-
AUTHOR(S): MAJOR, R.L.
YEAR: 1986
TITLE: Other Species
PUB: In: Condition of Groundfish Resources of the Gulf of Alaska as Assessed in 1985. NWAFS/NOAA, Seattle, WA, pp. 253-256.
ABSTRACT:
The fishes or groups of fishes in the "Other Species" category are currently of little economic value to the fisheries of the Gulf of Alaska. Although the groups making up the other species category are not the target objects of the present fisheries, they are regularly taken as by-catch. Nonetheless, with an eye to the ecological importance and potential economic importance of fishes in the other species category, it is instructive to examine the available information pertaining to their condition.

-1556-
AUTHOR(S): MAJOR, R.L. AND T.K. WILDERBUER, EDS.
YEAR: 1988
TITLE: Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1987
PUB: NWAFC/NMFS/NOAA, Seattle, WA, pp. 253-256
ABSTRACT:
Presented here are contributions by U.S. scientists dealing with the Gulf of Alaska groundfish resources. Nine papers summarize current (1987) information on commercial species or groups of species. There is also a description of the Shelikof Strait pollock population. Finally, the 1987 U.S. reserach surveys are reviewed and plans for 1988 are outlined.

-1557-
AUTHOR(S): MAJOR, R.L., AND T.K. WILDERBUER, EDS.
YEAR: 1988
TITLE: Other Species
PUB: In: Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1987. NWAFC/NOAA/NMFS, Seattle, WA
ABSTRACT:
The fishes or groups of fishes in the "other species" category are currently of little economic value to the fishes of the Gulf of Alaska. Although the groups making up the other species category are not the target objects of the present fisheries, they are regularly taken as by-catch. Nonetheless, with an eye to the ecological importance and potential economic importance of fishes in the other species category, it is instructive to examine the available information pertaining to their condition.

-1558-
AUTHOR(S): MAJOR, R.L., ED.
YEAR: 1985
TITLE: Condition of Groundfish Resources of the Gulf of Alaska Region, as assessed in 1984
PUB: NOAA/NMFS/NWAFC, Seattle, WA, NOAA Technical Memorandum NMFS F/NWC 80
ABSTRACT:
Presented here are 10 contributions by U.S. scientists dealing with Gulf of Alaska groundfish resources. Eight of the 10 contributions summarize information on the condition of commercially important species--walleye

pollock, sablefish, Pacific cod, Atka mackerel, Pacific ocean perch, thornyhead rockfish, flatfish, and squid. There are also descriptions of the commercial fisheries for walleye pollock in 1983 and 1984, and of acoustic-midwater trawl surveys on the spawning populations of walleye pollock on the Shelikof Strait region in 1980, 1981, 1983, and 1984. Finally, the 1984 U.S. research surveys are reviewed and plans for 1985 are outlined.

-1559-
AUTHOR(S): MAJOR, R.L., ED.
YEAR: 1987
TITLE: Condition of Groundfish Resources of the Gulf of Alaska Region in 1986
PUB: NMFS/NOAA, NOAA Tech. Memo NMFS F/NWC-119, 204 pp.
ABSTRACT:

Presented here are 14 contributions by U.S. scientists dealing with the Gulf of Alaska groundfish resources. Ten papers summarize information on commercially important species or groups of species. There are also descriptions of 1) the commercial fisheries for pollock in 1985 and 1986, 2) research on the age composition and recruitment of Pacific ocean perch, and 3) the 1986 acoustic assessment of the pollock population. Finally, the 1986 U.S. research surveys are reviewed and plans for 1987 are outlined.

-1560-
AUTHOR(S): MAJOR, R.L., J. ITO, S. ITO, ET AL.
YEAR: 1978
TITLE: Distribution and Origin of Chinook Salmon (Oncorhynchus tshawytscha) in Shore Waters of the North Pacific Ocean
PUB: International North Pacific Fisheries Commission Bulletin, 56 pp.
ABSTRACT:

This report, updating a 1965 report, centers on (though is not limited to) information collected from 1961-70. It also supplements and enlarges observations on the distribution and spawning grounds and on the life history of the Chinook salmon, Oncorhynchus tshawytscha. Other chapters discuss chinook stocks in Asia and North America; ocean distribution-abundance, time, and location; distribution by area of origin (tagging data and scale analysis information); and ocean age, length, and sex ratio of chinook salmon taken in offshore waters. From 1953-61 to 1962-70, the average USSR catch rose from 89,000 to 113,000 fish; the average Japanese catch rose from 72,000 to 400,000; and the average North American catch dropped from 3,051,000 to 2,852,000 fish. Data are presented providing substantial new information about the distribution of the species without reference to area of origin. Perhaps the most important contribution to knowledge of the Chinook salmon is a new Japanese-developed method of determining maturity by gonad weight, used to monitor changing mature: immature ratios in catches in different seasons and areas. Estimates of oceanic areas inhabited by regional stocks were attempted, based on tagging recoveries. Limitations of the study are that data are largely incidentally accrued because chinook are the least abundant of the salmon and were taken in commercial and research catches (J1% chinook in the catches) designed for other salmon species; that much data is from Japanese vessels which are restricted in location; and that gillnet selectivity affects the numbers of fish taken and biases the sample composition.

-1561-
AUTHOR(S): MANGUN, W.R.
YEAR: 1980
TITLE: Important Resource Problems Source Document
PUB: Fish and Wildlife Service, Washington, DC. (Final Report) 177 pp.
ABSTRACT:

The report identifies 78 of the most pressing fish and wildlife resource problems confronting the U.S. Fish and Wildlife Service. The document indicates that the Important Resource Problems are to be used by service personnel to identify areas of additional emphasis for the purposes of planning and budgeting in the service. The document provides a one-page description of the status of the respective fish or wildlife populations and their habitats; the believed source of the problem; the imminence of threat; and, an objective to be attained. There are some national problems identified such as acid rain impacts, migratory waterfowl disease control, exotic fish control, and the need for additional research.

-1562-
AUTHOR(S): MANOOCH, C.S. III
YEAR: 1979
TITLE: Biological Data on Pelagic Fishes Sampled from North Carolina Charter Boat Landings, 1978
PUB: NOAA/NMFS/SEFC 7, 48 pp.
ABSTRACT:

Pelagic fishes landed by the North Carolina charter boat fleet were sampled from May through November 1978 to gather size, age, reproductive, and dietary information. Approximately 3,900 fish representing 15 species in the families: Pomatomidae, Coryphaenidae, Sphyraenidae, Scombridae, and Istiophoridae were examined. The most frequently encountered species were dolphin, Coryphaena hippurus, bluefish, Pomatomus saltatrix, king mackerel, Scomberomorus cavalla, wahoo, Acanthocybium solanderi, yellowfin tuna, Thunnus albacares and blackfin tuna, Thunnus atlanticus. Monthly data are presented here on mean sizes, length-frequency distribution, sex ratios, stages of sexual maturity, total length-fork length, and length-weight relationships for most species except billfish. For the billfishes (sailfish, Istiophorus platypterus, blue marlin, Makaira nigricans and white marlin, Tetrapturus albidus) we provide mean weights and weight frequency distributions.

Length and seasonal distributions indicate that at least two stocks of bluefish may occur in the State's coastal waters. The collection of reproductively active female bluefish, king mackerel, dolphin, wahoo, blackfin tuna, little tunny, Euthynnus alletteratus, albacore, Thunnus alalunga, and Atlantic bonito, Sarda sarda suggest these species spawn off North Carolina.

In addition to the above species, bluefin tuna, Thunnus thynnus, skipjack tuna, Euthynnus pelamis, and barracuda, Sphyraena barracuda were sampled infrequently. Mean size and notes on female gonad condition are included for each of these species.

-1563-
AUTHOR(S): MANOOCH, C.S. III
YEAR: 1979
TITLE: Recreational and Commercial Fisheries for King Mackerel, Scomberomorus cavalla, in the South Atlantic Bight and Gulf of Mexico
PUB: In: Nakamura, E.L. and H.R. Bullis, Jr., eds. Proc. Colloquium on the Spanish and King Mackerel Resources of the Gulf of Mexico, Gulf States Mar. Fish.Comm., No. 4, pp. 33-41.

ABSTRACT:
Commercial landings of king mackerel are reported by state for 1976. Commercial and recreational catches from south Atlantic and Gulf states are compared for 1965, 1970, and 1975.

-1564-
AUTHOR(S): MANOOCH, C.S. III AND S.T. LAWS
YEAR: 1979
TITLE: Survey of the Charter Boat Troll Fishery in North Carolina, 1977
PUB: Mar. Fish. Rev. 41(4):15-27
ABSTRACT:
North Carolina's 127 charter boats made 7,935 trips trolling for pelagic fish in 1977. The number of boats fishing for pelagic species varied from 65 to 107 depending on the month. Excluding billfish, 238,413 fish weighing 1.6 million lb were caught, an average of 30 fish and 198 lb/trip. Major species landed by weight were: king mackerel (Scomberomorus cavalla), 737,680 lb; bluefish (Pomatomus saltatrix), 244,618 lb; dolphin (Coryphaena hippurus), 174,735 lb; amberjack (Seriola spp.), 108,998 lb; and wahoo (Acanthocybium solanderi), 76,324 lb. The CPUE varied with season and geographic area and reflected fish migrations. The highest catch rate occurred in Oct., 4.9 fish/trip, and the lowest in July, 16.3 fish/trip. Discussions include fish and their habitats and survey methods. Information on the charter boat fishery included the following: number of boats; vessels and equipment; trip types, fishing areas; species composition, geographical distribution, and seasonality of landings and nontrolling activities. Speculation on the future of charter boat fishing examined resource availability, production of pelagic fish communities, biological characteristics, competition among user groups and economics of troll fishing.

-1565-
AUTHOR(S): MANOOCH, C.S. III, E.L. NAKAMURA AND A.B. HALL
YEAR: 1978
TITLE: Annotated Bibliography of Four Atlantic Scombrids: Scomberomorus brasiliensis, S. cavalla, S. maculatus, and S. regalis
PUB: U.S. Dep. Commer., NOAA Tech. Rep. NMFS Circ. 418, 166 pp.
ABSTRACT:
Annotated references are presented on 570 papers published from 1793 to 1977 on Scomberomorus brasiliensis, serra Spanish mackerel; S. cavalla, king mackerel; S. maculatus, Spanish mackerel; and S. regalis, cero. A subject index is included for each species and covers a variety of topics ranging from taxonomy to commercial and recreational fishing.

-1566-
AUTHOR(S): MANOOCH, C.S., L.E. ABBAS AND J.L ROSS
YEAR: 1981
TITLE: A Biological and Economic Analysis of the North Carolina Charter Boat Fishery
PUB: Mar. Fish. Rev. 43(8):1-11
ABSTRACT:
North Carolina's 135 charter boats were surveyed during the 1978 fishing season to obtain information on catch, effort and profitability of the fishery. Species catch and CPUE data are presented by month, geographical area, type of fishing trip, and are compared with results obtained in a similar study in 1977. Economic and related descriptive data are presented by number of trips and district. This is a thorough, though dated, regional study.

-1567-
AUTHOR(S): MANSUETTI, R.J.
YEAR: 1960
TITLE: Restriction of Very Young Red Drum, Sciaenops ocellatus, to Shallow Estuarine Waters of Chesapeake Bay during Late Autumn
PUB: Chesapeake Sci. 1:207-210
ABSTRACT:

Young-of-the-year red drum, ranging from 20-90 mm total length, and one several months old, were found to be restricted to a shoal estuarine habitat in Chesapeake Bay during autumn months. Extensive trawl data from deep water during autumn and winter illustrate their absence from deep water throughout the bay. It is postulated that beginning in September planktonic sciaenops are carried from the Atlantic ocean spawning area into Chesapeake Bay by the net upstream movements of deep sub-surface water currents of high density. After metamorphosis to a free-swimming stage, the young restrict their activities to shallow waters which may be important but temporary nursery areas. They may then rapidly descend to the ocean in early winter. Evidence is presented to show that the spawning may begin in August off the mid-Atlantic, amonth earlier than was formerly believed.

-1568-
AUTHOR(S): MANTZARIS, C.
YEAR: 1974
TITLE: Marine Resources of the Offshore and Coastal Zone of Massachusetts and Rhode Island. Summary Report
PUB: New England River Basins Commission, Boston, MA, 41 pp.
ABSTRACT:

Part I of the report assesses the volume and economic value of the fishing industry in Massachusetts and Rhode Island; the impact of foreign fleets on offshore fisheries; and potential conflicts between commercial fisheries and sand and gravel mining, development of petroleum products, aquaculture, sport fisheries, offshore disposal for dredged materials and other wastes, and onshore uses of coastal resources such as the siting of power plants. The recommendations center on achieving optimum sustained yields of fisheries and how to improve the equipment and opportunities for U.S. fishermen. Part II of the report speculates on the future use of non-living marine resources -- sand, gravel, oil, and gas. A dozen alternative policies for managing these non-living resources to minimize conflicts with living resources are set forth. Eight recommendations for developing these non-living marine sources are made.

-1569-
AUTHOR(S): MARAK, R.R., J.B. COLTON, JR. AND D.B. FOSTER
YEAR: 1961
TITLE: Distribution of Fish Eggs and Larvae Temperature, Salinity, in the Georges Bank-Gulf of Maine Area, 1953
PUB: U.S. Fish Wildl. Spec. Sci. Rep. Fish., No. 398
ABSTRACT:

Basic data on the distribution of fish eggs and larvae in the Georges Bank-Gulf of Maine area were collected on surveys made by the Bureau of Commercial Fisheries research vessel Albatross III during the spring of 1953. The data are presented in tabular and graphic form. The methods and operational procedures pertinent to these surveys are given. Plots and tables of surface temperature and salinity are also included.

-1570-
AUTHOR(S): MARGRAF, F.J.
YEAR: 1980
TITLE: Analysis of Variance of Gulf Coast Shrimp Data. Vol. IX
PUB: In: Jackson, W.B. and G.M. Faw, eds. Biological/Chemical Survey of Texoma and Capline Sector Salt Dome Brine Discharge Sites off Louisiana, 293 pp.
ABSTRACT:
The analysis of shrimp fishery data using analysis of variance techniques proved to be a useful tool for extracting important factors from a large number of potentially important factors. The results of detailed examination of the important factors were interpreted to indicate major trends in the shrimp fishery, were related to major aspects of the life history of each species, or indicated the ability of the fishermen to utilize the knowledge of shrimp life history and behavior to locate commercially-exploitable quantities of shrimp. Based upon the gross level of these analyses, there was no indication that the areas containing the diffuser sites differed radically from the rest of the region.

-1571-
AUTHOR(S): MARSHALL, K.E. AND M. LAYTON
YEAR: 1984
TITLE: An Index to the Publications of the Staff of the Western Region, Department of Fisheries and Oceans, 1980-81
PUB: Can. Tech. Rep. Fish. Aquat. Sci. 1273:iv-82.
ABSTRACT:
The scientific and technical publications of the staff of the Western Region, including both reports and reprints of papers published in periodicals and books, are listed. Access to publications is provided by an author index as well as a combined titles and subject index.

-1572-
AUTHOR(S): MARSHALL, K.E. AND M. LAYTON
YEAR: 1985
TITLE: A Bibliography of the Arctic Charr, Salvelinus alpinus (L.) Complex: 1981 through 1984
PUB: Can. Tech. Rep. Fish. Aquat. Sci. 1345:iv-16.
ABSTRACT:
Lists references published between 1981 and 1984. In addition to Arctic charr of North America and Europe, the bibliography covers the other closely related taxa inhabiting the waters of Russia and Japan, including the Dolly Varden, and white-spotted char. The bibliography proper is in alphabetical order by author. Taxonomic, geographic and subject indices are provided.

-1573-
AUTHOR(S): MARSHALL, N.
YEAR: 1950
TITLE: The Shrimp Fishery in North Carolina Considered in Terms of Productivity Potentialities
PUB: Virginia Fisheries Laboratory, Gloucester Point, Virginia. Special Report Number 1, 3 pp.
ABSTRACT:
The problems of the North Carolina shrimp fishery cannot be analyzed without considering the dynamics of the production system involved. From what little is known about the food habits of shrimp, they are considered as primary and secondary consumers or at least being low on the food chain, whereas commercially valuable finfish generally feed high on the chain, all of

which suggests overwhelming potentialities in shrimp as compared to the finfish production. It is suggested that we should not lose sight of such potentialities in planning where and how to expend our efforts for greater resources use.

-1574-
AUTHOR(S): MARSHALL, S.L. AND R.L. BURGNER
YEAR: 1977
TITLE: Chignik Sockeye Studies. Final Report (for Period July 1, 1974, through June 30, 1977) - Anadromous Fish Project
PUB: Fishery Research Institute, College of Fisheries, University of Washington, Seattle, WA, Project Nos. AFC-44, AFC-57, 156 pp.
ABSTRACT:
During the period July 1, 1974, through June 30, 1977, research efforts have focused in three primary areas: 1) stock apportionment by age class of returning adults; 2) a study of the freshwater scale patterns of Chignik sockeye; and 3) compilation of a summary report on the factors thought to be currently limiting production. This report presents the findings of these studies. Additionally, studies have been conducted on: 1) methods for estimating the abundance of juvenile sockeye and lake resident species in Black Lake; 2) diel and seasonal patterns of the midsummer premolt emigration of sockeye from Black Lake; and 3) phenotypic variation among three spine stickleback of the watershed. The results of these studies have been reported in Marshall and Burgner (1977) and will not be included in this report.

-1575-
AUTHOR(S): MARTIN, C.M. AND W.E. CROSS
YEAR: 1986
TITLE: A Description of Arctic Nearshore Meiobenthos from Oiled and Unoiled Sediments at Cape Hatt, Northern Baffin Island
PUB: Can. Tech. Rep. Fish. Aquat. Sci. 1468:iv-24.
ABSTRACT:
Analyses of variance revealed several types of systematic meiofaunal groups: variability among depths, bays, and years. Possible effects of oil released during the Baffin Island Oil Spill project in 1981 were indicated in a posteriori comparisons between reference bays and one bay where sediment oil concentrations were elevated.

-1576-
AUTHOR(S): MARTIN, C.S., S.E. ARENAS, J.A GUFFEY AND J.M. PACKARD
YEAR: 1987
TITLE: Fisheries Publication Index, 1980-85 Technical Memorandum Index, 1972-85
PUB: NMFS/NOAA, NOAA Technical Report NMFS 62, 149 pp.
ABSTRACT:
The following series of fishery publications produced in calendar years 1980-85 by the Scientific Publications Office of the National Marine Fisheries Service, National Oceanic and Atmospheric Administration, are listed numerically and indexed by author and subject: Circular, Fishery Bulletin, Marine Fisheries Review, Special Scientific Report-Fisheries, and Technical Report NMFS. Also included is an alphanumeric listing of the NOAA Technical Memorandum NMFS series published in calendar years 1972-85 by NMFS Regional offices and fisheries center.

-1577-
AUTHOR(S): MARTIN, R.E., ED.
YEAR: 1983
TITLE: Underutilized Bottomfish Species of the Northeast Pacific--Current Problems and Use Concepts
PUB: In: Third National Technical Seminar on Mechanical Recovery and Utilization of Fish Flesh. Raleigh, NC, Dec. 1-3, 1980, pp. 208-215.
ABSTRACT:
The Northeast Pacific, including the coastal waters off California, Oregon, Washington, the Gulf of Alaska, and the Bering Sea, are of valuable potential fishery resource for the U.S. Although the list of potentially useful species includes a variety of species, the authors' remarks are based principally on Pacific whiting and Alaska pollock.

-1578-
AUTHOR(S): MASON, J.E.
YEAR: 1965
TITLE: Salmon of the North Pacific Ocean - Part IX. Coho, Chinook And Masu Salmon in Offshore Waters. 2. Chinook Salmon in Offshore Waters
PUB: In: International North Pacific Fisheries Commission Bull. No. 16, pp. 41-73.
ABSTRACT:
The International North Pacific Fisheries Commission has requested the preparation of a joint comprehensive report on the salmon of the North Pacific Ocean and the Bering Sea. Part IX of this comprehensive report deals with coho, chinook and masu salmon in offshore waters. The material to follow comprises the chinook salmon section of Part IX. The objective will be to assess the status of our knowledge concerning the qualitative and quantitative aspects of chinook salmon in offshore waters. Such assessment requires (1) a knowledge of the life history of the young in fresh water and in coastal areas and the distribution of chinook in inshore areas; (2) knowledge of the stocks in North America and in Asia and the distribution and abundance of chinook in offshore waters; and (3) appraisal of these various data to draw conclusions regarding the qualitative and quantitative aspects of the distribution of chinook salmon in offshore waters.

-1579-
AUTHOR(S): MASSMAN, W.H., E.B. JOSEPH AND J.J. NORCROSS
YEAR: 1962
TITLE: Fishes and Fish Larvae Collected from Atlantic Plankton Cruises of R/V Pathfinder
PUB: Virginia Institute of Marine Science. Gloucester Point, VA. SSR Number 33, 3 pp.
ABSTRACT:
As part of a continuing program to locate spawning areas and to obtain information on hydrographic factors which influence spawning seasons and larval distribution, the second series of monthly cruises were made from March 1961 to March 1962. This report lists the young fishes and fish larvae obtained by plankton collecting gear during these cruises.

-1580-
AUTHOR(S): MATHER, F.J. III
YEAR: 1954
TITLE: Northerly Occurrences of Warm Water Fishes in the Western Atlantic
PUB: Copeia 1954:292-293

ABSTRACT:
NORTHERLY OCCURRENCES OF WARM-WATER FISHES IN THE WESTERN ATLANTIC.-In the summer and fall of 1953, the author was able to record several northerly occurrences of warm-water fishes of the families scombridae, carangidae and coryphaenidae. These include some individuals taken from research vessels of the Woods Hole Oceanographic Institution in offshore waters, and others caught in Mr. Norman Benson's trap at Quissett, Massachusetts, in Buzzards Bay.

-1581-
AUTHOR(S): MATHER, F.J. III AND C.G. DAY
YEAR: 1954
TITLE: Observations of Pelagic Fishes of the Tropical Atlantic
PUB: Copeia 1954:179-188
ABSTRACT:
The presence of research vessels of the Woods Hole Oceanographic Institution in the tropical Atlantic during much of the year 1952 afforded the opportunity for an incidental study of the pelagic fishes of the region. A hydrographic survey sponsored by the Office of Naval Research was carried out there in the winter and early spring by the ATLANTIS (cruise 178) and the ALBATROSS III (cruise A42). The authors, one aboard each vessel, devoted much of their spare time to collecting data on the pelagic fishes encountered. Carl Speight of the ATLANTIS crew took a very keen and helpful interest in this work, and when this vessel returned to the area in August for cruises 180 (a geological study by the Lamont Observatory of Columbia University) and 181 (a hydrographic survey), he volunteered to continue the collection of pelagic fishes as an extra activity.

-1582-
AUTHOR(S): MATHEWS, S.B. AND R.C. JOHNSON
YEAR: 1970
TITLE: Puget Sound Chum Salmon Catches and Escapement Based on 1968 Tagging
PUB: In: R.C. Johnson, et al., eds. Pink and Chum Salmon Investigation. 1968, Puget Sound Stream Studies: Prog. Rep. State of Washington, Department ofFisheries, Management and Research Div. pp. 54-68.
ABSTRACT:
A Puget Sound chum salmon tagging study in Admiralty Inlet (Fiscus, 1969) made possible the identification of stocks bound for certain areas within Puget Sound. Stream recovery of tagged fish was necessary to complete the determination of origin, and to calculate the catch and escapement portions of the run. Estimates are made of the catches and escapements for the runs for chum salmon to three broad regions of Puget Sound: 1) North Puget Sound, 2) South and Central Puget Sound, and 3) Hood Canal. The major purpose of the analysis was to indicate the relative exploitation rates for these three areas, and particularly to see if this rate differs for North Sound stocks, which have been declining relative to the other stocks.

-1583-
AUTHOR(S): MATHEWS, S.B., AND R. BUCKLEY
YEAR: 1976
TITLE: Marine Mortality of Puget Sound Coho Salmon (Oncorhynchus kisutch)
PUB: J. Fish Res. Bd. Can. 33(8):1677-1684
ABSTRACT:
A weight-dependent model of mortality was constructed for the 18 month period of marine life of Puget Sound coho salmon. The model incorporates a decreasing rate of natural mortality within increasing size, and also takes into account the ocean troll and sport fishing mortality. This model could explain a recent occurrence of high survival by a group of hatchery coho which

were released at a larger than normal size. Based on this model the authors suggest an optimal release size for coho salmon of 70 g/fish.

-1584-
AUTHOR(S): MATHISEN, O.A., P.H. POE AND P.B. ROGER
YEAR: 1971
TITLE: Carrying Capacity of the Sockeye Salmon Nursery Areas in the Kvichak District, Bristol Bay, Alaska: Completion Report for Period June 1970 to June 1971
PUB: National Oceanic Atmospheric Administration, NMFS, Alaska Department of Fish and Game, Juneau, Alaska, 22 pp.
ABSTRACT:
Generally, the progeny of smolts will average about one percent of the potential number of eggs in an escapement, but the total freshwater survival will vary from year to year, in part from changes in the environment and in part from competition between adjacent year classes of juvenile salmon. Clarification of these relationships is the primary objective of the studies of Kvichak juvenile sockeye salmon. Studies of abundance, distribution, and growth of juvenile sockeye salmon in Iliamna Lake were instigated in 1961 and have been carried out in essentially the same manner since. The studies in 1970 have assumed a particular importance because of the large escapement, 8.4 million spawners provided for in 1969. Successes or failures can be measured by the final returns; but this eliminates any possibility of isolating the effect on survival by abiotic factors such as changes in the environment on biotic factors from inter- and intra-specific competition. The present series of field observations are aimed so as to achieve this.

-1585-
AUTHOR(S): MATLOCK, G.C.
YEAR: 1981
TITLE: The Fall Red Drum Gulf of Mexico Pier Fishery off Galveston Bay, Texas
PUB: Texas Parks and Wildlife Dept. and U.S. Dept. of Commerce, NOAA, NMFS, PL 88-309, Project No. 2-310-R-4. 11 p.
ABSTRACT:
During fall (September-November) 1980 the harvest of "bull" (>5 kg) red drum from Gulf piers was examined. In August 1980 hurricane "Allen" hit the Texas coast and destroyed most of the piers along the Texas coastline. Prior to the start of the survey, pier owners and operators were contacted and informed of the survey. Although all owners and operators agreed to cooperate and to contact the Texas Parks and Wildlife Department (TPWD) when the red drum "run" began, they did not do so. Almost 600 red drum were reported caught on two piers during July-November, but during September and October only seven red drum were seen during on-site interviews. The operators of the other two piers failed to provide any data. The reliance upon pier operators to inform TPWD when the red drum run begins is not a suitable procedure for determining the harvest of "bull" red drum.

-1586-
AUTHOR(S): MATLOCK, G.C.
YEAR: 1984
TITLE: A Summary of 7 Years of Stocking Texas Bays with Red Drum
PUB: Texas Parks and Wildlife Department, Management Data Series No. 60. Austin, Texas, 14 pp.
ABSTRACT:
During October 1975-1982 Texas bays were stocked with over 56 million red drum eggs, fry, and fingerlings to enhance existing populations. Most of the

bays except the Lower Laguna Madre were stocked in summer and fall 1975, 1979, and 1980. No fish were stocked into the lower Laguna Madre. About 49,000 fingerlings were tagged, most with magnetic nose tags.

-1587-
AUTHOR(S): MATLOCK, G.C.
YEAR: 1986
TITLE: A Summary of 10 Years of Stocking Fishes into Texas Bays
PUB: Texas Parks and Wildlife Department, Coastal Fisheries Branch, Management Data Series, No. 104, Austin, Texas, 19 pp.
ABSTRACT:
Texas bays were stocked with over 94 million fish eggs, fry, and fingerlings from October 1975 through December 1985. Red drum was the major species released. However, striped bass, spotted seatrout, black drum, and snook were also stocked. All stockings were intended to revitalize historic or enhance existing fisheries. At least one species was stocked in each of the nine major bay systems.

-1588-
AUTHOR(S): MATLOCK, G.C. AND J.E. WEAVER
YEAR: 1979
TITLE: Assessment and Monitoring of Texas Coastal Finfish Resources
PUB: Texas Parks and Wildlife Department, Austin, Texas, 254 pp.
ABSTRACT:
The abundance and size of red drum (Sciaenops ocellatus), black drum (Pogonias cromis), spotted seatrout (Cynoscion nebulosus), sheepshead (Archosargus probatocephalus), and southern flounder (Paralichthys lethostigma), during October 1977 through May 1978 was determined in each of seven Texas bay systems (Galveston, Matagorda, San Antonio, Aransas and Corpus Christi Bays and upper and lower Laguna Madre systems) using gill nets, trammel nets, bag seines and push nets. Mean catch and mean size data obtained with these gear types are used for developing long-term trend information concerning population stability. In addition, bag seines and push nets are evaluated as possible devices for capturing small-sized fish and pertinent data are summarized to provide a historical baseline with which to compare future estimates of population abundance.

-1589-
AUTHOR(S): MATLOCK, G.C., B.T. HYSMITH AND R.L. COLURA
YEAR: 1984
TITLE: Returns of Tagged Red Drum Stocked into Matagorda Bay, Texas
PUB: Texas Parks and Wildlife Department, Management Data Series No. 63. Austin, Texas, 5 pp.
ABSTRACT:
The feasibility of stocking red drum into Texas bays to enhance native populations was examined by stocking 5942 tagged fish into Matagorda Bay in April 1976. Ten fish were reported recaptured during the following year, all of which were near the riverine end of the bay system. These recaptures suggest that stocking is a useful technique for enhancing red drum populations.

-1590-
AUTHOR(S): MATLOCK, G.C., J.E. WEAVER AND A.W. GREEN
YEAR: 1977
TITLE: Trends in Spotted Seatrout and Red Drum Abundance in Texas Coastal Waters Influenced by Commercial Netting Activities
PUB: Texas Parks and Wildlife Department,Coastal Fisheries Branch, No. 31, pp. 477-483.
ABSTRACT:
Spotted seatrout (Cynoscion nebulosus) and red drum (Sciaenops ocellatus) populations in Texas bays were randomly sampled with 183 m long gill nets from November 1975 through March 1976 and November 1976 through March 1977. Catch rates in areas closed to commercial netting for spotted seatrout were about twice as high as those from areas open to netting. There was no difference between the mean total length of spotted seatrout from closed areas and trout from open areas. Closed areas produced about twice as many red drum as open areas. No generalization could be made about the size of red drum and whether they were caught in open or closed areas. Apparently, the effect of commercial netting on these species is local. When spotted seatrout and red drum are removed from netted areas, populations in adjacent non-netted areas are not appreciably affected. Both species are apparently capable of sustaining their populations when subjected to limited commercial netting unless adverse environmental conditions exist.

-1591-
AUTHOR(S): MATTHEWS, G.A.
YEAR: 1982
TITLE: Relative Abundance and Size Distributions of Commercially Important Shrimp During the 1981 Texas Closure
PUB: Mar. Fish. Rev. Vol. 44, No. 9-10, pp. 5-15
ABSTRACT:
Relative abundances of commercial shrimp, Penaeus spp., lengths of brown shrimp, Penaeus aztecus, are determined for Texas shelf waters during the 1981 Texas closure, 22 May-15 July. A total of 274 samples were collected in water where bottom depths ranged from 4 to 45 fathoms in four statistical subareas covering the Texas Gulf coast.

-1592-
AUTHOR(S): MATTHEWS, G.A.
YEAR: 1982
TITLE: Abundance and Size Distributions of Penaeus spp. Shrimps in the Northern and Northwestern Gulf of Mexico during the 1982 Closure Period
PUB: NOAA/NMFS/SEFC, Galveston, TX. NOAA Tech. Memo. NMFS-SEFC-109
ABSTRACT:
Analyses of shrimp populations in shallow coastal waters of the Gulf of Mexico from Alabama to Texas during the Texas closure (May 26-July 14, 1982) were made based on a collection of 299 trawl samples. Shrimp were more abundant off Texas than in other areas, and were more abundant between 10 and 20 fathoms than at other depths. Catch per unit effort data from our samples indicated shrimp were 25% more abundant during the 1981 Texas closure than during the 1982 closure. Populations of brown shrimp were examined through length-frequency analyses. Mean lengths in each 5-fm depth zone showed the typical increases with increasing water depths.

-1593-
AUTHOR(S): MATTHEWS, G.A.
YEAR: 1984
TITLE: Relative Abundance and Size Distributions of Penaeus Shrimps Based on Samples Collected during the 1983 Seamap-Texas Closure Survey in the North andNorthwestern Gulf of Mexico
PUB: NOAA/NMFS/SEFC, Galveston, TX. SEFC-149
ABSTRACT:
During May, June and half of July 1983, 283 sites were sampled for the SEAMAP-Texas Closure survey. Relative abundance of penaeus spp. was measured by catch per unit effort.

-1594-
AUTHOR(S): MATTHEWS, G.A., D.B. KOI AND R.L. BENEFIELD
YEAR: 1984
TITLE: A User's Guide to the Inshore Shrimp and Hydrographic Data Collected by the Texas Parks and Wildlife Department from 1963 through 1980
PUB: NOAA/NMFS/SEFC, Galveston, TX. SEFC-140, 78 pp.
ABSTRACT:
This guide was created 1) to increase researchers' awareness of a valuable data set, 2) to facilitate choice of data from the files by cataloging and evaluating the variables included, and 3) to facilitate actual use of the data files by giving specifications for the variables and for the structure of the data files.

-1595-
AUTHOR(S): MATTHEWS, K.R.
YEAR: 1986
TITLE: Movement of Two Nearshore, Territorial Rockfishes Previously Reported as Non-Movers and Implications to Management
PUB: Calif. Fish Game 72(2):103-109
ABSTRACT:
Movement up to 1.2 km was noted for two nearshore, territorial rockfishes, Sebastes carnatus and Sebastes chrysomelas, previously reported as non-movers. These adult rockfishes moved from low relief natural reefs to an artificial reef. Six Sebastes carnatus and four Sebastes chrysomelas were recaptured on the artificial reef after having been tagged on the natural reefs demonstrating movement of at least 0.8 km. The fishes ranged in size from 24-29 cm (TL) and were at liberty 28-372 days before recapture. This is the longest substantiated movement reported for these two species. More movement of rockfishes may occur away from low relief rocky reefs as these reefs may have less shelter holes available to support territorial rockfishes compared to high relief reefs. In addition, these two species of rockfishes were caught by hook-and-line fishing in significantly higher proportions than were observed on underwater transects suggesting that some aspect of their territorial or aggressive behavior makes them more prone to sportfishing. Movement to higher relief artificial reefs, high vulnerability of these relatively nonabundant fishes to sportfishing, combined with the fact that artificial reefs generally receive substantial fishing pressure could subject these species to overfishing. These factors need to be considered for effective management of territorial rockfishes.

-1596-
AUTHOR(S): MATTHEWS, S.B.
YEAR: 1984
TITLE: Variability of Marine Survival of Pacific Salmonids; A Review
PUB: Pearcy, W., ed. Reprinted from Workshop on Influence of Ocean Conditions on Production of Salmonids in the North Pacific, 1984, pp. 161-182
ABSTRACT:
Only species with extended fresh-water rearing phases were considered. The best correlation found so far between marine survival and marine environmental factor (strength of ocean-up-welling) is for coho salmon originating from the Oregon coast and Columbia River.

-1597-
AUTHOR(S): MATTHEWS, S.B. AND F.W. OLSON
YEAR: 1980
TITLE: Factors Affecting Puget Sound Washington USA Coho Salmon, Oncorhynchus-kisutch, Runs
PUB: Can. J. Fish Aquat. Sci. 37(9):1373-1378.
ABSTRACT:
Summer streamflow, apparently affecting survival of zero-age coho salmon (Oncorhynchus kisutch), is shown to be an important determinant of Puget Sound run strength since 1952. Recently, hatchery production has also been a significant factor. Earlier studies indicated a relationship between rearing flows and coho run strength beginning in 1935. The persistence of the correlation between streamflow and run strength for more than 40 years is noteworthy. Although the mechanism is unclear, survival of hatchery coho may also be positively dispendent upon the same environmental conditions that affect stream-reared coho; a dispensatory mortality relationship between abundance of hatchery coho and abundance of stream-reared coho is postulated.

-1598-
AUTHOR(S): MATTHIESSEN, G.C.
YEAR: 1984
TITLE: The Seasonal Occurrence and Distribution of Larval Lobsters in Cape Cod Bay
PUB: In: Davis, J.D. and D. Meriman, eds. Observations on the Ecology and Biology of Western Cape Cod Bay, Massachusetts, pp. 103-117
ABSTRACT:
The seasonal occurrence, abundance, and distribution of the larvae of the American lobster (Homarus americanus) in Cape Cod Bay were studied over a four-year period (1974-1977) by the Massachusetts Division of Marine Fisheries and Marine Research, Inc.

-1599-
AUTHOR(S): MATTHIESSEN, G.C. AND M.D. SCHERER
YEAR: 1983
TITLE: Observations on the Seasonal Occurrence, Abundance, and Distribution of Larval Lobsters in Cape Cod Bay
PUB: In: Fogarty, M.J., ed. Distribution and Relative Abundance of American Lobster, Homarus americanus, Larvae: New England Investigations, during 1974-79, NOAA, NMFS, NOAA Technical Report NMFS SSRF-775, pp. 41-46
ABSTRACT:
The seasonal occurrence, abundance and distributions of the larvae of the American lobster in Cape Cod Bay were studied over a 3-year period (1974-76). Although larvae were observed during the months of May-September, the great majority were found to occur during June, July, and August. In the neuston

net collections, mean larval densities for these 3 months averaged 3.1, 3.2, and 1.6 larvae/1,000 m3, respectively. However, densities as high as 62.3 larvae/1,000 m3 were observed in Tucker net collections near the east end of Cape Cod Canal.

-1600-
AUTHOR(S): MATTSON, C.R. AND B.L. WING
YEAR: 1978
TITLE: Ichthyoplankton Composition and Plankton Volumes from Inland Coastal Waters of Southeastern Alaska, April-November 1972
PUB: NMFS, Tech. Rep. NMFS SSRF, 11 pp.
ABSTRACT:

Some 18 families of fish were represented in 119 plankton samples taken on monthly cruises from Apr. to Nov. 1972. Fifteen kinds of larval fish were identified. Abundance of larval fish, fish eggs, and total plankton biomass peaked in May and declined through the summer. Walleye pollock (family gadidae) were the most abundant larvae in May and June and were more concentrated in large channels than in small bays. Osmeridae and bathylagidae were the 2nd and 3rd most abundantly represented families; peak abundance for both was in June and July. Other families with distinct peaks in abundance were agonidae and ammodytidae in May; cottidae, cyclopteridae, stichaeidae, and pleuronectidae in June; and scorpaenidae in July. Small numbers of bathymasteridae were present from May through July. myctophidae, zoarcidae, and hexagrammidae did not show distinct changes in seasonal abundance. Clupeidae, gasterosteidae, pholidae, and ptilichthyidae were too rare in the catches to exhibit seasonal abundance. Calanoid copepods and phytoplankton made up most of the plankton retained by 0.333-mm mesh nets.

-1601-
AUTHOR(S): MAUNEY, J.L.
YEAR: 1971
TITLE: Offshore Salmon Abundance Index: Completion Report for Period February 1967 to June 1970
PUB: NOAA/NMFS, No. AFC-4. Washington, DC., 64 pp.
ABSTRACT:

During June and July of the years 1967 through 1970, salmon longline gear was used to fish areas of concentrated salmon movement immediately off the coast of Southeastern Alaska. Catch information from offshore sampling was to provide an index of comparative salmon abundance which would be of use in supplying short-term forecasts to strength and inshore destinations of in-migrating salmon stocks. Pink salmon abundance as indexed offshore would further provide a check on the long-range forecast derived from the pre-emergent fry index. Comparisons of fluctuations in salmon abundance between years, as measured at the offshore stations, with salmon abundance in the inshore fishery, have shown little correlation for species other than pink salmon. For pink salmon correlations have been demonstrated in the magnitude of runs through time as indicated by offshore sampling at stations 1 and 2A off Cross Sound and the inshore purse seine fishery in Southeastern Alaska Statistical Area 114. Tag returns for pink salmon tagged at stations 1 and 2A have given an indication of approach patterns, approach times, and inshore destinations for stocks indexed at these stations. A pattern for coho tagged at stations 1 and 2A and recovered in Alaska Statistical Area 114 (53% of total returns) is evidenced by returns from the troll fishery.

-1602-
AUTHOR(S): MAURER, D. AND R.L. WIGLEY
YEAR: 1984
TITLE: Biomass and Density of Macrobenthic Invertebrates on the U.S. Continental Shelf off Martha's Vineyard, MA, in Relation to Environmental Factors
PUB: NOAA Tech. Rep. NMFS SSRF-783
ABSTRACT:
The mean density and mean biomass of macrobenthic invertebrates on the U.S. continental shelf off Martha's Vineyard, Mass., were 3,008/sq m and 245.7 g/sq m, respectively. The ocean quahog, Arctica islandica, was the dominant species in terms of biomass. Total density was dominated by crustaceans, polychaetous annelids, molluscs, and echinoderms.

-1603-
AUTHOR(S): MAURER, D., L. WATLING, P. KINNER, W. LEATHAM AND C. WETHE
YEAR: 1978
TITLE: Benthic Invertebrate Assemblages of Delaware Bay
PUB: Mar. Biol. 45:65-78
ABSTRACT:
During two consecutive summers, the first quantitative bay-wide survey (207 stations) of benthic invertebrates was conducted in Delaware Bay, USA. In 1972, 109 species were collected at 105 stations; and in 1973, 125 species were collected at 102 stations. A total of 169 different species were collected for both summers. The number of species and number of individuals increased with increasing salinity and increasing median rain size. These relationships were compared and were found similar to those in estuaries and bays throughout the world. Average density was 722 individuals/m to the power 2, which is low compared to other estuaries. The relationship of low secondary production to pollution, macroscopic algae, sediment transport, predation, and hydrography is discussed. Deposit feeders comprised the major feeding type. Local species composition was similar to that in Chesapeake Bay, and dominant species occurred in estuaries throughout the Mid-Atlantic Bight. The benthic invertebrates of Delaware Bay were related to the cosmopolitan mode of estuarine faunas. Faunal assemblages were identified by cluster analysis. The assemblages were associated with sediment type and salinity. It was concluded that Delaware Bay comprises a mosaic of animal assemblages, some of which have relatively sharp boundaries similar to classical level bottom type communities, whereas the boundaries of others are almost impossible to detect, and these represent species distributed along an environmental continuum.

-1604-
AUTHOR(S): MAURER, D., P. KINNER, W. LEATHEM, AND L. WATLING
YEAR: 1976
TITLE: Benthic Faunal Assemblages off the Delmarva Peninsula.
PUB: Estuarine and Coastal Marine Science 4:163-177
ABSTRACT:
Based on 90 quantitative samples collected May and November 1973 the species composition, distribution and abundance of benthic invertebrates on the inner continental shelf of the Delmarva Peninsula (38 Degrees 23'N and 47 Degrees 15'W) were determined. A total of 149 species were identified. Thirty-five were found only in May and 65 only in November. In May the fauna consisted primarily of nearly equal numbers of polychaete and crustacean species with an increase in the number of polychaete species and a decrease in crustacean species in November. In May the polychaetes Goniadella gracilis

and Lumbrineris acuta were co-dominants (Biological Index Value) while in November the archiannelid polygordius sp. was strongly dominant.

-1605-
AUTHOR(S): MAURER, D., W. LEATHAM AND C. MENZIE
YEAR: 1982
TITLE: Macrobenthic Invertebrates from the Middle Atlantic Continental Shelf
PUB: Int. Revue. Ges. Hydrobiol. 67:491-515
ABSTRACT:
The study area supported a diverse and abundant bottom fauna. Community structure of the macrobenthos was characterized by a relatively high number of species, high diversity (H' and J'), and high density. Its position on the shelf and the dominant species showed that it belonged to the outer shelf break fauna of the middle-Atlantic Bight.

-1606-
AUTHOR(S): MAY, E.B.
YEAR: 1971
TITLE: A Survey of the Oyster and Oyster Shell Resources of Alabama.
PUB: Ala. Mar. Resour. Bull. 4, 51 pp.
ABSTRACT:
The public oyster reefs and buried shell deposits in Alabama were mapped and inventoried. Second order survey was used to establish triangulation stations used for mapping. There are 3,064 acres of natural oyster reefs in Alabama. The average oyster harvest from 1948 through 1968 was 1,220,000 pounds valued at $415,000. An average of 655 hand-tong fishermen earned $638 per year from 1948 through 1968. The fishery is valued at $1,660,000 annually which is about 4 times the dockside value. Average annual production is 398 pounds of meats per acre with a present value to the fishermen of $200 per acre. If the economics of the fishery is considered, each acre contributes $542 yearly to the area economy. Pollution closure of oyster reefs results in an average loss to the fishermen of $1,671 per day. About 2,000 acres of private oyster bottoms produce 12% of Alabama's landings and are valued at $147 per acre per year.

-1607-
AUTHOR(S): MAYER, D.L.
YEAR: 1973
TITLE: The Ecology and Thermal Sensitivity of the Dungeness Crab, Cancer magister and Related Species of its Benthic Community in Similk Bay, Washington
PUB: Ph.D. Diss., University of Washington. 185 pp. plus appendices
ABSTRACT:
Surveys of Dungeness crab, Cancer magister, stocks in the Kiket Island vicinity of Washington, were made utilizing taggings, recreational and commercial fishing censuses and scuba transects. The abundance, distribution and diversity of benthic epifauna and infauna were assessed with otter trawls and core samples. The catch per unit effort data showed peak success rates in the summer months. The mark recapture study suggested that high annual mortality was offset by immigration of adults into the area. The growth rates recorded in the study were lower than for crabs outside the study area. The population of the study site was estimated at 14,500 (+/- 5,500). The gut contents of crabs and five local fish species were analyzed. The thermal tolerances of the species were quantified by lethal dose experiments ranging from 25-30 degree C, 10-30 degree C and 5-20 degree C. Increase in egg mortality (of crabs) was significant above 10 degree C and bacterial growth

was also enhanced. Thermal avoidance of crabs was also observed. The results of this study suggested thermal discharges would have little effect on the crab populations and slight increase might enhance juvenile survival.

-1608-
AUTHOR(S): MAYO, J.
YEAR: 1982
TITLE: Catch Composition, Seasonality, and Distribution of Ichthyoplankton from R/V Onslow Bay Monthly Cruises in Onslow Bay and New Port River Estuary, NorthCarolina, 1972-74
PUB: NOAA Tech. Memo. NMFS-SEFC-46
ABSTRACT:

Plankton samples were collected monthly in North Carolina coastal waters from October 1972 to April 1974. Of the three areas sampled, the offshore ocean area, with greatest water depth, was the most productive in both larval abundance and diversity.

-1609-
AUTHOR(S): MBC APPLIED ENVIRONMENTAL SCIENCES
YEAR: 1984
TITLE: Ecology of Important Fisheries Species Offshore California
PUB: Rep. 86-0093 Prepared for Minerals Management Service, U.S. Dept. Interior, Washington, D.C. MMS Contract No. 14-12-0001-30294
ABSTRACT:

This report summarizes the biology and fisheries of 32 fish and invertebrate species of commercial and recreational importance in the marine waters of California. Each species characterization is accompanied by maps of the southern, central and northern California coast which depict the distribution of the species, its spawning grounds and migratory pathways. The species which were examined are as follows: red abalone (Haliotis refuscens), ridgeback prawn (Sicyonia ingentis), spot prawn (Pandalus platyceros), yellow crab (Cancer anthonyi), red sea urchin (Strongylocentrotus franciscanus), northern anchovy (Engraulis mordax), chinook salmon (Oncorhynchus tshawytscha), widow rockfish (Sebastes miniatus), jack mackerel (Trachurus symmetricus), Pacific bonito (Sarda chiliensis), albacore (Thunnus alalunga), California halibut (Paralichthys californicus), Dover sole (Microstomus pacificus), market squid (Loligo opalescens), ocean shrimp (Pandalus jordani), California spiny lobster (Panulirus interruptus) Dungeness crab (Cancer magister), thresher shark (Alopias vulpinus), coho salmon (Oncorhynchus kisutch), Pacific hake (Lopsetta jordani), English sole. Each species characterization includes information on the geographic range, habitat requirements, reproduction, migration, age and growth, general ecology, physiological ecology, population trends, fishing regulations and economic value of the species. The document is accompanied by an annotated bibliography of over 950 entries, including all citations referenced in the document as well as other related material which was too general or too specific for inclusion in the species characterizations. The annotated bibliography was prepared in hard copy and in magnetic media for use with SCI-MATE and SCI-SEARCH software.

-1610-
AUTHOR(S): MCALISTER, W.B.
YEAR: 1970
TITLE: Winter Distribution of Salmon in Relation to Currents and Water Masses in the Northeastern Pacific Ocean and Migrations of Sockeye Salmon
PUB: American Fisheries Society, Transactions 99(4):649-663
ABSTRACT:

Studies of the distribution of Pacific salmon (genus oncorhynchus) indicated that various species and age groups have an affinity for certain environmental features as exemplified by water characteristics. In the winter of 1967 in the northeastern Pacific Ocean, immature age .1 and .2 sockeye salmon, chum salmon, and coho salmon were caught primarily in the Oyashio Extension and Subarctic Current Areas; maturing age .2 and .3 sockeye salmon were primarily in the Alaskan Stream and in the Alaskan Gyre (Ridge and Oyashio Extension Areas). The hypothesis is offered that maturing Bristol Bay sockeye salmon remain in the Alaskan Stream and Gyre in winter. The data suggested that some of the immature Bristol Bay sockeye salmon that will mature the following year recirculate in the Alaskan Gyre in the summer and do not make an extensive east-west migration, although other immature Bristol Bay sockeye salmon are known to migrate far to the west during the summer.

-1611-
AUTHOR(S): MCBEE, J.T. AND W.T. BREHM
YEAR: 1979
TITLE: Macrobenthos of Simmons Bayou and an Adjoining Residential Canal
PUB: Gulf Research Reports 6(3):211-216
ABSTRACT:

Species composition, abundance and seasonal variations of benthic macroinvertebrates in Simmons Bayou, Mississippi, and an adjoining dead-end canal were investigated from July 1976 through June 1977. Cluster analysis of the data summed over five stations indicated four major time periods: July, August-November, December-February, and March-June. Polychaetes and oligochaetes were most abundant in the winter and spring, amphipods in the summer, and chironomids in the spring. Temporal changes in abundance of polychaetes, oligochaetes, and chironomids appeared to reflect seasonal reproductive cycles. The peak in amphipod density corresponded with dense growths of Ruppia maritima. Within the dead-end canal, poor water quality and reduced infaunal densities appeared to be limited to the deeper water behind the sill.

-1612-
AUTHOR(S): MCCABE, G.T., W.D. MUIR, R.L. EMMETT, AND K.T. DURKIN
YEAR: 1983
TITLE: Interrelationships between Juvenile Salmonids and Nonsalmonid Fish in the Columbia River Estuary
PUB: Fishery Bulletin 81(4):815-825
ABSTRACT:

Interrelationships between juvenile salmonids--coho salmon, Oncorhynchus kisutch; chinook salmon, O. tshawytscha; and steelhead, Salmo gairdneri--and nonsalmonid fish were studied in the Columbia River estuary during 1980. Nonsalmonid species were numerically dominant in pelagic and intertidal areas of the lower estuary. In pelagic and intertidal areas of the upper estuary juvenile salmonids, particularly subyearling chinook salmon, were proportionally important.

-1613-
AUTHOR(S): MCCAIN, B.B., W.D. GRONLUND, M.S. MYERS, AND S.R. WELLINGS
YEAR: 1979
TITLE: Tumors and Microbial Diseases of Marine Fishes in Alaskan Waters
PUB: J. Fish Diseases 2(2):111-130
ABSTRACT:

To define the current health status of demersal fish in the Bering Sea, 36,618 fish captured by otter trawl during 1976 were examined for pathological conditions. Of the 26 species examined, 22 had no detectable abnormalities. The four species with abnormalities were Pacific cod, Gadus macrocephalus, with pseudobronchial tumors and skin lesions, walleye polloc Theragra chalcogramma with pseudobronchial tumors, yellowfin sole, Limanda aspera, with lymphocystis, and rock sole, Lepidopsetta bilineata, with epidermal papillomas. The prevalence, geographical distribution, and biological and pathological tumors of Pacific cod and walleye pollock were occasionally invasive. Fish bearing these tumors were distributed throughout the sampling area. The distribution of epidermal papillomas on rock sole was probably depth related. The highest frequencies of fish with lymphocystis were in the southeastern Bering Sea. The two main types of skin lesions seen on Pacific cod were: ulcers and ring-shaped skin lesions, when examined microscopically, contained unidentified epidermal basophilic bodies.

-1614-
AUTHOR(S): MCCART, P. AND P. CRAIG
YEAR: 1971
TITLE: Meristic Differences Between Anadromous and Freshwater Resident Arctic Char, Salvelinus alpinus, in the Saqavanirktok River Drainage, Alaska
PUB: J. Fish. Res. Bd. Can. 28:115-118
ABSTRACT:

Freshwater-resident populations correspond meristically to McPhail's Eastern Arctic form, and anadromous populations correspond to this Western Arctic-Bering Sea form. It is suggested that the former was the original inhabitant of the area but has been replaced by the latter except in inaccessible headwater lakes.

-1615-
AUTHOR(S): MCCART, P.J. AND P.C. CRAIG
YEAR: 1973
TITLE: Life History of Two Isolated Populations of Arctic Char (Salvelinus alpinus) in Spring-Fed Tributaries of the Canning River, Alaska
PUB: J. Fish Res. Bd. Can. 30:1215-1220
ABSTRACT:

Two isolated populations of Arctic char (Salvelinus alpinus) in spring-fed tributaries of the Canning River, Alaska, had meristic characters that corresponded to those of the Western Arctic-Bering Sea form of Arctic char. The two populations demonstrated slight differences in growth rates, age at maturity, longevity, and food habits. The fish were characterized by small size (maximum 235 mm), low growth rates, low fecundities (maximum 199 eggs), and annual spawning after maturity. Mature fish were darkly pigmented and parr marks were retained throughout life. The spawning season appeared to be sometime in November, when the eggs of mature females averaged 3.8 mm in diameter.

-1616-
AUTHOR(S): MCCONAUGHA, J.R., A.J. PROVENZANO, D.F. JOHNSON, J. CLAR, AND P. SADLER
YEAR: 1981
TITLE: Offshore Displacement and Reinvasion of Callinectes Sapidus Larvae in Chesapeake Bay
PUB: Estuaries 4(3):277
ABSTRACT:
Analysis of the plankton samples indicated that during the diurnal cycle 60-99% of stage I larvae are in the neuston layer. Peak larval abundance (40-75% of total larvae/cruise) occurred after the nighttime high slack tide. These data suggest that C. sapidus has a synchronized hatching behavior which is timed to coincide with a nighttime ebb tide. The seasonal horizontal and vertical waters (20 mi) was examined during 1980. Quantitative stratified plankton samples were collected biweekly at five stations in the bay mouth and at eight offshore stations.

-1617-
AUTHOR(S): MCCONAUGHA, J.R., D.F. JOHNSON AND A.J. PROVENZANO
YEAR: 1983
TITLE: A Descriptive Model for the Conservation of Blue Crab Larvae in the Vicinity of Chesapeake Bay
PUB: J. Shellfish Res. 3(1):97
ABSTRACT:
An extensive series of plankton samples taken from the waters around Chesapeake Bay indicate that all larval stages of the blue crab, C. sapidus, Rathbun are concentrated in the upper layers of the water column with maximum numbers in the upper 1 m. This distribution insures that stage I larvae hatched near the bay mouth are entrained in the outwardly flowing surface water. Recent evidence suggests that during the summer months, when peak spawning occurs, there is a wind generated counter-current on the inner shelf. Larvae entrained in this counter-current are returned to the vicinity of Chesapeake Bay and contribute to recruitment.

-1618-
AUTHOR(S): MCCONAUGHA, J.R., D.F. JOHNSON, A.J. PROVENZANO AND R.C. MARIS
YEAR: 1983
TITLE: Seasonal Distribution of Larvae of Callinectes sapidus (Crustacea: Decapoda) in the Waters Adjacent to Chesapeake Bay
PUB: J. Crust. Biol. 3(4):582-591
ABSTRACT:
Reproductive success in species that have retained a planktonic stage is dependent on the release of larvae during periods when abiotic and biotic factors are optimal. Analysis of stratified plankton samples collected from May through September 1980 indicated reproductive activity for Callinectes sapidus throughout the summer with a peak in late July. Presence of stage I larvae was positively correlated with temperature. Seasonal distribution of megalopae was bimodal with a broad peak occurring in late August through September. This suggests a two phase recruitment. Timing of reproduction and recruitment coincide with seasonal changes in current patterns that would enhance larval retention in the offshore waters near the mouth of Chesapeake Bay.

-1619-
AUTHOR(S): MCCOY, E.G.
YEAR: 1968
TITLE: Migration, Growth and Mortality of North Carolina Pink and Brown Penaeid Shrimps
PUB: N.C. Department of Conservation and Development, Division of Commercial Sports Fisheries, Sports Fisheries, Morehead, NC, Spec. Sci. Rep. 15, 26 pp.
ABSTRACT:

The basic aim of the Shrimp Studies Project is to obtain information that will enable the North Carolina Department of Conservation and Development's Division of Commercial and Sports Fisheries to apply management techniques that will result in the highest possible sustained yield of the shrimp resource. Pink (Penaeus duorarum) and brown (P. aztecus) shrimp were marked with biological stains and fluorescent pigments and released in areas tributary to Pamlico Sound. A total of 4,467 pink and 6,947 brown shrimp were released from June to September, 1967. Of these, 135 (3.0%) pink and 1,061 (15.3%) brown shrimp were returned. The average interval between release and recapture was 14 days for pink and 12 days for brown shrimp. The average distance traveled during this interval was 6 and 3 miles for pink and brown shrimp respectively. The data suggest that a significant proportion of the Pamlico Sound pink shrimp reaching the Atlantic Ocean do so by migrating through Core Sound to Beaufort Inlet and to Barden Inlet at Cape Lookout. Only one marked brown shrimp was recaptured in the ocean, and the most probable route or routes of movement from the study areas to the ocean were not clearly indicated. The modes of brown shrimp size distribution curves were at 115 mm during the eight-week mark-release phase of the study indicating an apparent "level of equilibrium" condition maintained by movement of larger individuals from the area, immigration of small ones into the area from upstream reaches, and growth within the area. The derived total length-total weight conversions conform to the cube law indicating that pink and brown shrimp reach a count of 70-per-pound (headless) in 12 weeks or 50-per-pound in 14 to 15 weeks, and attain an average maximum size of 15-per pound. Total mortality estimates for two separate experiments with brown shrimp indicate that 71% and 63% per week were removed by the combined effects of fishing and natural causes.

-1620-
AUTHOR(S): MCCOY, E.G.
YEAR: 1972
TITLE: Dynamics of North Carolina Commercial Shrimp Populations
PUB: N.C. Department of Natural Economic Resources, Division of Commercial Sports Fisheries, Morehead, NC, Spec. Sci. Rep. 21, 52 pp.
ABSTRACT:

The objective of the Shrimp Studies Project is to obtain population dynamics data that will result in the development of potential yield estimates, ultimately leading to application of management techniques that will result in the highest possible sustained yield of the resource. Pink (Penaeus duorarum) and brown (P. aztecus) shrimp were marked with biological stains and fluorescent pigments and released in the Core and Bogue Sounds and New River areas. A total of 7,031 pink and 2,200 brown shrimp were released from May to July 1968. Of these, 3,111 (44.3%) pink and 800 (36.4%) brown shrimp were returned. Movement generally was toward the nearest inlets with both species migrating in a southerly direction along the coast after reaching the ocean. The modes of length-frequency distribution curves were at 105 and 115 mm total length for pink shrimp in Core and Bogue Sounds, and appeared to

occur at 125 mm total length for brown shrimp in New River. This model "level of equilibrium" condition apparently results from movement of larger individuals outside the mark-release areas, growth within the area, and immigration of small shrimp from upstream reaches in the mark-release areas. Growth data indicate that shrimp populations represented by this study attain smaller average maximum sizes but at a faster rate than reported for the studies. Mean total mortality data indicate losses of 45.6% and 43.5% per week for pink and brown shrimp respectively. Yield curves indicate that the maximum potential yield, in both weight and value, is attained somewhat before minimum commercial size is attained.

-1621-
AUTHOR(S): MCCOY, E.G. AND J.T. BROWN
YEAR: 1967
TITLE: Migration and Growth of Commercial Penaeid Shrimps in North Carolina
PUB: North Carolina DNRCD, DMF. Morehead City, North Carolina. SSR-Number 11. 29 pp.
ABSTRACT:
Pink, brown, and white shrimp, marked with biological stains and fluorescent pigments, were released in nursery areas tributary to the Core Sound and lower Cape Fear River estuaries in North Carolina, to obtain information concerning population dynamics including movement and migration patterns, and growth and mortality rates.

-1622-
AUTHOR(S): MCDONALD, J., H.M. FEDER AND M. HOBERG
YEAR: 1981
TITLE: Bivalve Mollusks of the Southeastern Bering Sea
PUB: In: Hood, D.W. and J.H. Calder, eds. The Eastern Bering Sea Shelf: Oceanography and Resources. Vol. 2. NOAA/BLM, Office of Marine Pollution Assessment, Washington, DC, pp. 1155-1240

ABSTRACT:
Chapter summarizes distribution of bivalve mollusks on the southeastern Bering Sea shelf and their relationship to sediment particle size and sorting. Results of age and growth studies are presented as well as tabular and graphic summaries of clam abundance (by species) and biomass.

-1623-
AUTHOR(S): MCDONALD, M.E.
YEAR: 1978
TITLE: The Standing Crop, Distribution, and Production of the Macrobenthic Epifauna on an Artificial Reef off the Coast of North Carolina
PUB: NCSU, Raleigh, North Carolina. Unpublished; Masters Thesis. 1978. 55 pp.
ABSTRACT:
The effectiveness of a liberty ship artificial reef in attracting and holding prey organisms was determined one year after underwater placement. Eighty-four species were identified. Based on analysis of quadrat samples, the mean biomass of epifauna was 1853.00 g dry weight/m squared and mean density was 9770.00 organisms/m squared. The total biomass for the ship was approximately 10,000 kg and the total density was approximately 5.7 x 10 (exp 7) organisms. Total macrofaunal biomass (g dry wt/m squared) on the liberty ship (was 9X that found in an adjacent estuary and 1000X that found in the reef area before construction. The family balanidae had the highest mean density of 3285.0 organisms/m squared. Significant locational differences in

biomass and density were found for most of the taxonomic groups of benthic organisms.

A very large net first-year epibenthic macroinvertebrate production of 72 g decalcified dry wt/m squared was found. The mean fish catch for the same time period was 1941 kg/ha. The liberty ship was found to greatly increase the standing crop of fish and the standing crop and production of macrobenthic epifauna in a previously barren area.

-1624-
AUTHOR(S): MCEACHRAN, J.D., L.S. HALL AND J.H. FINUCANCE
YEAR: 1980
TITLE: Distribution, Seasonality and Abundance of King and Spanish Mackerel Larvae in the Northwestern Gulf of Mexico (Pisces: Scombridae)
PUB: Dep. Wildl. Fish. Sci., Texas A & M Univ., Northeast Gulf Sci. Vol. 4, No. 1, pp. 1-16
ABSTRACT:

Larvae of king mackerel, Scomberomorus cavalla, and Spanish mackerel, S. maculatus, were collected from 1975 through 1977 off the Texas coast. Both species were captured from May through October. S. cavalla was relatively more the abundant of the two species and occurred most abundantly over the middle and other continental shelf (35-183 m). At least 35% of the larvae were captured in September of each year. S. maculatus larvae occurred most abundantly over the inner continental shelf (12 to 50 m). S. cavalla spawned from May through September to early October, with the greatest spawning intensity occurring over the middle and outer continental shelf during September. S. maculatus spawned from May through September to early October over the inner continental shelf, but spawning was less intensive and more irregular than for S. cavalla. Comparisons with other larval studies of S. cavalla and S. maculatus showed that the eastern United States are important spawning areas for S. cavalla and that the eastern and northeastern Gulf of Mexico are important spawning areas for S. maculatus.

-1625-
AUTHOR(S): MCEACHRON, L.W.
YEAR: 1983
TITLE: Harvest Estimates for Texas Marine Charter Boats (September 1980-August 1981)
PUB: Texas Parks and Wildlife Department, Management Data Series No. 48. Austin, Texas, 62 pp.
ABSTRACT:

Gulf "snapper" headboats were surveyed from September 1980-August 1981 and bay headboats and bay and Gulf party boats were surveyed during summer only. Species composition of catch varied greatly between areas of fishing and boat type.

-1626-
AUTHOR(S): MCEACHRON, L.W.
YEAR: 1986
TITLE: Occurrence of Select Juvenile Fishes During Post Spawning Periods in Texas Bay-Gulf Passes
PUB: Texas Parks and Wildlife Department, Management Data Series No. 96. Austin, Texas. 23 pp.
ABSTRACT:

Utilization of bay-gulf passes during post spawning periods by juvenile red drum, southern flounder, and to a lesser extent black drum is well documented. Bag seine catches in this study of juvenile red drum, spotted

seatrout, black drum and southern flounder inside bay-gulf passes and on the bayside of the passes correspond to reported post spawning periods. It is recommended that these bay-gulf passes be included in the routine Texas Parks and Wildlife Department bag seine monitoring program.

-1627-
AUTHOR(S): MCEACHRON, L.W. AND A.W. GREEN
YEAR: 1981
TITLE: Weekend Sport-Boat Fishermen Finfish Catch Statistics for Texas Bay Systems, May 1974-May 1981
PUB: Texas Parks and Wildlife Department Coastal Fisheries Branch, Management Data Series, No. 35, Austin, Texas, 123 pp.
ABSTRACT:
Creel surveys conducted in Texas bays since fall 1974 have shown a decline in annual landings by weekend sport boat fishermen. The estimated annual landings during 1974-76 for seven bay systems were 2.6 million fishes. During 1980-81 annual landings for these same seven bay systems were 1.0 million fishes. This decline in landings was accompanied by a decline in the mean annual catch rates and possibly in fishing pressure.

-1628-
AUTHOR(S): MCEACHRON, L.W. AND A.W. GREEN
YEAR: 1983
TITLE: Weekend Sport-Boat Fishermen Finfish Catch Statistics for Texas Bay Systems, May 1974-May 1982
PUB: Texas Parks and Wildlife Department, Management Data Series No. 50. Austin, Texas, 113 pp.
ABSTRACT:
Creel surveys conducted in Texas bays since fall 1974 have shown a decline in annual landings by weekend sport boat fishermen. The estimated annual landings during 1974-76 for seven bay systems were 2.6 million fishes. During 1981-82 annual landings for these same seven bay systems were 1.0 million fishes. This decline in landings was accompanied by a decline in the mean annual catch rates and possibly in fishing pressure.

-1629-
AUTHOR(S): MCEACHRON, L.W. AND A.W. GREEN
YEAR: 1984
TITLE: Weekend Sport-Boat Fishermen Finfish Catch Statistics for Texas Bay Systems, May 1974-May 1983
PUB: Texas Parks and Wildlife Department, Management Data Series No. 59. Austin, Texas, 138 pp.
ABSTRACT:
Creel surveys conducted in Texas bays since fall 1974 have shown a decline in annual landings by weekend sport boat fishermen. The estimated annual landings during 1974-76 for seven bay systems were 2.6 million fishes. During 1982-83 annual landings for these same seven bay systems were 1.1 million fishes. This decline in landings was accompanied by a decline in the mean annual catch rates and possibly in fishing pressure.

-1630-
AUTHOR(S): MCEACHRON, L.W. AND A.W. GREEN
YEAR: 1985
TITLE: Trends in Relative Abundance and Size of Selected Finfish in Texas Bays: November 1975-June 1984
PUB: Texas Parks and Wildlife Department, Coastal Fisheries Branch, Management Data Series, No. 79, Austin, Texas, 187 pp.
ABSTRACT:
Trends in relative abundance and size of red drum, spotted seatrout, black drum, sheepshead, southern flounder, Atlantic croaker, and sand seatrout were monitored using a standardized fishery independent gill net and bag seine sampling program in eight Texas bay systems.

-1631-
AUTHOR(S): MCEACHRON, L.W., AND G.C. MATLOCK
YEAR: 1983
TITLE: An Estimate of Harvest by the Texas Charter Boat Fishery
PUB: Mar. Fish. Rev. 45(1):11-17
ABSTRACT:
The charter boat fishery from the Florida west coast to Texas received over $20 million in fees alone in 1970 (Bureau of Sport Fisheries and Wildlife, 1972). In 1975, Texas fishermen spent $1.3 million on charter fees (Woods and Ditton, 1979). Although economically important, the Texas charter boat fishery was essentially ignored by fisheries scientists until late 1974. Heffernan et al. (1976) estimated that 29,937 fish were landed from the Arkansas Bay system by 1,460 fishermen in fiscal year 1975 (September 1974-August 1975). Almost 99% of this harvest was spotted seatrout, Cynoscion nebulosus. Mean size of spotted seatrout (250 mm TL) and mean seasonal catch rates (less than or equal to 5.50 fish/man-hour) were also estimated.

-1632-
AUTHOR(S): MCEACHRON, L.W., P. CAMPBELL AND K. MEADOR
YEAR: 1984
TITLE: Harvest by Texas Headboat Fishermen During September 1982-May 1983
PUB: Texas Parks and Wildlife Department, Management Data Series No. 58. Austin, Texas, 25 pp.
ABSTRACT:
Twelve Gulf and nine bays headboats in three Texas coastal areas were surveyed from September 1, 1982 to May 14, 1983. The Gulf headboat harvest was 415,000 fish; the majority were red snapper. Bay headboat fishermen harvested 61,000 fish of which 78% were sand seatrout.

-1633-
AUTHOR(S): MCELDERRY, H.I. AND P.C. CRAIG
YEAR: 1981
TITLE: Beaufort Sea Barrier Island-Lagoon Ecological Process Studies: Final Report, Simpson Lagoon
PUB: NOAA/OMPA, Environmental Assessment of the Alaskan Continental Shelf. Final Reports of Principal Investigators. Vol. 7, pp. 657-678
ABSTRACT:
A survey was conducted for arctic and least cisco (Coregonus autumnalis and C. sardinella) spawning grounds in the lower Colville River and nearby drainages during all 1978 and 1979. A total of 28 locations were sampled and several spawning habitats were identified for least cisco, including deep coastal lakes, the Colville, Delta and river upstream as far as Ocean Point. However, only eight arctic cisco were collected and one was in a spawning

condition. Possible locations of arctic cisco spawning grounds are deduced from a review of available survey data for the Colville drainage.

-1634-
AUTHOR(S): MCFARLANE, G.A. AND R.J. BEAMISH
YEAR: 1985
TITLE: Biology and Fishery of the Pacific Whiting, Merluccius productus, in the Strait of Georgia
PUB: Mar. Fish. Rev. 47(2):23-34
ABSTRACT:
Discovery of large midwater concentrations of Pacific whiting, Merluccius productus, in British Columbia's Strait of Georgia was made in 1974 (Westrheim, 1974), and studies of biology, distribution, and abundance commenced in 1974 (Beamish et al., 1976a-e, 1978a, b, 1982; McFarlane et al., 1983; Thompson and McFarlane, 1982). Pacific whiting in the Strait of Georgia are now recognized as the most abundant resident fish.

-1635-
AUTHOR(S): MCGOWAN, J.A.
YEAR: 1954
TITLE: Observations on the Sexual Behavior and Spawning of the Squid, Loligo opalescens, at La Jolla, California
PUB: Calif. Fish Game 40:47-54
ABSTRACT:
The spawning and behavior of mature squid were observed in the laboratory and in the field. Prior to spawning the school moved offshore to shallow sandy bottom habitats. Males assumed an aggressive precopulation behavior. Sperm were transferred during the linking between males and females. Females attached egg capsules either to the sandy substrate or to an existing egg mass. Some masses were up to 40 feet in diameter. Eggs hatched within 30-35 days at 13.6 degree C. Both males and females died after spawning.

-1636-
AUTHOR(S): MCGOWAN, M.
YEAR: 1987
TITLE: Ichthyoplankton Distribution and Abundance over a 24-hour Period at the West Flower Garden Reef, Northwest Gulf of Mexico
PUB: In: Proc. Assoc. Isl. Mar. Lab. Caribb., Vol. 17, 1983, p. 7
ABSTRACT:
Ichthyoplankton samples from discrete depth tows above and below the thermocline and from neuston tows at stations directly over the reef crest and both inshore and offshore from the reef were collected 6 times over 24 h. Ichthyoplankton abudance varied with time, depth, and location. Myctophidae, gonostomatidae, bregmacerotidae, bothidae, and synotidae were most abundant. Of the reef fish known to occur at the Flower Garden Bank, only the groupers, serranidae, were abundant in the ichthyoplankton.

-1637-
AUTHOR(S): MCHUGH, J.L. AND D. CONOVER
YEAR: 1986
TITLE: History and Condition of Food Finfishes in the Middle Atlantic Region USA Compared with Other Sections of the Coast
PUB: Fisheries (Bethesda) 11(5):8-13
ABSTRACT:
The five principal food finfishes that made up more than 50% of the total catch of food finfishes in the Middle Atlantic region, from New York to

Virginia, about 25 years ago were: Atlantic croaker (Micropogonias undulatus), weakfish (Cynoscion regalis), scup (Stenotomus chrysops), summer flounder, (Paralichthys dentatus), and black sea bass (Centropristis striata). Of these, only black sea bass had not clearly declined in abundance up to that time. Subsequently, the Middle Atlantic region has shown the greatest proportional decline in landings and their total value of any coastal region of the U.S., except for the Great Lakes. From 1929 to 1983, 16 different species ranked among the top five by weight. Whereas abundance of many species changes from natural causes, the major species also suffered from overfishing. In their place, new species of lesser value such as silver hake (Merluccius bilinearis) have been harvested more effectively. Even with these additional species the total catch of food finfishes has declined about 50% for the region since the peak in 1945. Pound nets and otter trawls have been the principal gears taking food finfishes in the Middle Atlantic region from 1908 to the present. Yet the percentage of the catch by each gear has changed drastically. Pound nets accounted for more than 50% of the catch from 1908 to 1939, but for only 7% in 1983. Otter trawls were infrequently used until the early 1930s; by the 1980s they were taking about 70% of all food finfishes. The present condition in the Middle Atlantic region suggests that further action is required by the Middle Atlantic Fishery Management Council and individual states to reverse the decline in the fisheries.

-1638-
AUTHOR(S): MCINNIS, R.R. AND W.W. BROENKOW
YEAR: 1978
TITLE: Correlations between Squid Catches and Oceanographic Conditions in Monterey Bay, CA
PUB: In: C.W. Recksiek and H.W. Frey, eds. Biological, Oceanographic, and Acoustic Aspects of the Market Squid, Loligo Opalescens, pp. 161-170.
ABSTRACT:
Delivery receipts for the market squid, Loligo opalescens, fishery from 1960 to 1974 were compared with the annual hydrographic conditions of Monterey Bay. When temperature profiles were superimposed on catch data, a lag period of 18 months was observed. These results were consistent with spawning age records for the squid. It was unclear if the lower temperatures were directly affecting the juvenile squid growth rates. Further research would be required to determine if the temperature anomalies were indirectly affecting growth (i.e., through prey species availability, etc.).

-1639-
AUTHOR(S): MCKENZIE, M.D.
YEAR: 1981
TITLE: Profile of the Penaeid Shrimp Fishery in the South Atlantic
PUB: NOAA/NMFS, South Atlantic Fishery Management Council. Charleston, SC.
ABSTRACT:
Catches are reported for inshore areas (North and South Carolina) and offshore areas - Carolinas, Georgia, Florida.

-1640-
AUTHOR(S): MCKENZIE, R.H. AND S.N. TIBBO
YEAR: 1961
TITLE: Herring Movements in the Bay of Fundy and the Gulf of Maine, 1957-1958
PUB: J. Fish. Res. Bd. Can. 18(2):221-252

ABSTRACT:

During 1957 and 1958, 137,469 herring were tagged in the southern part of the Bay of Fundy and the western part of the Gulf of Maine. These fish were immature and ranged in mean total length from 9.9 to 20.0 cm and in age from 1 to 3 years. Recovery of 3,582 (2.6%) tagged individuals showed that herring moved in and out of Passamaquoddy Bay irregularly throughout the summer and autumn with some tendency to concentrate at the head of this bay. Outward movement reached a peak in July when there was a considerable movement eastward towards Point Lepreau. Herring moved into Passamaquoddy from as far south as Grand Manan and from as far east as Point Lepreau. Little interchange of herring took place between the Passamaquoddy area and the coasts of Maine and Nova Scotia. The greatest straight-line distance from release to recovery points was 55 miles. More than half of the recaptures were made within 2 miles of the tagging sites and nearly two-thirds within 5 miles. About 28% of the recaptures were made within 1 week after taging and 63% within 2 weeks. The average time before recapture was 12 days in 1957 and 17 days in 1958. The longest time between release and recapture for both years was 165 days. Drift bottles released with tagged herring showed no apparent relationship between herring movements and surface drift. The results of tagging support a general conclusion that the proposed Passamaquoddy tidal power structures will have no significant effect on the herring fisheries of the Passamaquoddy area.

-1641-
AUTHOR(S): MCLAUGHLIN, P.A.
YEAR: 1963
TITLE: Survey of the Benthic Invertebrate Fauna of the Eastern Bering Sea
PUB: U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. No. 401
ABSTRACT:

The report presents a checklist of species of pelecypods, gastropods (exclusive of nudibranchs), barnacles, decapod crustaceans, tunicates, and the majority of echinoderms found on the Continental Shelf of the eastern Bering Sea during king crab studies of 1958 and 1959. In addition specific identifications are given for some of the bryozoans and hydroids, and a few of the annelids. Other organisms comprising otter trawl and dredge catches of the stations in the area are listed according to class or order.

-1642-
AUTHOR(S): MCLEAN, E.
YEAR: 1984
TITLE: Canadian Crabs: Supply and Demand
PUB: In: Seventh Annu. Int. Seafood Conf., London, Vol. 7, pp. 156-158.
ABSTRACT:

Following a brief account of the landing figures for Canadian crabs (Chionoecetes opilio and Cancer magister), details are given of products produced and their markets.

-1643-
AUTHOR(S): MCMILLAN, C.W., J.V. MIGLARESE AND M.H. SHEALY, JR.
YEAR: 1982
TITLE: Seasonal Abundance of Atlantic Croaker (Micropogonias undulatus) in Relation to Bottom Salinity and Temperature in South Carolina Estuaries
PUB: Estuaries 5(3):216

ABSTRACT:

During 1973 and 1974 seasonal abundance and mean total length of Atlantic croaker, Micropogonias undulatus, were investigated by otter trawl at 33 stations in South Carolina estuaries in relation to bottom salinity and temperature. Relative abundance of Atlantic croaker was measured by catch per unit effort at 3 Degrees C temperature intervals and 3 0/00 salinity intervals. Croaker occurred over a bottom temperature range of 9.0-31.4 Degrees C while occurring most abundantly in waters above 24.0 Degrees C. No significant correlation between size and temperature was found. Croaker were collected in salinities from 0.4 to 34.4 0/00. High correlations of size and salinity were evident in 1973 during winter (r = 0.79), summer (r = 0.82), and fall (r = 0.94). In 1974, correlations were significant only during fall (r = 0.76).

-1644-
AUTHOR(S): MCMULLEN, J.C.
YEAR: 1967
TITLE: King Crab, Paralithodes Camtschatica Tilesius, Offshore Breeding Study on Marmot Flats, Kodiak Island, Spring of 1967
PUB: ADF&G Inf. Leafl. No. 112, 29 pp.
ABSTRACT:

Specific objective of the present year's study was to determine if king crabs were molting and breeding on an ocean bank off Kodiak Island. An estimate of king crab numbers was also desired. Other objectives were to determine: sex, size and exoskeletal age composition of all king crabs captured during the study.

-1645-
AUTHOR(S): MCMULLEN, J.C.
YEAR: 1968
TITLE: Investigation of King Crab Ocean Reproduction and Brood Stock Composition, Kodiak Island
PUB: State of Alaska, Dep. Fish Game, Inf. Leafl. No. 126, 16 pp.
ABSTRACT:

The primary objective of this study was to determine if king crabs were molting and breeding on Albatross Bank east of Kodiak Island. Trawls fished from a chartered vessel were used to sample pre-selected areas. Breeding locations, if present, were to be defined so they might be closed to the commercial fishery if the need arises. Knowledge of offshore breeding areas is also advantageous when entering into international fisheries agreements with nations utilizing the fishes of the Kodiak Continental Shelf. The secondary objective was the examination of king crabs on inshore breeding grounds along the east side of Kodiak Island for the presence of unmated, new-shell females. Poor condition of king crab stocks may be indicated by the presence of these individuals and/or the absence of adequate numbers of brood males with the females. Inshore trawling was performed as time permitted or poor weather postponed offshore fishing.

-1646-
AUTHOR(S): MCMULLEN, J.C., H.T. YOSHIHARA AND M. GEIGER
YEAR: 1972
TITLE: The King Crab Fisheries of the Alaska Peninsula and Aleutian Islands, 1970-1971
PUB: State of Alaska, Dep. Fish Game, Inf. Leafl. No. 157, 21 pp.

ABSTRACT:
The king crab fisheries of the Alaska Peninsula and Aleutian Islands are located within Registration Areas "LM", "O" and "R." Research on king crabs has been conducted in these areas since July 1969. Those search objectives, carried on in cooperation with the area management biologists, dealt with the operation of the commercial fisheries and the annual condition of the exploited king crab stocks. Fishery statistics and data pertaining to crab stock condition were gathered during the course of the fishing seasons by biologists stationed at landing sites. The data were later compiled by research and management biologists in an annual report, of which this document is second in a series. The report of the 1969-1970 king crab seasons in Areas "LM", "O" and "R" was authored by McMullen and Yoshihara (1970). This year, as planned, the report is a joint research-management effort.

-1647-
AUTHOR(S): MCMURRAY, G., A.H. VOGEL, P.A. FISHMAN, D. ARMSTRONG AND S.C. JEWETT
YEAR: 1984
TITLE: Distribution of Larval and Juvenile Red King Crabs (Paralithodes camtschatica) in Bristol Bay
PUB: USDOC/NOAA/OCSEAP, Environmental Assessment of the Alaskan Continental Shelf, Final Reports of Principal Investigators, 145 pp.
ABSTRACT:
The goal of this study was to better define the relationship between larval distribution and juvenile recruitment of red king crab (Paralithodes camtschatica) in the Bristol Bay region. Cruises during April-May, June and September 1983 collected larvae with bongo net tows, and juveniles and adults with trynet trawls and rock dredge hauls. Ancillary physical and biological measurements were made and tested or correlated with the observed larval and juvenile distributions.

-1648-
AUTHOR(S): MCNEIL, W.J.
YEAR: 1968
TITLE: Migration and Distribution of Pink Salmon Spawners in Sashin Creek, Alaska, in 1965 and Survival of Their Progeny Oncorhynchus gorbuscha
PUB: U.S. Fish Wildlife Serv. Fish Bull. 66(3):575-586
ABSTRACT:
The escapement of 14,813 pink salmon (Oncorhynchus gorbuscha) to Sashin Creek, southeastern Alaska, in 1965, followed by the emergence of 2.2 million fry, or 18% of the potential egg deposition, represented a relatively high survival of eggs and alevins in a stream, where the long-term average is 7%. This high survival was predicted from an established relation between survival of eggs and alevins and the time the parents entered Sashin Creek to spawn.

-1649-
AUTHOR(S): MCNULTY, J.K., W.N. LINDALL, JR. AND J.E. SYKES
YEAR: 1972
TITLE: Cooperative Gulf of Mexico Estuarine Inventory and Study, Florida: Phase 1, Area Description
PUB: U.S. Dept. Commer., NOAA Tech Rep. NMFS Circ.-368. 126 pp.
ABSTRACT:
Newly-developed tables and maps depict the dimensions, submerged vegetation, tidal marshes, mangrove swamps, commercial oyster beds, leased oyster-rearing areas, sources of pollution, drained tidal marshes, and filled areas of Florida's west coast estuaries. Published and unpublished

information on temperature, salinity, geology, artificial fishing reefs, stream discharge, human population, commercial fishing, and economic development is presented in new form. Increasing population correlates directly with the number of sources of pollution, filled area, and the area closed to shellfishing by public health authorities; thus, failure to control the adverse effects of population growth will clearly result in continued rapid degradation of estuarine habitat on Florida's west coast. A bibliography is included.

-1650-
AUTHOR(S): MCPHAIL, J.D.
YEAR:
TITLE: A Systematic Study of the Salvelinus alpinus Complex in North America
PUB: J. Fish. Res. Bd. Can. 18:793-816
ABSTRACT:

Sympatric populations of Salvelinus malma and Salvelinus alpinus from Karluk and Fraser Lakes, Kodiak Island, Alaska, were compared using the discriminant function analysis. The analysis indicated that hybridization between S. malma and S. alpinus rarely, if ever, occurs in these lakes. Speculations are made on the origin and evolution of S. malma and S. alpinus.

-1651-
AUTHOR(S): MCPHAIL, J.D.
YEAR: 1966
TITLE: The Coregonus autumnalis Complex in Alaska and Northwestern Canada
PUB: J. Fish. Res. Bd. Can. 23:141-148
ABSTRACT:

The systematic status of ciscoes of the Coregonus autumnalis complex in Alaska and northwestern Canada is discussed. Two forms of autumnalis ciscoes occur in this area: a form with 26-30 gill rakers on the lower limb of the first gill arch is found in the Beaufort and Chuckchi Seas, and a form with 21-25 gill rakers on the lower limb of the first gill arch is found in the Gulf of Alaska, the eastern Bering, and the Chuckchi Seas. Both forms occur along the arctic coast of Alaska, apparently without intergrading, and therefore are considered valid species. The form with the high gill raker number is Coregonus autumnalis Pallas, (sensu stricto), and that with the low gill raker number is Coregonus laurettae Bean.

-1652-
AUTHOR(S): MCPHAIL, J.D. AND C.C. LINDSEY
YEAR: 1970
TITLE: Freshwater Fishes of Northwestern Canada and Alaska
PUB: Fish. Res. Bd. Can. Bull. 173, 381 pp.
ABSTRACT:

The act of publishing a new book sometimes discourages further research, if it creates an impression of completeness or tidiness in the field covered. We hope and expect that the opposite effect will be achieved by this Bulletin. In it we deal with the freshwater fishes in over 2 million square miles of one of the most sparsely populated regions of the globe. The reader will soon be struck by the vastness of the field attempted, and by the scarcity of knowledge. We have tried to bridge some of the gaps by conjecture or by extrapolation from what is known elsewhere. But principally we hope to draw attention to a host of questions waiting to be answered.

-1653-
AUTHOR(S): MCRAE, E.D., JR.
YEAR: 1960
TITLE: Lobster Explorations on Continental Shelf and Slope off Northeast Coast of the United States
PUB: Commer. Fish. Rev. 22(9):1-7
ABSTRACT:
Commercial quantities of American lobsters (Homarus americanus) were found in deep water as a result of explorations conducted by the U.S. Bureau of Commercial Fisheries on the continental shelf and slope off the northeastern portion of the United States in depths of 50 to 600 fathoms. Two areas were defined by the Bureau's exploratory research vessel Delaware in which sufficient numbers of lobsters were taken to indicate the feasibility of commercial-scale exploitation. Standard commercial trawling gear was used at all of the 211 stations covered in the investigation.

-1654-
AUTHOR(S): MEARNS, A.J.
YEAR: 1979
TITLE: Variations in Coastal Physical and Biological Conditions, 1969-78 Annual Report Southern California Coastal Water REsearch Project (SCCWRP) for theYear 1978
PUB: In: Bascom, W. (ed.). Annu. Rept. So. Calif. Coast. Water Res. Proj., (SCCWRP), Los Angeles, CA, pp. 147-156
ABSTRACT:
Information is summarized on physical and biological events occurring in southern California coastal waters during the past 10 years, from 1969 through 1978. The results of this investigation indicate that, during the past decade, coastal waters have become significantly warmer and clearer, and intensity of upwelling and visibility have undergone several 2-year cycles. Some fishes, such as the Pacific mackerel (Scomber japonicus) increased greatly in abundance during the decade. The abundance of others, such as the northern anchovy (Engraulis mordax) decreased during the latter years of the decade. The middle years (1972-76) were marked by a series of biological invasions, in which 'red-tide' phytoplankton, squid, jellyfish, and pelagic red crabs moved into the coastal waters in unusually large numbers. Finally, the data from more than a decade of monitoring with otter trawls indicated that year-to-year and long-term changes in abundance of bottom fish are strongly correlated with changing ocean conditions.

-1655-
AUTHOR(S): MEARNS, A.J.
YEAR: 1980
TITLE: Changing Coastal Conditions: 1979 Compared to the Past 25 Years
PUB: Coastal Water Research Project, Biennial Report for the Years 1979-1980. Southern California Coastal Water Research Project, pp. 273-284
ABSTRACT:
Changes in ocean climate and currents of the North Pacific Ocean cause major year-to-year changes in the abundance and variety of marine life in nearshore coastal waters. This paper reports oceanographic and biological variations that occurred in Santa Monica Bay and adjacent nearshore coastal waters of southern California during 1979 and compares conditions of 1979 with those over the past quarter century. Analyses of data indicate that coastal surface waters in 1979 were slightly warmer and much clearer than average conditions for the past 23 years. Surface waters in Santa Monica Bay were

much clearer than in any year on record since 1959. Landings of some economically important fishes such as northern anchovy (Engraulis mordax) and Pacific mackerel (Scomber japonicus) were higher in 1979 than 1978, but landings of swordfish (Xiphias gladius) decreased. Catches of demersal fish off Orange County have decreased as well. Finally, the trend of warm clear winter water that began in 1976-77 continued into the winter of 1979-80.

-1656-
AUTHOR(S): MEARNS, A.J., M.J. ALLEN, M.D. MOORE, AND M.J. SHERWOOD
YEAR: 1980
TITLE: Distribution, Abundance, and Recruitment of Softbottom Rockfishes (Scorpaenidae Sebastes) on the Southern California Mainland Shelf
PUB: CalCOFI Rep. 21:180-190
ABSTRACT:

Variations in the abundance, recruitment and growth of prominent rockfishes (sebastes spp) during the 1970s are summarized. Twenty-seven species of rockfish were collected. Catches were dominated by the stripetail rockfish (S. saxicola), calico rockfish (S. dalli), and halfbanded rockfish (S. semicinctus). The number of rockfish per individual haul was relatively constant (1.7-3.2), and abundance was highest inshore (80 fish/haul) at 18-73 meters, moderate between 132-305 m, and low beyond 458 m. Three major breaks in depth distribution were observed; the inshore group dominated by S. saxicola, an outer shelf assemblage dominated by S. saxicola and S. diploproa, and a slope assemblage dominated by S. diploproa, S. goodei, and S. elongatus. In general, more species were found in the north and central areas than in the south. A long-term trend of decreasing "baseline" catch is apparent from 1971-1972 off Orange County. Highest catches were observed during or just after the month of lowest sea-surface temperatures. Peak catches occurred during conditions of increased turbidity. In the waters of southern California a diverse assemblage of rockfish exists, with S. saxicola and S. dalli most important. S. saxicola is a more northerly cooler water species than S. dalli. There was a disappearance of S. saxicola and influx of S. dalli in 1975, and the cause may be related to oceanographic conditions.

-1657-
AUTHOR(S): MEGREY, B.A.
YEAR: 1988
TITLE: An Assessment of the Condition of The Gulf of Alaska Walleye Pollock Resource as Estimated in 1987
PUB: In: Mayor, R.L. and T.K. Wilderbuer (eds.). Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1987. NWAFC/NMFS/NOAA, Seattle, WA.
ABSTRACT:

This report updated two earlier documents on the walleye pollock resource in the central and western gulf. First, fishery information is updated through September 1987. Second, the status of the resource is updated on the basis of an age-structured analysis that includes catch-at-age data for an additional year and a 2-year forecast of stock abundance and composition.

-1658-
AUTHOR(S): MELENDEZ, C., E. ROSAS TORRES AND R. ORTA NUMEZ
YEAR: 1985
TITLE: Joint Mexico-USA Shrimp Investigations in the Gulf of Mexico. Tagging Programme-recovery of Shrimps Along the Coasts of Tamaulipas, Mexio, from1978 to 1981
PUB: In: Western Cent. Atlantic Fish. Comm. Presented at the 4th Session of the Working Party on Assessment of Marine Fishery Resources, Paipa Dept. of Boyaca, Colombia, 29 Oct.-2 Nov. '84. FOA Fish. Rep. (327):111-125
ABSTRACT:
In 1977 an agreement on joint fishery research in the Gulf of Mexico was drawn up between Mexico and the USA. This included the conduct of a marking and recovery programme for shrimp, for the purpose of studying their migratory habits, distribution, growth, mortality, etc. Since 1978, 71,201 shrimps have been tagged along Mexico's coasts, at sea and in lagoons, and of these some 14.4% have been recovered. Along the USA coasts (Texas and Louisiana) 464,925 tagged shrimps have been released at sea and in lagoons and of these about 6% have been recovered. This document gives information on the joint research work carried out by the two countries, giving details of the method used for marking and recovering the shrimp.

-1659-
AUTHOR(S): MENZEL, R.W., N.C. HULINGS AND R.R HATHAWAY
YEAR: 1966
TITLE: Oyster Abundance in Apalachiola Bay, Florida, in Relation to Biotic Associations Influenced by Salinity and Other Factors
PUB: Gulf Res. Rep. 2(2):73-96
ABSTRACT:
From June 1955 through May 1957, stations on three oyster reefs were sampled quantitatively at intervals and all oysters and associated macroscopic organisms were recorded per unit area.

-1660-
AUTHOR(S): MERCER, L.P.
YEAR: 1983
TITLE: A Biological and Fisheries Profile of Weakfish Cynoscion Regalis
PUB: N.C. Dep. Natl. Res. Commun. Dev., Div. Mar. Fish. Spec. Sci. Rep. No. 39, 107 pp.
ABSTRACT:
Catch per unit effort for the Middle Atlantic, Chesapeake Bay, and South Atlantic for the weakfish is included in this synopsis of the species.

-1661-
AUTHOR(S): MERCER, L.P.
YEAR: 1984
TITLE: Fishery Management Plan for the Spotted Seatrout (Cynoscion nebulosus) Fishery
PUB: Spec. Sci. Rep. N.C. Div. Mar. Fish. No. 43, 101 pp.
ABSTRACT:
The purpose of this fishery management plan is to manage the spotted seatrout (Cynoscion nebulosus) fishery in the territorial sea of the Atlantic Ocean from Maryland to Florida. The goal of the plan is to perpetuate the spotted seatrout resource in fishable abundance throughout its range and generate the greatest possible economic and social benefits from its harvest and utilization over time. Management measures include a minimum size limit

of 12 inches total length with comparable mesh size regulations in directed fisheries, and data collection for stock assessment and to monitor the status of the fisheries. High research priorities include stock identification, mortality estimates and yield modeling, habitat requirements, effects of environmental factors on stock size, development of a prerecruit index, mesh size selectivity, and social and economic analyses.

-1662-
AUTHOR(S): MERCER, R.W.
YEAR: 1981
TITLE: Proceedings of the Squid Workshop, March, 1981, Seattle, WA
PUB: U.S. Dept. of Commerce, NOAA/NMFS/NWAFC, Seattle, WA, NWAFC PR 81-11
ABSTRACT:

In recent years there has been a growing interest by the domestic fishing industry in the potential for a squid fishery in the northeastern Pacific Ocean. This is attributable to several factors, including: (1) A growing realization in the scientific community that squid may represent a large part of the biomass in the marine ecosystem; (2) A general decline in abundance of some presently exploited fish stocks, coupled with a recent decline of prices; and (3) An increasing demand in Japan and other western Pacific rim countries for squid, coupled with a decline in Japanese domestic squid production.

-1663-
AUTHOR(S): MERCIER, H.T. AND S. BELL
YEAR: 1984
TITLE: Columbia River Estuary Data Development Program: Index to CREDDP (Columbia River Estuary Data Development Program) Data
PUB: NOAA, Washington, DC.; Pacific Northwest River Basins Commission, Vancouver, WA. NOAA 84072306; 08145000. 107 pp.
ABSTRACT:

The following topics are discussed: emergent plant primary production; Benthic primary production; water column primary production; zooplankton and larval fish; benthic infauna; epibenthic organisms; fish; avifauna; wildlife; marine mammals; sedimentation and shoaling; currents; bathymetry.

-1664-
AUTHOR(S): MERRILL, A.S.
YEAR: 1962
TITLE: Abundance and Distribution of Sea Scallops off the Middle Atlantic Coast
PUB: Proc. Nat. Shellfish. Assoc. 51:74-80
ABSTRACT:

The sea scallop, Placopecten magellanicus Gmelin, supports a major offshore fishery, principally on Georges Bank of Cape Cod. On a recent cruise of the "Delaware," eight transects were made from Block Island to Cape Hatteras in waters from 20 to 80 fathoms, and 56 additional stations were occupied between the transects. Scallops were taken at over one third of the stations, mostly in depths of 20 to 40 fathoms. At 14 stations, scallops were obtained in commercial quantities (over two bushels per 15-minute tow of a standard scallop dredge).

-1665-
AUTHOR(S): MERRILL, A.S. AND H.S. TUBIASH
YEAR: 1970
TITLE: Molluscan Resources of the Atlantic and the Gulf Coast of the United States
PUB: Bur. Commer. Fish. Oxford Maryland Biol. Lab., 32 pp. Pub. Proceedings of the Symposium on Mollusca 3:925-948
ABSTRACT:
Approximately 15 species of mollusks are harvested commercially on the east coast of the U.S. and the Gulf of Mexico, but the major bulk and value of the fisheries are contributed by five species of bivalves. In order of economic importance these are: the American oyster (Crassostrea virginica), the sea scallop, (Placopecten magellanicus), the hard-shell clam (Mercenaria mercenaria), the soft-shell clam (Mya arenaria), and surf clam (Spisula solidissima). In order of harvested weight, they range as follows: oyster, surf clam, sea scallop, hard-shell clam and soft-shell clam. The total value of these species in 1965 was over 55 million dollars, with the oyster contributing nearly one-half this amount. The total weight of meats for the same year was over 130 million pounds.

-1666-
AUTHOR(S): MERRILL, A.S. AND J.W. ROPES
YEAR: 1969
TITLE: The General Distribution of the Surf Clam and Ocean Quahog
PUB: Proc. Natl. Shellfish. Assoc. 59:40-45
ABSTRACT:
The general distribution of surf clams, Spisula solidissima Dillwyn, and ocean quahogs, Arctica islandica (Linnaeus), has been determined for the continental shelf of the Gulf of Maine and the Middle Atlantic Bight. Both species are concentrated in the latter area. Most surf clams inhabit the near-shore water to depths of 43 m, although greater depths have been recorded; most ocean quahogs are farther offshore, at depths of 25 to 61 m. In the middle Atlantic region, the average depth of surf clams and ocean quahogs were 29 and 42 m respectively. Both species occurred in deeper water at the southern end of their range than at the northern end.

-1667-
AUTHOR(S): MERRINER, J.V.
YEAR: 1973
TITLE: Assessment of Weakfish Resource, a Suggested Management Plan, and Aspects of Life History in North Carolina
PUB: Unpublished; Masters Thesis. NCSU, Raleigh, N.C. 146 pp.
ABSTRACT:
Weakfish landings in Atlantic coastal states have declined consistently since 1945. Population(s) of weakfish had not increased despite lessening commercial fishing effort through 1967. Catch has increased recently to levels approaching those of the 1940s. Dominant gear in the fishery and area of highest landings have changed since the early 1900s. Interacting factors such as natural fluctuations in year class strength, aggregate effects of pollution, shift in area of maximum landings, heavy landings in Chesapeake Bay after World War II, harvest by the sport fishery, and destruction of juveniles by the commercial fishery are considered limiting for the abundance of weakfish and causing the apparent decline in the resource.

-1668-
AUTHOR(S): MERRINER, J.V.
YEAR: 1975
TITLE: Aspects of the Reproductive Biology of the Weakfish, Cynoscion regalis Sciaenidae, in North Carolina
PUB: Fish. Bull. 74(1):18-26
ABSTRACT:

The weakfish, Cynoscion regalis, has an extended spawning season in North Carolina's inshore waters (males are ripe March to August, and females are ripe April to August). Peak spawning activity occurs from late April throug June. The extended spawning season throughout the range is a major factor in variability of size within ayear class.

Published accounts cite attainment of sexual maturity at age II for males and age III females. The author concludes that weakfish of both sexes reach sexual maturity as yearling fish, although some smaller members of a year class do not mature until their second year.

Weight and length of weakfish are better indicators of fecundity than is age (higher correlation coefficients). A female weakfish of 500 mm standard length produces slightly over two million eggs.

-1669-
AUTHOR(S): MERRITT, M.F. AND K. ROBERSON
YEAR: 1986
TITLE: Migratory Timing of Upper Copper River Alaska, U.S.A. Sockeye Salmon, Oncorhynchus nerka, Stocks and Its Implications for the Regulation of theCommercial Fishery
PUB: N. Am. J. Fish. Manage. 6(2):216-225
ABSTRACT:

Migratory timing of 15 sockeye salmon (Oncorhynchus nerka) stocks in the upper Copper River, Alaska, was determined from a tag and recapture project conducted between 1967 and 1972. Time densities and descriptive statistics were used to estimate mean date of migration upstream, variation about the mean, form, and stability of these measures between years within the geographic reference frame of Wood Canyon. The mean calendar date of migration through the Copper River commercial fishery district of Prince William Sound also were estimated. River level appeared to have a negative correlation with travel rate and was a source of yearling variation in the mean date of migration. Mean dates of migration varied by stock and were grouped by a Student-Newman-Keuls test in six time spans that significantly differ from one another. Variation mean migration date increased through time, with earlier migrating stocks demonstrating greater consistency of timing between years than the later migrating stocks. The majority of migratory time densities were positively skewed; platykurtic forms were relatively stable between years. Migratory timing of upper river stocks overlapped and harvest control of individual stocks within the Copper River District of Prince William Sound may not be feasible. However, management of groups of stocks according to cluster of time-density mean is feasible. Identification of the upper Copper River stock composition within a commercial fishery period can assist the manager in assessing stock abundance and the probable impact of the fishery on groups of stocks.

-1670-
AUTHOR(S): MESSIEH, S., R. POTTLE, P. MACPHERSON AND T. HURLBUT
YEAR: 1985
TITLE: Spawning and Exploitation of Atlantic Herring (Clupea harengus) at Escuminac in the Southwestern Gulf of St. Lawrence, Spring 1983
PUB: J. Northw. Atl. Fish. Sci. 6(2):125-133
ABSTRACT:
An Atlantic herring (Clupea harengus L.) spawning bed at Escuminac, Miramichi Bay, in the southwestern Gulf of St. Lawrence was surveyed by scuba divers in May 1983. The bed extended 2,200 m along the shore with a mean offshore width of 400 m. Herring were distributed over a depth range of 0.8-3.3 m. Mean density of eggs over the entire bed about 10 days after spawning was nearly 25,000 eggs per m2. After adjustment of the estimated deposition of eggs for loss due to predation by fish, use of mean fecundity and mean weight values indicated that the total number of eggs on the spawning bed were produced by approximately 930,400 mature herring (or about 210 tons). The catch of mature herring off Escuminac from the prespawning and spawning concentrations in 1983 was about 4,400 tons, which implies an exploitation rate of 95%.

-1671-
AUTHOR(S): MESSTORF, J. AND G. WAGNER
YEAR: 1980
TITLE: Fishing Research in the North Atlantic with FMV Karlsburg From 28th August to 27th October 1980
PUB: Inf. Fischwirtsch. 27(6):219-227
ABSTRACT:
Statistical data was collected for stock assessment of pelagic fish in the North Atlantic. Preliminary data on geographical distribution, population density, weight and length of Micromesistius poutassou, Mallotus villosus, Reinhardtius hippoglossoides, Macrourus berglax, Coryphrenoides rupestris, Gadus morhua, Sebastes marinus and Sebastes mentella are given.

-1672-
AUTHOR(S): METHOT, R. AND A. MACCALL
YEAR: 1983
TITLE: Response to Reviews of the First Draft, Revised Anchovy Fishery Management Plan
PUB: NOAA/NMFS/SWFC, La Jolla, CA. Admin. Rep. LJ-83-16, 74 pp.
ABSTRACT:
The first draft (dated January 13, 1983) of the revised Anchovy Fishery Management Plan (FMP) was reviewed by three parties. Drs. J.R. Beddington and N.J. Wilimovsky were contracted by the Southwest Fisheries Center to provide independent scientific reviews of the FMP. A third review (based on the first and second drafts) was received from Living Marine Resources, Inc. on contract to the commercial fishing industry. The reviewers had access to pertinent technical documents (i.e., MacCall 1982a,b; Methot 1982) and communicated freely with the Anchovy Plan Development Team. The two independent reviews were received in April 1983 and the industry review was received in May 1983.

-1673-
AUTHOR(S): METHOT, R.D., JR.
YEAR: 1984
TITLE: Seasonal Variation in Survival of Larval Northern Anchovy, Engraulis mordax, Estimated from the Age Distribution of Juveniles
PUB: U.S. Natl. Mar. Fish Serv. Fish Bull. 81(4):741-750

ABSTRACT:

Juvenile northern anchovy, E. mordax, collected during autumn of 1978 and 1979 were aged using daily increments in their otoliths. Neither year class was dominated by individuals born during some short period, but March and April had the highest frequency of births in each year. Monthly ichthyoplankton surveys indicated that significant spawning occurred from January-May of each year and peaked in early March. Comparison of the temporal distribution of birth dates with larval abundance indicated that larval survival was similar in the first half of each spawning season and greater during April-May of the 1978 spawning season than the same period in 1979. This difference in seasonal pattern of survival was nearly sufficient to account for the observed greater recruitment in 1978 and is consistent with the hypothesis that offshore transport of larvae influences recruitment.

-1674-
AUTHOR(S): METHOT, R.D., JR. AND L.W. BOTSFORD
YEAR: 1982
TITLE: Estimated Preseason Abundance in the California Dungeness Crab (Cancer magister) Fisheries
PUB: Can. J. Fish. Aquat. Sci. 39(8):1077-1083
ABSTRACT:

Annual preseason abundance for the central and northern California Dungeness crab fisheries is estimated from the decline in catch per unit of effort within each fishing season. The results support the common assumption that a large fraction of the available, legal size, male crabs are harvested each year; however, we noted regular changes in this fraction and also that it is rarely as high as previously assumed.

-1675-
AUTHOR(S): MEYER, T.L., R.A. COOPER AND R.W. LANGTON
YEAR: 1979
TITLE: Relative Abundance, Behavior, and Food Habits of the American Sand Lance, Ammodytes americanus, from the Gulf of Maine
PUB: Fish. Bull. 77(1):243-25
ABSTRACT:

Meristic characteristics of sand lance taken from Stellwagen Bank indicated the species to be the American sand lance, A. americanus. Bottom trawl data, ichthyoplankton surveys, and diver submersible observations demonstrated a significant increase in relative abundance of sand lance since about 1975 on Stellwagen Bank; this trend was typical of the Northwest Atlantic from Cape Hatteras, North Carolina, to the Gulf of Maine. School shapes were constant in appearance, vertically compressed, tightly compacted, and bluntly linear from a dorsal and ventral view. School strengths varied from j100 to tens of thousands of individuals with the nearest-neighbor distance ranging from 1/4 to 11/2 body lengths. The swimming motion is sinusoidal in form and eellike in appearance. Swimming speeds varied from 15 to K120 cm/sec. Copepods seemed to be the most important food source, constituting 41% of the total weight of food consumed; sand lance feed in school formation between midwater and the surface. Sand lance bury themselves totally or partially in clean sandy substrates when not schooling.

-1676-
AUTHOR(S): MIDDLETON, R.W. AND J.A. MUSICK
YEAR: 1986
TITLE: The Abundance and Distribution of the Family Macrouridae (Pisces: Gadiformes) in the Norfolk Canyon Area
PUB: Fish. Bull. 84(1):35-62
ABSTRACT:

The Norfolk Canyon of Virginia and the adjacent slope areas were sampled with 13.7 m otter trawls in June 1973, November 1974, September 1975, and January 1976. Trawl depths ranged from 75 to 3,083 m, and 22 species of macrourids were captured during the study. Coryphaenoides rupestris demonstrated seasonal movement to shallower water (ca. 750 m) during winter. Nezumia bairdii, N. aequalis, and Coryphaenoides carapinus exhibited a significant positive correlation between head lenth and depth (r to the 2nd power = 0.47, 0.37, and 0.35, respectively). Nezumia bairdii apparently spawns in July or August, and reaches an age of about 11 years. New size records were established for Nezumia aequalis (64 mm head lenth (HL)) and N. bairdii (66 mm HL). New depth records were established for Coelorinchus c. carminatus and N. aequalis (884 and 1,109 m, respectively). The known geographic ranges for Coelorinchus caribbeus, C. occa, Nezumia cyrano, Coryphaenoides colon, Hymenocephalus gracilis, H. italicus, Bathygadus macrops, Macrourus berglax, and Gadomus dispar were extended to the Norfolk Canyon area.

-1677-
AUTHOR(S): MIGLARESE, J.V., C.W. MCMILLAN AND M.H. SHEALY, JR.
YEAR: 1982
TITLE: Seasonal Abundance of Atlantic Croaker, Micropogonias undulatus in Relation to Bottom Salinity and Temperature in South Carolina Estuaries
PUB: Estuaries 5(3):216-223
ABSTRACT:

During 1973 and 1974 seasonal abundance and mean total length of Atlantic croaker, M. undulatus, were investigated by otter trawl at 33 stations in South Carolina estuaries in relation to bottom salinity and temperature. Relative abundance of Atlantic croaker was measured by catch per unit effort at 3 degree C temperature intervals and 3 parts per milleter salinity intervals. Croaker occurred over a bottom temperature range of 9.0-31.4 degree C while occurring most abundantly in waters above 24.0 degree C. No significant correlation between size and temperature was found. Croaker were collected in salinities from 0.4-34.4 per mill.. High correlations of size and salinity were evident in 1973 during winter (r = 0.79), summer (r = 0.82) and fall (r = 0.94). In 1974, correlations were significant only during fall (r = 0.76).

-1678-
AUTHOR(S): MIHURSKY, J.A., E. SETZLER-HAMILTON, F.D. MARTIN, P. JONES, K. RIPPLE, M. BEAVEN AND G. DREWRY
YEAR: 1981
TITLE: Resource Utilization by Larval Fish in the Upper Potomac Estuary
PUB: Estuaries 4(3):245
ABSTRACT:

Ichthyoplankton collections were made in the upper Potomac estuary during 1974 to 1977 and again in 1980 and 1981. Zooplankton, chemical and physical data were obtained also. Larval samples were dominated by clupeids (primarily Alosa spp.), white perch (Morone americana), striped bass (Morone saxatilis),

bay anchovy (Anchoa mitchili), hogchoker (Trinectes maculatus), naked goby (Gobiosoma bosc), and cyprinids. Certain clearly defined spatial and temporal patterns of distribution were evident which provided limited separation of occurrence for certain species over time, and in both horizontal and vertical space. Implications are drawn on reasons for species success in the system and possible meteorological-hydrological influences on the quality and quantity of estuarine resources critical for larval survivorship.

-1679-
AUTHOR(S): MILD, S.J. AND B.E. BROWN
YEAR: 1980
TITLE: A Description of Those Fisheries Which Take Place in the Western North Atlantic Between the U.S.-Canadian Border and North Carolina, that PresentlyHave Potential User Group Allocation Conflicts
PUB: Fishery Resources, United Nations FAO:502-517
ABSTRACT:
Ten major fisheries are reviewed in terms of present and potential user group allocation conflicts.

-1680-
AUTHOR(S): MILEIKOVSKY, S.A.
YEAR: 1971
TITLE: Types of Larval Development in Marine Invertebrates, Their Distribution and Ecological Significance: A re-evaluation
PUB: Mar. Biol. 10:193-213
ABSTRACT:
The distribution of various types of larval development among marine bottom invertebrates has been discussed on the basis of ecological evidence by Thorson (1936, 1946, 1950, 1952) and Mileikovsky (1961b, 1965). The information at hand is reviewed anew in this paper and is re-evaluated in the light of modern pertinent literature. The interrelationships between certain larval types and their distribution are not as rigid and direct as originally assumed. This can be proved even by the "copy book" example of the distribution of the various forms of development among species of the coastal gastropod genus littorina.

-1681-
AUTHOR(S): MILLER, B.S., C.A. SIMENSTAD, J.N. CROSS, K.L. FRESH AND S.N. STEINFORT
YEAR: 1980
TITLE: Nearshore Fish and Macroinvertebrate Assemblages Along the Strait of Juan de Fuca Including Food Habits of the Common Nearshore Fish: Final Report ofThree Years' Sampling 1976-1979
PUB: Environmental Protection Agency, Office of Environmental Engineering and Technology, Washington, D.C. 228 pp.
ABSTRACT:
A seasonal survey of nearshore fishes was made in the Strait of Juan de Fuca from May 1976 to June 1979. A beach seine was used for sampling nearshore demersal fishes and a townet for nearshore pelagic fishes: intertidal fishes were sampled with the use of anesthetic and a hand net. During 1976-1978, the macroinvertebrates caught incidentally in the beach seine and townet were also recorded. Data recorded for fish and macroinvertebrates were species present, life history stage (from size), abundance, biomass, food habitats and presence of external abnormalities or disease.

-1682-
AUTHOR(S): MILLER, C.B.
YEAR: 1983
TITLE: Commentary: Interannual Variation of Zooplankton Standing Stock in the Open Gulf of Alaska
PUB: In: Wooster, W.S. ed. From Year to Year: Interannual Variability of the Environment and Fisheries of the Gulf of Alaska & Bering Sea., WA Sea Grant Program, University of Washington, Seattle, WA, pp. 158-160
ABSTRACT:
Effects of life history on apparent stock size of zooplankton are reported.

-1683-
AUTHOR(S): MILLER, D.J. AND J. SCHMIDKE
YEAR: 1956
TITLE: Report on the Distribution and Abundance of Pacific Herring (Clupea pallasi) Along the Coast of Central and Southern California
PUB: Calif. Fish Game 42:163-187
ABSTRACT:
This paper presents the results of the sampling of the commercial catch conducted from 1947 through 1952 and the results of the spawning population survey conducted from December 1954, through March 1955.

-1684-
AUTHOR(S): MILLER, D.J. AND J.E. HARDWICK
YEAR: 1973
TITLE: The Status of the Rockfish Resource and its Management
PUB: Calif. Dep. Fish Game, Mar. Res. Tech. Rep. No. 17.
ABSTRACT:
History of commercial and sport utilization of rockfishes (genus sebastes) throughout California are described. Biology of rockfish, current regulations, management policies and suggestions for future research directions are included. Large Sebastes paucispinis disappear from traditional fishing grounds during winter and return to the fishery in large numbers in March or April. S. goodei are commercially important from Fort Bragg to Santa Barbara. Adults are commonly taken from 240 to 1,100 feet deep water over rocky bottom. Young-of-the-year are found in shallower inshore waters. S. miniatus occur over rocky bottoms to a depth of 600 feet, but younger fish occur in shallow water. Small specimens have been taken at or near the surface as far offshore as 350 miles. Young-of-year S. paucispinis, S.entomelas, S. miniatus, and S. goodei have been observed in kelp beds. Prior to 1943, the leading species in commercial landings were S. melanops in northern California, S. paucispinis and S. goodei in central California, and S. miniatus in southern California. With the introduction of the balloon trawl, S. pinniger replaced S. melanops as the leading species landed in northern California. Central California has always led the state in commercial rockfish landings. Population sizes and structure are unknown. There is sufficient evidence to ascertain present total catch, or to determine the most desirable harvesting rate. Rockfish resources are not fully exploited. Research needs include: study of juvenile rockfish habitat requirements, assessment of the effects of kelp harvesting on juvenile rockfishes, mapping inshore reefs, life history studies on many shallow nearshore species, development of an aggregate species population dynamic model, determination of movement of deep dwelling species, and assessment of species and age composition of catches.

-1685-
AUTHOR(S): MILLER, D.J. AND J.J. GEIBEL
YEAR: 1973
TITLE: Summary of Blue Rockfish and Lingcod Life Histories: A Reef Ecology Study: and Giant Kelp Experiments in Monterey Bay, CA
PUB: Calif. Dep. Fish Game Fish Bull. 158, 137 pp.
ABSTRACT:
The inshore marine environment of central and northern California includes numerous habitats. This document summarizes the life histories and catch analyses of several finfish species and large brown kelp. The interactions between fish and kelp are discussed and there is a summary of relevant references from early 1900's to 1972.

-1686-
AUTHOR(S): MILLER, D.J. AND R.N. LEA
YEAR: 1972
TITLE: Guide to the Coastal Marine Fishes of California
PUB: Calif. Dep. Fish Game Fish Bull. 157:249
ABSTRACT:
A taxonomic guide to the identification of marine fishes along the California coast is presented with descriptions of species horizontal ranges, depth ranges, maximum known length and relative occurrence (i.e., rare, uncommon, or common).

-1687-
AUTHOR(S): MILLER, D.J., J.J. GEIBEL, AND J.L. HOUCK
YEAR: 1974
TITLE: Results of the 1972 Skindiving Assessment Survey, Pismo Beach to Oregon
PUB: Calif. Dep. Fish Game, Mar. Res. Tech. Rep. No. 23.
ABSTRACT:
A survey of skin/scuba divers was conducted from January to December 1972 in order to estimate the number of participants, amount of effort, and species composition of the catch of central and northern California sport diving fishery. A total of 15,030 divers were interviewed from Pismo Beach, California north to the Oregon-California border. Results were compared with the 1960 skindiving survey. Over 50% of all diving was conducted in the Monterey-Carmel Bay area. General trends in the mode and activities of skin/scuba divers is described. The sport fish catch included Sebastes paucispinis and S. miniatus. These two species constituted 0.1 and 0.3% of the sport diving fish catch.

-1688-
AUTHOR(S): MILLER, D.R., J.G. WILLIAMS AND C.W. SIMS
YEAR: 1983
TITLE: Distribution Abundance and Growth of Juvenile Salmonids Off the Coast of Oregon and Washington, U.S.A. Summer 1980
PUB: Fish. Res. (AMST) 2(1):1-18
ABSTRACT:
Juvenile salmonids (<50 cm) were sampled by purse seine off the Pacific coast from Tillamook Bay, Oregon, to Copalis Head, Washington, during May through September 1980. Temporal distribution and abundance of the major Columbia River species were determined. Spring chinook salmon (Oncorhynchus tshawytscha) and steelhead (Salmo gairdneri) were present only during early cruises and were distributed almost entirely in the Columbia River plume and the sample area to the north. Coho salmon (O. kisutch) and fall chinook

salmon were distributed more uniformly throughout the sampling area and were relatively abundant throughout the sampling period. Concentrations of fish were found only within 28 km of the shore. A number of fish that had been marked before or during their outmigration from the Columbia River system were recaptured. It appeared that with concentrated sampling in areas with high fish abundances, sufficient numbers of marked juvenile salmonids could be captured to provide relative survival estimates between different stocks of Columbia River fish.

-1689-
AUTHOR(S): MILLER, G.C. AND W.J. RICHARDS
YEAR: 1980
TITLE: Reef Fish Habitat, Faunal Assemblages, and Factors Determining Distribution in the South Atlantic Bight.
PUB: In: Proc. Gulf Carrib. Fish. Inst. 14:201-241
ABSTRACT:
Major recreational and commercial fisheries or reef fish exist in the South Atlantic Bight area from North Carolina to Florida. Proper management of the fisheries is dependent upon a knowledge of the area occupied by the reef habitat, a determination of the biomass and productivity of the reef fauna based on the biology and ecology of the species, and a determination of the environmental factors causing population fluctuations.

-1690-
AUTHOR(S): MILLER, G.L., AND S.C. JORGENSON
YEAR: 1973
TITLE: Meristic Characteristics of Some Marine Fishes of the Western Atlantic Ocean
PUB: Fish. Bull. U.S. 71:301-312
ABSTRACT:
This report presents data on meristic characters from radiographs of 642 species of marine fishes representing 113 families, collected from Cape Hatteras, N.C., to northern Brazil, including the Gulf of Mexico and the Caribbean Sea. Most of the specimens were collected on cruises of the National Marine Fisheries Service. The chartered vessel Silver Bay and the NMFS research vessel Oregon made these cruises from the Exploratory Fishing and Gear Research Base, Pascagoula, Mississippi, and the Exploratory Fishing and Gear Research Station, St. Simons Island, Georgia.

-1691-
AUTHOR(S): MILLER, R.E., D.W. CAMPBELL AND P.J. LUNSFORD
YEAR: 1980
TITLE: Comparison of Sampling Devices for the Juvenile Blue Crab, Callinectes sapidus
PUB: Fish. Bull. 78(1):196-199
ABSTRACT:
Push net, otter trawl, and crab scrape were evaluated at Smith Island in Chesapeake Bay where extensive Zostera marine beds have many juvenile C. sapidus. The push net was more effective catching small C. sapidus than the trawl, but the modified crab scrape was more effective than either of the above in shallow water. The modified crab scrape is the preferred gear for quantitative studies of juvenile C. sapidus abundance.

-1692-
AUTHOR(S): MILLER, R.E., S.D. SULKIN AND R.L. LIPPSON
YEAR: 1975
TITLE: Composition and Seasonal Abundance of the Blue Crab, Callinectes sapidus, in the Chesapeake and Delaware Canal and Adjacent Waters
PUB: Chesapeake Sci. 61(1):27-31
ABSTRACT:
In 1971 and 1972, a field sampling study was conducted in the Chesapeake and Delaware Canal and adjacent waters in order to describe the blue crab population inhabiting the region and also to assess the significance of the Canal as an avenue for recruitment from the Delaware Bay spawning grounds to the upper Chesapeake Bay.

-1693-
AUTHOR(S): MILLER, R.J.
YEAR: 1976
TITLE: North American Crab Fisheries: Regulations and Their Rationales
PUB: Fish. Bull. 74(3):623-633
ABSTRACT:
The review is organized by fishery and management problems. Six fisheries in 12 government jurisdictions are included. Regulations are grouped into management problems of 1) conservation, 2) allocation of landings among commercial fishermen, 3) stability of landings, 4) conflict over grounds or resource, 5) processing economics, and 6) administration.

-1694-
AUTHOR(S): MILLER, R.J. AND E.L. BRANNON
YEAR: 1982
TITLE: The Origin and Development of the Life History Patterns of Pacific Salmonids
PUB: In: Brannon, E.L. and E.O. Salo, eds. Salmon and Trout Migratory Behavior Symposium, June 1981. University of Washington, Seattle, pp. 296-309
ABSTRACT:
Presented in this paper is a conceptual model of the interactive life history patterns and their development in the Pacific salmonid ecosystem. The hypothesis presented addresses the early partitioning of the North Pacific salmonid fishes and if this partitioning leads to subsequent unique and separate stocks. A discussion in support of this hypothesis and how it could relate to certain fisheries management as well as an attempt to develop a scenario for the evolution of behavior and life history patterns is presented in detail.

-1695-
AUTHOR(S): MILLER, R.W.
YEAR: 1986
TITLE: Commercial Foodfishing in Delaware in 1985
PUB: Deleware Div. Fish Wildl., Dover, DE, 15 pp.
ABSTRACT:
This report is the first that includes an entire year of catch and effort information collected under the mandatory catch reporting provisions. The numbers herein are as accurate as the records kept and submitted by the fishermen. Fishermen holding recreational gill net permits are not required to submit catch reports. Therefore, the data contained in this report includes only the commercially licensed gill net catch and effort and not total gill net catch and effort.

-1696-
AUTHOR(S): MILLIKAN, A. E.
YEAR: 1970
TITLE: The Puget Sound Hake Fishery: Past, Present, and Future
PUB: Wash. Dep. Fish. Tech. Rep. No. 5(01)
ABSTRACT:
This report summarizes the four-year history of the Puget Sound hake fishery, evaluates the current status of the fishery, and discusses its potential for the future.

-1697-
AUTHOR(S): MILLIKAN, A.E. AND R.J. TRUMBLE
YEAR: 1976
TITLE: A Descriptive Summary of the 1975 Herring Fishery for Sac Roe in Northern Puget Sound
PUB: Wash. Dep. Fish. Prog. Rep. No. 76, pp. 1-18
ABSTRACT:
The only known population of herring in Washington capable of yielding commercial quantities of herring for roe, spawns in Hale Passage and the east side of the Strait of Georgia each April and May. Prior to 1973, no significant fishery had harvested herring in this area since the early 1900's when an average of 1 million pounds per year was landed.

-1698-
AUTHOR(S): MILLIKIN, M.R. AND A.B. WILLIAMS
YEAR: 1984
TITLE: Synopsis of Biological Data on the Blue Crab, Callinectes sapidus Rathbun
PUB: NOAA Tech. Rep. NMFS 1. FAO Fisheries Synopsis No. 138
ABSTRACT:
This synopsis reviews commercial hard and soft shell crab fisheries, physiology, diseases, ecology, laboratory culture methodology, and influences of environmental pollutants on the blue crab.

-1699-
AUTHOR(S): MINTEL, R.J. AND G.B. SMITH
YEAR: 1981
TITLE: A Description of the Resource Survey Data-base System of the Northwest and Alaska Fisheries Center
PUB: NOAA Tech. Memo. F/NWC-18
ABSTRACT:
This report describes the computer data-base system that has been developed at the Northwest and Alaska Fisheries Center for handling the requirements of multiple, large-scale, groundfish trawl surveys. In addition to describing the organization and content of the system including data, software, and documentation, new concepts and approaches are discussed that improve the system's reliability, flexibility, and value as an information base.

-1700-
AUTHOR(S): MITCHELL, C.T., C.H. TURNER AND A.R. STRACHAN
YEAR: 1969
TITLE: Observations on the Biology and Behavior of the California Spiny Lobster, Panulirus interruptus
PUB: Calif. Fish Game 55(2):121-131

ABSTRACT:
Life history aspects including molting and reproductive cycle, growth, and migrations are reported for the California spiny lobster, Panulirus interruptus. Morphometrics are also covered to enable the determination of carapace length from lobster tails to establish if individuals were of legal size (3.25 inches CL). Male and female lobsters were observed with old hard shells throughout the year, but over 80% and 90%, respectively, of the population were in this condition from December to July. Males with old soft shells were found from July to October, new soft shells from June to November, and new hard shells from January to October. Females with old and new soft shells were found from August to November while those with new hard shells were found from August to January. Those ready to be plastered, and berried occurred in January to May, January to August, and May to August, respectively. Median carapace lengths for females were significantly greater than those for males. Carapace lengths of males and females increased in annual increment of 3.7 mm and 4.4 mm, respectively. Legal size is reached in 10 years for females and 11 years for males. Inshore-offshore migrations were observed, with males delaying movement to shallower water by a month compared to females. Data indicate that lobsters molt once yearly immediately after the reproductive cycle, with males beginning two months earlier than females. Females also grow more rapidly than males. Migrations may be caused by temperature, food availability, suitable habitat, and the degree of subsurface wave action.

-1701-
AUTHOR(S): MMS/FWS
YEAR: 1983
TITLE: Florida Ecological Atlas
PUB: OCS Map, MMS 84-0008, FWS/OBS-82/47, USDOI, 90 maps
ABSTRACT:
The Florida ecological atlas was produced by the U.S. Fish and Wildlife Service, Division of Biological Services, National Coastal Ecosystems Team (FWS/OBS - 82/47) and the Minerals Management Service for coastal planners, decision makers, and the general public, to determine and evaluate change and to resolve conflicts among land uses, fish and wildlife requirements, and the maintenance of ecological diversity.

-1702-
AUTHOR(S): MOE, M.A., JR.
YEAR: 1967
TITLE: Prolonged Survival and Migration of Three Tagged Reef Fishes in the Gulf of Mexico
PUB: Trans. Am. Fish. Soc. 96(2):228-229
ABSTRACT:
Much of the finfish resources of tropical and subtropical seas are composed of benthic species, predominantly groupers and snappers, which frequent coral and limestone reefs. Our knowledge of the life histories of these species in the western Atlantic is limited, and tagging studies have been few and restricted in scope.

-1703-
AUTHOR(S): MOE, M.A., JR., D.S. BEAUMARIAGE AND R.W. TOPP
YEAR: 1970
TITLE: Return of Tagged Gag, Mycteroperca microlepis, and Caribbean Red Snapper, Lutjanus Campechanus, After Six Years of Freedom
PUB: Trans. Am. Fish. Soc. 99(2):428-429

ABSTRACT:

The Florida Board of Conservation (now the Florida Department of Natural Resources) Marine Research Laboratory conducted extensive tagging of shelf fishes in depths up to 55 m from 1961 through 1965. The tagging was done through two separate programs, one sponsored by the Joseph Schlitz Brewing Company and the other by the State of Florida. A series of papers-Ingle, Huton, and Topp (1962), Topp (1963), Beaumariage (1964), Beaumariage and Wittich (1966), and Beaumariage (1960)--reported the results of the five annual Schlitz Fishing Derbies; Moe (1966, 1967) reported the results of the State offshore tagging program. Two significant tag returns were recently obtained from these programs.

-1704-

AUTHOR(S): MOFFETT, A.W.

YEAR: 1964

TITLE: A Study of the Juvenile Shrimp Populations of the Galveston Bay System

PUB: Texas Parks and Wildlife Department, Coastal Fish Proj. Rep. 1963. No. MS-R-5, Job No. 2, Austin, TX

ABSTRACT:

Seasonal abundance and sizes of juvenile brown shrimp, Penaeus aztecus, and white shrimp, P. setiferus, in the Galveston Bay and Sabine Lake areas were studied using samples taken semi-monthly in tertiary, secondary and primary bays. The first and largest wave of brown shrimp appeared in mid-April. Two smaller waves followed. White shrimp were detected in June. The first wave was small, but was followed by two larger waves. Most brown shrimp emigrated to the Gulf before they were 100 mm long, while white shrimp attained a larger size in the bay. Both species of Penaeus were more abundant in samples taken in 1963 than in 1962. The abundance of shrimp in replica samples indicated poor agreement, but sizes and seasonality trends indicated fair agreement. Commercial shrimp landings in 1963 exceeded 1962 landings in all months but January and February.

-1705-

AUTHOR(S): MOFFETT, A.W.

YEAR: 1964

TITLE: A Study of the Texas Bay Populations of Juvenile Shrimp, Penaeus aztecus, Penaeus setiferus, and Penaeus duorarum

PUB: Texas Parks and Wildlife Department, Coastal Fish Proj. Rep. 1963. No. MS-R-5, Job No. 1, Austin, TX.

ABSTRACT:

Postlarvae were found entering Aransas Bay in appreciable number in the spring of 1963. Late post-larval and early juvenile stages of brown shrimp, Penaeus aztecus, were found in tertiary bays in April. White shrimp, P. setiferus, were found in May and June. Brown shrimp grew about 0.8 mm per day, while white shrimp grew about 1.1 mm per day. The first brown shrimp wave was relatively larger than minor waves that followed. In some bays the first white shrimp wave appeared to be smaller than later waves. Small brown shrimp were found moving through the inshore Gulf in large numbers in June and July. White shrimp reached a larger size in the bays and supported a large commercial bay fishery. Late fall waves of white shrimp left the bays at a smaller size (probably to escape low water temperatures). Preliminary data indicate 1963 shrimp landings increased 25% over 1962 landings.

-1706-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1965
TITLE: A Study of the Texas Shrimp Populations
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MS-R-7, 30 pp.
ABSTRACT:
This report deals with the growth, seasonal abundance and movement of brown shrimp, Penaeus aztecus, and white shrimp, P. setiferus, in the coastal bays of Texas in 1965, including Galveston Bay. Young brown shrimp were abundant in the spring. Apparently, unfavorable bay conditions forced the young to enter the Gulf at an unusually small size. The fairly high brown shrimp population level in the estuaries after June 1 was indicative of a long emigration period and a strong year-class. White shrimp samples were small in the summer, but a large group was recruited to the population in the fall. The brown shrimp commercial catch in the spring (from "major bays") increased 75% over 1964. White shrimp catches were small in August and September, but increased sharply in late fall. The total 1965 Texas shrimp landings, which nearly equalled the large 1960 catch, were over 47 million pounds, headless. Annual brown shrimp landings increased 31% from 1964, but white shrimp landings decreased 21%.

-1707-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1965
TITLE: A Study of the Texas Bay Populations of Juvenile Shrimp, Penaeus aztecus, Penaeus setiferus, and Penaeus duorarum
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MS-R-6, 46 pp.
ABSTRACT:
Plankton samples from the Aransas Bay area indicated that the postlarvae brown shrimp (Penaeus aztecus) immigration peak was reached in March. Sampling in the bays revealed the presence of a large wave of brown shrimp in the spring. In the shallow tertiary bays and along the shore of large bays brown shrimp grew slowly in April and movement to the open waters of larger bays was delayed. As the waters warmed growth was rapid and the shrimp began their gulfward movement on schedule.

Samples taken in the inshore Gulf off the Lower Laguna Madre contained large numbers of brown shrimp in May. The samples from the Gulf off Port Aransas indicated that the majority of this species left the Aransas Bay area in June.

Shrimp samples from the bays indicated the presence of a large 1964 white shrimp year class. This was confirmed by large commercial catches in the late summer and early fall. Small white shrimp were found in the Gulf in September off the lower coast. In January this species was found in abundance off Port Aransas, but not off Galveston. Brown shrimp commercial landings were somewhat disappointing however, white shrimp landings were greater than landings reported in 1963.

-1708-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1965
TITLE: A Study of the Juvenile Shrimp Populations of the Galveston Bay System
PUB: Texas Parks and Wildlife Department, Coastal Fish. Prog. Rep. No. MS-R-6, 24 pp.

ABSTRACT:

Penaeus aztecus, brown shrimp, arrived at the tertiary bays early in April, but grew slowly. In May growth accelerated and emigration from the bay bagin in June when the shrimp were less than 90 mm long. A second wave of brown shrimp arrived in August. White shrimp, P. setiferus, arrived at the tertiary bays in June. This group of shrimp was followed by two smaller groups in August and October.

Brown shrimp were found in Sabine Lake in May. The 1964 white shrimp were found in Mid-June. In the fall a second wave of white shrimp was observed. Commercial brown shrimp landings reached a peak in July and August, but fell sharply after September. White shrimp production was high.

-1709-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1966
TITLE: A Study of Commercial Shrimps in Coastal Bays of Texas
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MS-R-8, 26 pp.
ABSTRACT:

In spring, many brown shrimp, Penaeus aztecus, nursery grounds in Texas were adversely affected when fresh water inflow lowered salinities. Brown shrimp abundance trends were relatively high in Aransas and Corpus Christi bays, but low in other bays. White shrimp, P. setiferus, were scarce in summer. In fall they were abundant in Sabine Lake and Galveston Bay. Commercial brown shrimp production was high; white shrimp production was low. Total production (43.1 million pounds, headless) decreased 4.6 million pounds from 1965.

-1710-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1967
TITLE: A Study of Commercial Shrimp Populations in Coastal Bays of Texas, 1967
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MS-R-9, 20 pp.
ABSTRACT:

Commercial shrimp populations were studied during 1967 in nine Texas bay systems, including Galveston Bay. In spring brown shrimp (Penaeus aztecus) were abundant in all sampled estuaries, except the Matagorda Bay complex and their life-cycle timing was advanced. They reached emigration size by early May and were caught off Gulf passes on May 9. To compensate for the early migration, the closed Gulf season was begun on May 17. White shrimp (P. setiferus), scarce in summer, were abundant in fall.

Shrimpers caught 55.5 million pounds of brown shrimp and 6.5 million pounds of white shrimp. More efficient vessels and trawls, increased fishing effort, good weather in summer, and the abundance of shrimp were responsible for the large brown shrimp catch. Shrimping activity was set-back by Hurricane Beulah in September, but the industry recovered rapidly.

-1711-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1968
TITLE: A Study of Commercial Shrimp Populations in Coastal Bays of Texas, 1968
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MS-9-10, 32 pp.

ABSTRACT:

In spring, the growth of brown shrimp (Penaeus aztecus) in Texas bays, including Galveston Bay, was delayed by cold water. Low salinity patterns of upper coastal bays confined the young to more saline lower regions of estuaries. The Gulfward migration began in late May. By July most had left the bays.

Heavy rainfall and runoff may have been beneficial to white shrimp (P. setiferus). They were abundant in samples and over 12 million pounds were landed commercially.

-1712-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1969
TITLE: A Study of Commercial Shrimp Populations in Coastal Bays of Texas, 1969
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MS-9-11, 16 pp.
ABSTRACT:

In spring brown shrimp (Penaeus aztecus) abundance was low in upper coastal bays and high in lower coastal bays. The young, in upper coastal bays were exposed to low water temperatures in March and low salinities in April and May. Emigration, from most bays, began in late May or early June. Apparently the Gulfward movement from the Laguna Madre began earlier. Small juvenile white shrimp, (P. setiferus) were captured in abundance in June at upstream stations of Chocolate Bayou (Galveston Bay system). They were abundant in Chocolate Bay in summer and fall.

Brown and white shrimp production, 42.1 million pounds, was the lowest since 1964. Brown shrimp landings, 30.1 million pounds, decreased 10.2 million pounds from 1968. White shrimp production, 12 million pounds, was slightly less than the 1968 catch.

-1713-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1970
TITLE: A Study of Commercial Shrimp Populations in Coastal Bays of Texas, 1970
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MS-R-12, 22 pp.
ABSTRACT:

In spring, samples were taken with bar-seines and trawls from Sabine Lake, Galveston Bay, Matagorda Bay, Aransas Bay and the Lower Laguna Madre to study brown shrimp (Penaeus aztecus), growth, movements, seasonal abundance trends and environmental needs. This shrimp was abundant in samples from Galveston Bay, Aransas Bay and the Lower Laguna Madre. Slow growth of juveniles during April in upper coastal bays was attributed to low temperature. Many, however, were 70 to 80 mm long by late May, because growth accelerated as bays warmed.

A direct correlation (r=0.918) between commercial brown shrimp production and sample size is demonstrated. The least-squares line equation is Y-12.67 + 0.21X. The relationship between salinity and shrimp abundance is vague because other ecological factors vary with salinity. Apparently, salinities between 1 and at least 30 ppt do not affect abundance. Shrimp production in Texas for the period 1962-1970 is reviewed.

-1714-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1971
TITLE: A Study of Brown Shrimp in Texas Coastal Bays
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep., 18 pp.
ABSTRACT:
In spring 1971, juvenile brown shrimp (Penaeus aztecus) were abundant in samples from the upper coastal bays of Texas. With temperature and salinity relatively high, their growth was rapid (estimated growth rates ranged from 1.2 mm/day, Lower Laguna Madre, to 2.2 mm/day, Galveston Bay). The 1971 Texas shrimp catch was 53.7 million pounds. The dockside value was $64.2 million.

-1715-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1972
TITLE: Shrimp Populations in Texas
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep., 36 pp.
ABSTRACT:
In spring 1972 brown shrimp (Penaeus aztecus) were monitored in five Texas coastal bays to predict time of the bay-to-Gulf migration. The prediction that emigration would begin in mid-May was used by the Parks and Wildlife Commission to set 17 May as the starting date of the 45-day closed season in the shallow Gulf (from the coast out to 18.53 km, 10 nautical miles). The prediction was correct, therefore the closed season allowed a portion of the brown shrimp population to reach large size before harvest.

-1716-
AUTHOR(S): MOFFETT, A.W.
YEAR: 1974
TITLE: The Shrimp Fishery in Texas
PUB: Texas Parks and Wildlife Department Bull. No. 50, 39 pp.
ABSTRACT:
Description of the resource and harvesting capabilities.

-1717-
AUTHOR(S): MOFFETT, A.W. AND J.E. RANDALL
YEAR: 1958
TITLE: The Roger Firestone Tarpon Investigation
PUB: A Joint Report to: Florida State Board of Conservation and the International Oceanographic Foundation by the Marine Laboratory, University of Miami, PR 57-22, 18 pp.
ABSTRACT:
In May, 1955, research was begun on the biology of the tarpon (Megalops atlantica) at the Marine Laboratory of the University of Miami. Two Progress reports of this research have been submitted. This constitutes the third progress report. The report includes discussions of juvenile tarpon, salinity and temperature tolerance, food habits, development, and growth.

-1718-
AUTHOR(S): MOFFETT, A.W. AND L.W. MCEACHRON
YEAR: 1973
TITLE: Shrimp Populations in Texas
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. 21 pp.
ABSTRACT:
In spring 1973 brown shrimp (Penaeus aztecus) were monitored in Texas coastal bays to predict time of the bay-to-Gulf migration. The prediction

that emigration would begin in late May was used by the Parks and Wildlife Commission to set 1 June as the starting date of the 45-day closed season in the shallow Gulf (from the coast out to 18.53 km, 10 nautical mi). The prediction was correct, therefore the closed season allowed a portion of the brown shrimp population to reach large size before harvest.

-1719-
AUTHOR(S): MOFFETT, A.W. AND W.R. MORE
YEAR: 1964
TITLE: Population Studies of the Blue Crabs of the Galveston Bay System
PUB: Texas Parks and Wildlife Department, Coastal Fish Proj. Rep. 1963. Proj. No. MC-R-2. Job No. 2, Austin, Texas
ABSTRACT:
A major peak of apparent abundance of small blue crabs occurred in tertiary bays in the fall of 1963. Sampling indicated that sex ratios of juveniles were stable at each salinity level, while adults showed greater variation. All but nine of 118 Gulf crabs (Calinectes danae) were collected in salinities over 20 ppt. Tagging results are discussed and suggestions to improve the experiments are offered.

-1720-
AUTHOR(S): MOISEEV, E.I.
YEAR: 1981
TITLE: Distribution and the State of the Alaska Pollock Stock in the Eastern Bering Sea in 1980
PUB: Rybn. Khoz. Moskva., No. 10, pp. 49-50
ABSTRACT:
The trawl survey conducted in June-July 1980 revealed 4 abundant concentrations of Alaska pollock (Theragra chalcogramma) southeast of the Pribilof Island, between the Pribilof and St. Matthew Island, southeast of Cape Navarin and in the Olyutorsk-Navarin area. The concentrations were isolated and stable from year to year. The biomass of the fishable stock was estimated at about 4.3 million t.

-1721-
AUTHOR(S): MONAGHAN, J.P., JR.
YEAR: 1979
TITLE: Tagging Studies of Some Nearshore Reef Fishes of Onslow Bay, North Carolina.
PUB: Proceedings of the North Carolina Academy of Science, Raleigh, NC. 1979, 22 pp.
ABSTRACT:
Three hundred fishes were tagged on a near shore rock ledge in Onslow Bay, North Carolina. One hundred and eighty-one of the tagged fishes were Centropristis striata. Other species caught included Stenotomus aculeatus and Haemulon aurolineatum. Most Centropristis caught were between 100 and 200 mm(SL). The ages of centropristis captured ranged from 1 to 6 years. Catch per unit effort (CPUE) for centropristis striata increased steadily from June through November. Since centropristis is a temperature species it can tolerate the colder temperatures of late fall and winter. CPUE for Haemulon aurolineatum, a sub-tropical species, fell sharply after October. The mean residency length was calculated for all species caught. Centropristis striata had the longest, with a residency of 32 days. Centropristis striata are probably even longer, due to the eurythermal characteristic of this species. Stenotomus aculeatus and Haemulon aurolineatum were found to occur sympatrically with centropristis on most of the sample dates, therefore these

two species, when occurring together on a near shore ledge, are probably indicator species for Centropristis striata.

-1722-
AUTHOR(S): MOORE, D., H.A. BRUSHER AND L. TRENT
YEAR: 1970
TITLE: Relative Abundance, Seasonal Distribution, and Species Composition of Demersal Fishes Off Louisiana and Texas, 1962-1964
PUB: Contr. Mar. Sci. Univ. Tex. 15:45-70
ABSTRACT:
Demersal fishes were collected monthly with a shrimp trawl at 33 to 60 stations in 7 to 110 m (4-60 fath) between the Mississippi River Delta and the United States-Mexico border from 1962-1964. Catches were generally two to five times greater off Louisiana than off Texas, with the greatest differences occurring in the shallowest waters. Differences in total catches between stations within each depth off Texas and Louisiana, between day and night tows, and between years generally were not significant. Seasonal differences in catches were great off each coast. Atlantic croaker, Micropogon undulatus, and longspine porgy, Stenotomus caprinus, constituted nearly half of the total catch. Atlantic croaker, longspine porgy, sand seatrout, Cynoscion arenarius, and sea catfish, Galeichthys felis, were most abundant off Louisiana; longspine porgy, Atlantic croaker, inshore lizardfish, Synodus foetens, and silver seatrout, Cynoscion nothus, dominated the catches off Texas.

-1723-
AUTHOR(S): MOORE, D.R.
YEAR: 1961
TITLE: The Marine and Brackish Water Mollusca of the State of Mississippi
PUB: Gulf Res. Rep. 1(1):1-58
ABSTRACT:
The study of marine life of the Gulf of Mexico has progressed slowly as compared to other regions of the United States. Much of this lack of progress is probably due to the absence of universities in the coastal area, and the absence of large populated centers where marine research would be encouraged. The early work was done by travelers and expeditions from places remote to the Gulf. Only in the present century has there been any attempt to establish marine laboratories on this seaside. Most of these laboratories have been located in rather remote, inaccessible places, and have usually suffered from inattention by the parent institution. In recent years, however, the search for oil, industrial growth of coastal cities, and the development of beach resorts have brought new roads and more people to the coast. During the same time the Gulf fishing industry expanded enormously, and, in value, became the largest fishery of the several important fishing regions of the United States.

-1724-
AUTHOR(S): MOORE, J.W.
YEAR: 1975
TITLE: Distribution, Movements, and Mortality of Anadromous Artic Char, Salvelinus alpinus L., in the Cumberland Sound Area of Baffin Island
PUB: J. Fish. Biol. 7:339-348
ABSTRACT:
During 1972 the downstream movement of anadromous arctic char, Salvelinus alpinus L., from two rivers flowing into Cumberland Sound, Baffin Island, began during the middle of May and was completed within weeks. This movement took place during both the day and night. Upon reaching saltwater, many char older than 9 years (longer than 20 cm) began to migrate along the shore of the

Sound at a rate of 0.6-0.9 km/day with the result that the average maximum distance travelled from the natal river was 40-50 km. Char 6-9 years old, 10-20 cm in length, remained much closer to the rivers while those younger than 5 years never entered saltwater. During the period of saltwater residence, the fish frequently moved into the intertidal zone and freshwater. Maturing fish of both sexes were occasionally found in saltwater. The upstream migration to the lakes began during the second week of August and was completed within 5-6 weeks. Females tended to ascend the rivers before males, although fish of all different size and age migrated upstream simultaneously.

-1725-
AUTHOR(S): MOORE, M.D. AND A.J. MEARNS
YEAR: 1980
TITLE: Photographic Survey of Benthic Fish and Invertebrate Communities in Santa Monica Bay
PUB: In Bascom, W. ed. Coastal Water Research Project, Biennial Report for the Years 1979-1980, So. Calif. Coastal Wat. Res. Proj., pp. 139-147
ABSTRACT:

This paper presents the results of a baited camera survey conducted during 1978 and 1979 at 61 stations throughout Santa Monica Bay. The objectives of this study were to: 1) use underwater photography to describe the macrofauna; 2) compare the photographic data-to-data collected by trawl and hood and line fishing; and 3) determine the abundance and diversity of hard to sample marine organisms. A map of the site locations is provided as well as tables listing species photographed, comparisons between hard bottom and soft bottom communities and comparisons between sampling methods.

-1726-
AUTHOR(S): MOORE, R.H.
YEAR: 1974
TITLE: General Ecology Distribution and Relative Abundance of Mugil cephalus and Mugil curema on the South Texas Coast
PUB: Contrib. Mar. Sci. 18:241-255
ABSTRACT:

The general ecology, local distribution and relative abundance of the striped mullet, Mugil cephalus, and the white mullet, Mugil curema, in south Texas were studied during 1970-1971. Additional data on distribution and environmental limits gathered from 1968 through 1972 are included for comparisons. Striped mullet occurred year-round in all five habitat types sampled: open beaches, passes, primary bays, secondary bays and estuarine influenced river. White mullet occurred only between April and October and were most abundant in the passes and inlets connecting the Gulf of Mexico with the bays. The white mullet was rarely found at temperatures below 20 degrees C and was most commonly found in a more restricted salinity range (20-35 ppt) than the striped mullet. The two species exhibit different spawning seasons, striped mullet spawning in the fall, white mullet in the spring and early summer. Both species appear to feed on the same materials, in the same places and at the same times. Limited heterospecific schooling occurs. These findings are discussed in reference to the bioenergetics and general adaptation of both species to the south Texas estuarine environment and comparisons are made between the data gathered in this study and other data drawn from the literature on the distribution of the species throughout their ranges. In general, M. curema appears as a more tropically adapted species which is less suited to life in the highly variable environment of south Texas

bays as shown by their seasonal and local distribution in south Texas and elsewhere where both species occur.

-1727-
AUTHOR(S): MORE, B.
YEAR: 1964
TITLE: Population Studies of the Sports and Commercial Finfish and Forage Species of the Galveston Bay System
PUB: Texas Parks and Wildlife Department, Coastal Fish Proj. Rep. 1963. Proj. No. MF-F-5. Job No. 2, Austin, TX.
ABSTRACT:
Seasonal occurrences, size ranges, and distribution of forage fish, juvenile game fish, and adult game fish in various habitats of Galveston Bay were studied. Forage species were most abundant in spring and least abundant in winter. Most species occurred during summer and fall. Juvenile spotted sea trout, Cynoscion nebulosus, black drum, Pogonias cromis, and redfish, Sciaenops ocellatus, were more abundant at nursery areas sampled in 1963 than in 1962. Atlantic croaker, Micropogon undulatus, and sheepshead, Archosargus probatocephalus, were the most abundant adult game fish collected. Game fish tags were returned at a slower rate in 1963 than in the previous year.

-1728-
AUTHOR(S): MORE, W.R.
YEAR: 1965
TITLE: Population Studies of the Sports and Commercial Finfish of the Galveston Bay System
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MF-R-6. Job No. 2, 20 pp.
ABSTRACT:
Survival of Year-Class 0 redfish (Sciaenops ocellatus) and southern flounder (Paralichthys lethostigma) was high and good standing crops of both species were present during late fall. Trends in the relative availability of adult game fish were not clear as drag seine data were weak and incomparable. Commercial landings decreased slightly from 1963 figures due mainly to a reduction in the speckled trout (Cynoscion nebulosus) catch.

-1729-
AUTHOR(S): MORE, W.R.
YEAR: 1965
TITLE: A Study of the Blue Crab in Texas
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MC-R-5, 22 pp.
ABSTRACT:
Information on seasonal abundance, growth, movement and environmental relationships was used to study trends in the blue crab (Callinectes sapidus) population of Texas, while a survey of the commercial fishery was made to determine the size of the catch and market conditions. Abundance peaks of small crabs were noted during fall and winter, whereas major crab brood waves were detected in July and November. Growth studies in Galveston Bay indicated that most blue crabs will reach commercial size within one year after hatching. The numbers of blue crabs in the samples from most coastal bays have increased since 1963 but crabs have remained scarce in Aransas Bay and the upper Laguna Madre. In 1965, crab landings (3.6 million pounds) increased 56% over 1964 but were one million pounds below the record year, 1962.

Environmental factors related to crab distribution and a summary of a four year tagging program are offered.

-1730-
AUTHOR(S): MORE, W.R.
YEAR: 1966
TITLE: Studies of the Blue Crab in Texas
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MC-R-6, 12 pp.
ABSTRACT:
Blue crab, (Callinectes sapidus), populations were studied in eight coastal bays of Texas and in the Gulf near Bolivar Peninsula. In 1966, young crabs were more abundant in Aransas Bay and the upper Laguna Madre than at any time since 1962. Observable abundance changes were not apparent in other bays sampled. Galveston Bay fishermen produced 50% of the commercial blue crab catch. Total landings decreased 24% from 1965. Spawning and seasonal occurrence is discussed.

-1731-
AUTHOR(S): MORE, W.R.
YEAR: 1969
TITLE: A Contribution to the Biology of the Blue Crab (Callinectes sapidusrathbun) (sic) in Texas, with a Description of the Fishery
PUB: Texas Parks and Wildlife Department, Tech. Ser. No. 1, 31 pp.
ABSTRACT:
Research on the biology of the blue crab (Callinectes sapidus), was begun in Texas in 1962 by biologists of the Texas Parks and Wildlife Department. Information on seasonal abundance, growth, movements and environmental relationships was used to study trends in the crab population, while a survey of the fishery provided information on the size of the catch and market conditions.

-1732-
AUTHOR(S): MORE, W.R. AND A.W. MOFFETT
YEAR: 1965
TITLE: Population Studies of the Blue Crabs of the Galveston Bay System
PUB: Texas Parks and Wildlife Department, Coastal Fish. Proj. Rep. No. MC-R-3. Job No. 2, 24 pp.
ABSTRACT:
Abundance peaks of small blue crabs, (Callinectes sapidus), were found in the samples in February, July, and December. Rough estimates of crab growth were made by tracing modal size progressions based on 60-foot seine data. Crab landings during 1964 were 91% higher than those reported in 1963. Tagging studies are discussed and recommendations for improving the sampling program are offered.

-1733-
AUTHOR(S): MORRILL, C.F.
YEAR: 1974
TITLE: Pink and Chum Salmon Prediction Studies: Completion Report
PUB: State of Washington, Dept. of Fisheries, Management and Research Division, Proj. No. AFC-62, 28 pp.
ABSTRACT:
Since 1965 Washington Department of Fisheries biologists have sampled pink and chum fry prior to their emergence from the substrate in numerous streams and rivers and observed fry in marine beach and estuary surveys throughout

Puget Sound in an effort to develop indices of fry abundance that relate to subsequent adult returns. We have used these indices to project pink salmon run size with different degrees of success since 1967. The 1973 predicted run sizes of 1,140,000 and 960,000 pink salmon based on the pre-emergent and marine indices of fry abundance underestimated the actual return by 32,000 and 180,000. Because each brood of chum salmon returns to spawn in three age classes, relative run size predictions have proven unsatisfactory for management objectives. I evaluated the relationships between the marine survey indices of chum fry abundance and the subsequent returns of adult chum salmon from each brood year 1965 to 1969 for all Puget Sound and for Hood Canal. Little or no relationship exists between the pre-emergent indices of chum fry abundance and subsequent adult returns. Based on the marine indices of abundance, I project future adult returns for the 1970 and 1971 chum salmon broods to Puget Sound of 648,660 and 279,080.

-1734-
AUTHOR(S): MORRIS, B.F.
YEAR: 1981
TITLE: Living Marine Resources of the Chukchi sea. A Resource Report for the Chukchi Sea Oil and Gas Lease Sale Number 85
PUB: NOAA/NMFS, Juneau, AK. F/AKR-3, 118 pp.
ABSTRACT:
This report assesses the biological resources of the northeastern Chukchi Sea that may be at risk from petroleum exploration and development, and proposes research needs to minimize and avoid potential biological impacts.

-1735-
AUTHOR(S): MORRIS, B.F.
YEAR: 1981
TITLE: Living Marine Resources of the Hope Basin: A Resource Assessment for the Hope Basin Oil and Gas Lease Sale Number 86
PUB: NMFS, Tech. Memo., Juneau, AK, 180 pp.
ABSTRACT:
An area of the OCS of the southeastern Chukchi Sea, termed Hope Basin Sale 86, is currently proposed by the Department of the Interior's BLM for oil and gas leasing in May 1985. The report discusses the biological resources of the southeastern Chukchi Sea that may be impacted by petroleum exploration and development, and proposes research needed to minimize and avoid potential biological impacts.

-1736-
AUTHOR(S): MORSE, W.
YEAR: 1982
TITLE: Spawning Stock Biomass Estimates of Sand Lance, Ammodytes sp., Off Northeastern United States, Determined from MARMAP Plankton Surveys,1974-1980
PUB: International Council Exploration Sea. ICES C.M. 1982/G:59, 11 pp.
ABSTRACT:
Spawning stock estimates of sand lance from Georges Bank to Cape Hatteras 1974-1980 are calculated based on egg survival rates. Mean larval catch and larval mortality for 1974-1980 are reported. Estimated larval mortality rates are related to length of larvae.

-1737-
AUTHOR(S): MORSE, W.W.
YEAR: 1980
TITLE: Maturity, Spawning, and Fecundity of Atlantic Croaker, Micropogonias undulatus, Occurring North of Cape Hatteras, North Carolina
PUB: Fish. Bull. 78(1):190-195
ABSTRACT:
The Atlantic croaker, Micropogonias undulatus, is an important inshore, commercially harvested, bottom fish. Twenty-five fish were used for these investigations. This paper presents the size at maturity, spawning times as indicated by ovarian development and fecundity observations of the Atlantic croacker population north of Cape Hatteras.

-1738-
AUTHOR(S): MOSELEY, F.N.
YEAR: 1966
TITLE: Notes on Fishes from the Snapper Banks off Port Aransas, Texas
PUB: Tex. J. Sci. 18(1):75-79
ABSTRACT:
Notes on the occurrence and general ecology of some fishes taken from the snapper banks of the Texas coast from August 1964 to January 1965 are recorded. Included is a range extension of Serranus phoebe Paey.

-1739-
AUTHOR(S): MOSER, J.F.
YEAR: 1902
TITLE: The Salmon and Salmon Fisheries of Alaska
PUB: Report of the Alaskan Salmon Investigation of the U.S. Fish Commission Steamer Albatross in 1900 and 1901. U.S. Govt. Printing Office, Washington, DC, pp. 175
ABSTRACT:
The main features of the work of the Albatross during the summer of 1900 were a continuation of the exploration and examination of the stream and lake systems of Alaska, their general features and characteristics so far as they relate to salmon and other fishes, spawning-grounds, condition and nature of the water, character of shores and vegetation, the species of salmon entering and their movements, the time and duration of runs, the size and abundance of fish, waste species, signs and causes of depletion, the mortality of different species on the spawning-grounds, natural and artificial obstructions to the passage of fish, fishing methods and their relation to the maintenance of supply, and data relating to conditions for hatcheries. At the canneries statistics were obtained of the streams fished by them, and detailed statistics relating to the men, vessels, boats, and apparatus employed in the fisheries, together with the catch and pack of the various species for the years 1898, 1899, and 1900. The photographic and hydrogaphic works, so far as they relate to the subject, were also continued.

-1740-
AUTHOR(S): MOTTET, M.G.
YEAR: 1978
TITLE: A Review of the Fishery Biology of Abalones
PUB: Washington Dept. of Fisheries, Tech. Rep. No. 37, 81 pp.
ABSTRACT:
This paper was prepared to review the literature and to summarize information that may have widespread interest. This is the fourth in a series of review on species where many of the important studies have been done in

Japan. For each of these reports, there is a selection of pertinent translations that is available on loan from the Washington State Department of Fisheries. The abalone articles which have been translated for this report are indicated in the bibliography.

-1741-
AUTHOR(S): MOYLE, P.B., R.A. DANIELS, B. HERBOLD AND D.M. BALTZ
YEAR: 1986
TITLE: Patterns in Distribution and Abundance of a Noncoevolved Assemblage of Estuarine Fishes in California U.S.A.
PUB: Fish. Bull. 84(1):105-118
ABSTRACT:

The patterns of distribution and abundance of fishes of Suisun Marsh, a portion of the Sacramento-San Joaquin estuary in central California, were studied over a 54-month period. Total fish abundance in the marsh exhibited strong seasonality; numbers and biomass were lowest in winter and spring and highest in late summer. Freshwater inflow was highest in the winter and lowest in late summer, when salinities and temperatures were highest. Twenty-one species were collected on a regular basis; the 10 most abundant were Moreone saxatilis, Pogonichthys macrolepidotus, Gasterosteus aculeatus, Hysterocarpus traski, Cottus asper, Spirinchus thaleichthys, Acanthogobius flavimanus, Catostomus occidentalis, Leptoccottus armatus, and Platichthys stellatus. Another 21 species occurred in small numbers on an irregular basis. Twenty of the 42 species had been introduced to California since 1879. Of the 21 common species, 14 were residents, 4 were winter seasonals, and 3 were spring/summer seasonals. The resident species fell into two groups: a group of native species that were concentrated in small dead-end sloughs and a group of native and introduced species that were most abundant in the larger sloughs. The seasonal species were also a mixture of native and introduced species. Total fish abundance and species diversity declined through the study period, which seemed to be related to strong freshwater conditions late in the study. The structure of the fish assemblage was fairly consistent over the study period but changes are expected in the near future. The structure of the Suisuan Marsh fish assemblage was similar to that found in other river-dominated estuaries, despite the mixture of native and introduced species.

-1742-
AUTHOR(S): MULHOLLAND, R.
YEAR: 1984
TITLE: Habitat Suitability Index Models: Pink Shrimp
PUB: U.S. Fish. Wildl. Serv., FWS/OBS-82/10.76, 17 pp.
ABSTRACT:

This report presents the habitat suitability index model for pink shrimp and is intended for use in the habitat evaluation procedures developed by the U.S. Fish and Wildlife Service for impact assessment and habitat management. The model was developed from a review and synthesis of existing information and is sealed to produce an index of habitat suitability between 0 (unsuitable habitat) and 1 (optimally suitable habitat). This report also presents information on species distribution, life history and specific habitat requirements.

-1743-
AUTHOR(S): MULKANA, M.S.
YEAR: 1965
TITLE: Ecology of Juvenile Fishes in Rhode Island Estuaries
PUB: J. Miss. Acad. Sci. 11:307-308
ABSTRACT:
The juvenile stage in the life history of fishes marks the emergence from dependent larval life to an independent young phase. At this stage survival becomes dependent upon physiological and morphological fitness, availability of suitable types of food, protective adaptions to minimize predator and parasite invasion and population pressure. The immature young of coastal and offshore fishes of many species spend their critical juvenile period in protected, food-rich estuaries. Often the success of stocks in a fishery is dependent on the presence of areas suitable as nursery grounds.

-1744-
AUTHOR(S): MULLEN, D.M. AND J.R. MORING
YEAR: 1986
TITLE: Species Profile: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (N. Atlantic)--Sea Scallop
PUB: U.S. Fish Wildl. Serv. Biol. Rep. 82/11.67. U.S. Army Corps of Engineers, TR EL-82-4, 13 pp.
ABSTRACT:
This species profile is one in a series on coastal aquatic organisms, principally fish of sport, commercial, or ecological importance. The profiles are designed to provide coastal managers, engineers, and biologists with a brief comprehensive sketch of the biological characteristics and environmental requirements of the species and to describe how populations of the species may be expected to react to environmental changes by coastal development.

-1745-
AUTHOR(S): MUNCY, R.J.
YEAR: 1984
TITLE: Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Gulf of Mexico)--White Shrimp
PUB: U.S. Fish. Wildl. Serv., FWS/OBS-82/11.20, 19 pp.
ABSTRACT:
This is one in a series of profiles on coastal organisms, principally fish of sport, commercial, or ecological importance. This profile provides a brief comprehensive sketch of the biological characteristics and environmental requirements of the white shrimp in the Gulf of Mexico, and describes how populations may be expected to react to environmental changes caused by coastal development. The profile contains sections on taxonomy, life history (including geographic range and relative abundance), ecological role, environmental requirements, and economic importance.

-1746-
AUTHOR(S): MUNDY, P.R.
YEAR: 1985
TITLE: Practice--Salmon Fishing in Alaska
PUB: In Mundy, P.R., T.J. Quinn, II and Deriso, R.B., eds. Fisheries Dynamics: Harvest Management and Sampling. Washington Univ., Seattle. Sea Grant Program. WSG-85-1, Tech. Rep. pp. 19-34
ABSTRACT:
The basic simplicity of a harvest control system composed of a performance curve and a set of rules for its interpretation is intellectually appealing,

and it is also an accurate reflection of the way harvest control now operates in most commercial marine fisheries. At present the performance curve may simply be carried in the mind of an experienced harvest control practitioner and the rules may be unwritten tradition, but wherever fishing operations are actually directed to achieve some objective, such a system exists. The challenge is to describe and quantify the harvest control system so that knowledge can be advanced. If fisheries management, and in particular the harvest control of commercial fisheries, is ever to be more than a cottage industry staffed by somewhat gifted amateurs, then the process of defining and interpreting the harvest control system to general audiences must go forward.

-1747-
AUTHOR(S): MUNDY, P.R. AND O.A. MATHISEN
YEAR: 1979
TITLE: Abundance Estimation in a Feedback Control System Applied to the Management of a Commercial Salmon Fishery
PUB: In: NATO Symposium on Applied Operations Research in Fishing, at the Marine Technology Center in Trondheim, Norway, August 14th-17th. Vol. 1, pp. 39-74.
ABSTRACT:
Procedures developed during the 1976-77 sockeye salmon (Oncorhynchus nerka) fishing seasons in Bristol Bay, Alaska, USA, for an estimation program intended to support objective solutions of salmon management problems by estimating daily and total adult abundance accurately, are presented.

-1748-
AUTHOR(S): MUNDY, P.R., T.J.QUINN, II AND R.B. DERISO, EDS.
YEAR: 1985
TITLE: Fisheries Dynamics: Harvest Management and Sampling
PUB: Washington University, Seattle. Sea Grant Program. Mar. 1985, Wash. Sea Grant Tech. Rep. WSG-85-1, 60 pp.
ABSTRACT:
Five papers from this report on fishery harvest management and sampling have been included in this issue. Part 1 of this report is titled: Harvest control systems for commercial marine fisheries management; theory and practice. Part 2 is titled: Management of the North Pacific halibut fishery.

-1749-
AUTHOR(S): MUNRO, J.L., A.C. JONES AND D. DIMITRIOU
YEAR: 1968
TITLE: Abundance and Distribution of the Larvae of Pink Shrimp (Penaeus duorarum) on the Tortugas Shelf of Florida, August 1962-October 1964
PUB: U.S. Fish Wildl. Serv. Fish. Bull. 67:165-181
ABSTRACT:
A 2-year study has shown that an estimated 870 x 10 to the 10th power first protozoa of pink shrimp are produced each year within the main part of the Tortugas spawning grounds. Survival rates are nearly constant and average 80.4% per day throughout larval life. Estimates of larval survival at specific sampling stations are influenced by the migration patterns of the larvae and vary considerably, depending on whether the sampling station receives older larvae from adjacent areas or loses larvae to other areas.
An investigation of bottom currents on the Tortugas grounds has shown that the prevailing westerly and southwesterly currents may carry the larvae into the Florida Current, which, in turn, may transport the larvae to the nursery grounds in the Everglades National Park. Spawning, measured by the relative abundance of first protozoa, is influenced by moon phase; most spawning occurs

during the last half of the lunar month. Spawning activity reaches a maximum when bottom water temperatures are highest; the center of spawning shifts from shallow water into deeper water as the spawning season progresses.

-1750-
AUTHOR(S): MURAI, S., H.A. GANGMARK AND R. FRENCH
YEAR: 1981
TITLE: All Nation Removals of Groundfish Herring and Shrimp from the Eastern Bering Sea and Northeast Pacific Ocean
PUB: U.S. Dep. Commerce, NOAA Tech. Memo, NMFS F/NWC-14, 40 pp.
ABSTRACT:
Under provisions of the U.S. Fishery Conservation and Management Act of 1976 (FCMA), all foreign nations permitted to fish in the fishery conservation zone (established by the act) must report catch statistics by given statistical areas. Provisional reports must be submitted weekly by large statistical areas, and by May 30 of the following year, annual catch statistics must be submitted by 1o long. by 1/2o lat. areas of the fishery conservation zone (FCZ). Catches must be shown by designated species or species groups which may change from year to year as requested by the U.S. These reporting requirements have led to a more uniform body of catch statistics than heretofore available.

-1751-
AUTHOR(S): MURAWSKI, S.A.
YEAR: 1977
TITLE: Preliminary Assessment of Weakfish in the Middle Atlantic Bight
PUB: NEFC/NMFS, Woods Hole Lab., MA, 5pp. + tables
ABSTRACT:
The range of the weakfish extends from Massachusetts to Florida, however, evaluation of racial studies and tagging information indicates the probable existence of a discrete stock from Cape Cod to Cape Hatteras. Commercial landings from Massachusetts to North Carolina have historically undergone considerable fluctuation. Most commercial catches came from North Carolina, Virginia, and New Jersey, while the majority of sport fish were landed in New Jersey, Delaware, and New York.

-1752-
AUTHOR(S): MURAWSKI, S.A.
YEAR: 1979
TITLE: Dynamics of Ocean Quahog, Arctica Islandica, Populations Off the Middle Atlantic Coast of the United States
PUB: NOAA/NMFS/NEFC
ABSTRACT:
Abundance and size composition estimates of Middle Atlantic ocean quahog, Arctica islandica, populations were derived from seven federal research survey cruises conducted from Cape Code to Cape Hatteras during 1965-1977. Minimum population size in numbers and biomass was calculated using mean quahog densities expanded by strata areas. While the accumulated Middle Atlantic ocean quahog population biomass can support substantial increases in annual harvests, present data suggest that the current landings may be near the equilibrium capacity of the resource and the current distribution of fishing effort is disproportionate to the spatial distribution of stock biomass.

-1753-
AUTHOR(S): MURAWSKI, S.A. AND F.M. SERCHUK
YEAR: 1980
TITLE: Clams and Scallops of the Northeast Coast
PUB: Underwater Naturalist 12(4):25-33
ABSTRACT:

Today, three species of oceanic bivalves found off the northeast coast are among the most important fishery resources of the United States--the sea scallop, Placopecien magellanicus, surf clam, Spisula solidissima, and ocean quahog, Arctica islandica. The three species in aggregate yielded about 101 million pounds of shucked meats, valued at over $132 million to fishermen in 1979. Considering processing, distribution, and marketing, the impact of these resources on the U.S. economy is significant. The Northeast Fisheries Center routinely conducts surveys and related stock assessment studies of sea scallops, surf clams, and ocean quahogs. A summary of the biology, use, and future outlook for these resources follows.

-1754-
AUTHOR(S): MURAWSKI, S.A., A.M. LANGE, M.P. SISSENWINE AND R.K. MAYO
YEAR: 1983
TITLE: Definition and Analysis of Multispecies Otter-Trawl Fisheries off the Northeast Coast of the United States
PUB: J. Cons. Int. Explor. Mer. 41:13-27
ABSTRACT:

Otter trawls fishing off the northeast coast of the United States catch a variety of demersal and semi-pelagic species depending on the area, depth, and time of year they are used. Because of the relatively non-selective nature of the gear, and biological co-occurrence, fisheries are rarely characterized by an individual species. Fishery management by single-species quota control has thus proved particularly difficult. An alternative approach to fishery definition can be based on determining the spatial/temporal boundaries of relatively unique and homogeneous species compositions, from commercial landings data. Accordingly, operational fisheries were defined by grouping statistical area/depth zone/month categories (n=576) exhibiting similar species compositions in aggregated commercial vessel trip reports for 1977 to 1979. Based on the results of numerical cluster analyses, 29 mixed-species fisheries were identified and organized into nine major fisheries reflecting geographic/ecologic zones. A review of historical (1964 to 1980) trends in nominal catch and fishing effort, catch per effort, relative vessel size distribution, and species composition for selected major fisheries is presented.

-1755-
AUTHOR(S): MURAWSKI, S.A., AND F.M. SERCHUK
YEAR: 1983
TITLE: An Assessment of the Ocean Quahog, Arctica islandica, Resource and Fishery in FCZ Waters off the Northeastern USA--Autumn 1983
PUB: AMFS/NOAA, Woods Hole Laboratory Reference Document No. 83-23, WoodsHole, MA, 18 pp. + App.
ABSTRACT:

Trends in fishery performance during 1979-1983 were evaluated using mandatory logbook data submitted by each permitted vessel. Average catch per hour fishing for the large vessels varied little during the period, although average catch rates were significantly higher for the Delmarva area than off New Jersey. Total standing stock of quahogs in the region is estimated to be 2.67 billion pounds of meats. The majority of the resource occurs on Georges

Bank, and off Southern New England with smaller percentages off Long Island, New Jersey, Delmarva, and southern Virginia-North Carolina.

-1756-
AUTHOR(S): MURAWSKI, S.A., J. W. ROPES AND F.M. SERCHUK
YEAR: 1982
TITLE: Growth of the Ocean Quahog, Arctica islandica, in the Middle Atlantic Bight
PUB: Fish. Bull. 80(1):21-34
ABSTRACT:

In situ growth of the ocean quahog, Arctica islandica, was investigated at a site 53 m deep off Long Island, New York, during 1970-80. Specimens notched during summer 1978 and recaptured 1 and 2 calendar years later yielded information on shell growth and the periodicity of supposed annual marks. Growth of specimens recaptured after 1 year at liberty (n=67.59-104 mm shell length) was described by SL(t+1)=2.0811 + 0.9802 SLt where SL is shell length in millimeters at age t. Average shell length of marked specimens recaptured during summer 1980 increased 1.17 mm (n=200), approximately twice that of ocean quahogs recaptured in 1979 (0.56 mm). Length-frequency samples were available for the vicinity of the marking study from routine dredge surveys of clam resources during 1970-80. Growth rates inferred from progressions of length-frequency modes in 1970 and 1980 samples were similar to those computed from mark-recapture and age-length equations. Ocean quahogs are apparently among the slowest growing and longest lived of the continental shelf pelecypods; annual increases in shell length were 6.3% at age 10, 0.5% at age 50, and 0.2% at an estimated age of 100 years.

-1757-
AUTHOR(S): MURAWSKI, S.A., J.W. ROPES AND F.M. SERCHUK
YEAR: 1981
TITLE: Population Biology of the Ocean Quahog, Arctica islandica, in the Middle Atlantic Bight
PUB: J. Shellfish. Res. 1(1):120
ABSTRACT:

The ocean quahog, Arctica islandica, has become increasingly important to the clam industry of the United States. Landings of shucked meat increased thirty-fold between 1975 and 1979; from 570 metric tons to 15,610 metric tons. Data on the distribution, relative abundance, and size compositions of Middle Atlantic stocks have been gathered during a series of dredge surveys since 1965. Additional information on age and growth is available from recent field and laboratory studies. A review of important biological features, and a current assessment of Middle Atlantic populations are presented.

-1758-
AUTHOR(S): MURDY, E.O., R.E. MATHESON, JR., J.D. FECHHELM AND M.J. MCCOID
YEAR: 1983
TITLE: Midwater Fishes of the Gulf of Mexico Collected from the R/V Alaminos, 1965-1973
PUB: Texas J. Sci. 35(2):109-128
ABSTRACT:

Cruises of the R/V Alaminos during 1965-1973 involved the collection of fishes by mudwater trawl from 38 locations in the Gulf of Mexico and the northwestern Caribbean. The 4,232 specimens comprised 32 families, 75 genera, and at least 116 species of meso- and bathy-pelagic fishes. Considering the collections as a whole, gonostomatids were the dominant group and cyclothone the dominant genus. The families gonostomatidae, myctophidae,

sternoptychidae, and melamphaidae accounted for 95% of the catch. Relative abundance of gonostomatids varied little with sampling depth (to 1,000 m); myctophids were relatively most abundant in samples from the upper 500 m; sternoptychids and melamphaids were relatively most abundant in samples extending to depths of 1,000 m.

-1759-
AUTHOR(S): MURIE, V.J.
YEAR: 1959
TITLE: Fauna of the Aleutian Islands and Alaska Peninsula
PUB: North American Fauna, no. 61., U.S. Fish & Wildl. Serv., Washington, DC., 406 pp.
ABSTRACT:

The Aleutian Islands, treeless, fog-bound, and volcanic, extend westward from the tip of the Alaska Peninsula or about 1,100 miles to Attu, which is less than 600 miles rom the Kamchatka Peninsula of Asia. The Aleutian Islands Wildlife Reservation, now a National Wildlife Refuge, was established on this chain in 1913. This reservation embraces the islands of the Aleutian chain between the North Pacific Ocean and the Bering Sea. These islands were set apart as a preserve and breeding ground for native birds, for the propagation of reindeer and fur-bearing animals, and for the encouragement and development of fisheries.

-1760-
AUTHOR(S): MURPHY, M.D.
YEAR: 1981
TITLE: Aspects of the Life History of the Gulf Butterfish, Peprilus burti
PUB: M.S. Thesis, Texas A & M Univeristy, College Station, 77 pp.
ABSTRACT:

This thesis describes size and age at maturity for P. burti, spawning seasonality, spawning sites, seasonal distribution, growth, maximum size, life span, total annual mortality rate and weight-length, girth-length and length-length relationships.

-1761-
AUTHOR(S): MURTAUGH, P.A.
YEAR: 1983
TITLE: Mysid Life History and Seasonal Variation in Predation Pressure on Zooplankton
PUB: Can. J. Fish. Aquat. Sci. 40(11):1968-1974
ABSTRACT:

The life history of Neomysis mercedis in Lake Washington, Seattle, results in seasonal variation in populations size structure that influences the amount and quality of predation suffered by its zooplankton prey. Population densities and size-frequency data for neomysis are combined with information on the influence of body size on feeding rate and composition of the diet to predict relative predation intensity on five classes of Daphnia over a 27-mo period. An imperfect relationship between mysid numbers and expected predation intensity and seasonal fluctuations in the relative vulnerability of different-sized prey are two consequences of the mysid's pattern of life history.

-1762-
AUTHOR(S): MUSIC, J.L., JR.
YEAR: 1978
TITLE: Assessment of Georgia's Shrimp and Crab Resources
PUB: Contrib. Ser. Ga. Dep. Nat. Sci. Coast. Res. Program., GDNR, 81 pp.
ABSTRACT:
White shrimp, brown shrimp, pink shrimp and blue crabs together produce an annual average of 93% of the ex-vessel value of marine products landed in Georgia. Shrimp landings (mostly white shrimp) account for 82%, while blue crab landings account for 11%. This report summarizes findings of seasonal abundance, geographic distribution, spawning activity and other life history information for these important commercial species. Three-quarters of all white shrimp spawning activity occurs during May and June. Very few brown and pink shrimp spawn along the Georgia coast. Ripe stage female browns were taken during late summer and fall. No ripe female pinks were found, but early development was recorded near Ossabaw Sound during May. Sponge crabs were taken in all months except November and December, but the main spawning season is from April through June. The 1977 winter kill revealed that the white shrimp population could recuperate to near normal levels after one spawning season. In 1977, 7% of the average number of spawning white shrimp propagated enough shrimp to equal 60% of the average commercial catch (10-year average). Resource management played an important role in the protection of these spawners, and recommendations are included in this paper.

-1763-
AUTHOR(S): MUSIC, J.L., JR. AND J.M. PAFFORD
YEAR: 1984
TITLE: Population Dynamics and Life History Aspects of Major Marine Sportfishes in Georgia's Coastal Waters.
PUB: GA Dept. Natural Resources. Brunswick, GA. Contrib. Ser. No. 38, March, 1984, 383 pp.
ABSTRACT:
This report is a comprehensive review of life history and ecology, including a seasonal movements and migration patterns, age distribution, growth rates, food preferences, feeding habits, spawning times and locations, fecundity, etc., of eleven species of Georgia's inshore marine recreational sportfishes.

-1764-
AUTHOR(S): MUSICK, J.A.
YEAR: 1979
TITLE: Community Structure of Fishes on the Continental Slope and Rise Off the Middle Atlantic Coast of the United States
PUB: Virginia Institute of Marine Science, Gloucester Point, Virginia. 1979. Spec. Sci. Rep. No. 96, 39 pp.
ABSTRACT:
Otter trawl cruises were conducted off the middle Atlantic coast of the U.S. from 1971 to 1975.

-1765-
AUTHOR(S): MUSICK, J.A. AND J.O. MCEACHRAN
YEAR: 1972
TITLE: Autumn and Winter Occurrence of Decapod Crustaceans in Chesapeake Bight, U.S.A.
PUB: Crustaceana 22(2):190-200

ABSTRACT:

Autumn and winter collection of decapod crustaceans in Chesapeake Bight suggest that the region may be divided into three zoological zones: The Gulf Stream with its attendent tropical and southern fauna; the environmentally stable OCS and upper slope where C. irroratus, H. americanus, and M. iris are abundant; and the seasonally variable inner shelf which may support tropical or boreal species at certain seasons, but where the fauna is dominated by Virginian species such as C. irroratus and O. ocellatus.

-1766-
AUTHOR(S): MUSIK, J.A. AND L.B. MERCER
YEAR: 1976
TITLE: Seasonal Distributions of Black Sea Bass, Centropristis strata, in the Mid-Atlantic Bight with Comments on the Ecology and Fisheries of the Species
PUB: Trans. Am. Fish. Soc. 106(1):12
ABSTRACT:

Black sea bass in the Middle Atlantic Bight spawn in the summer, at depths of 18 to 45 m. primarily from Virginia to Montauk, Long Island. Young of the year become demersal at 13-24 mm total length and enter estuarine nursery grounds. In fall black sea bass migrate south and offshore to the Chesapeake Bight where the entire population spends the winter. Larger and older fish move offshore sooner than do young of the year and winter in deeper water (73-165 m). Black sea bass may tolerate temperatures as low as 6 C but are captured in larger numbers and more frequently in waters 9 C and above. In the spring sea bass migrate inshore and to the north; adults to their coastal spawning areas, juveniles to estuarine nursery areas (including lower Chesapeake Bay).

In recent years, the commercial catch per effort of sea bass has dropped and the fishery lands fewer large and medium size fish. Concurrently domestic trawling effort has decreased somewhat whereas effort by the recreational, foreign trawl, and pot fisheries has increased. Black sea bass appear to be overharvested. Because sea bass are incompletely metagonous, protogynous hermaphrodites, heavy fishing pressure may cause the sex ratio of the population to so favor females that the number of remaining males may not be sufficient to sustain adequate reproduction. Conversely, behavioral interactions among individuals in the population may act homeostatically to initiate sex reversal, thus maintaining a relatively constant (though skewed) sex ratio in the population. It is necessary to understand the mechanisms controlling sex reversal in black sea bass before the effects of fishing pressure on the population can be evaluated.

-1767-
AUTHOR(S): MYSAK, L.A.
YEAR: 1986
TITLE: El Nino, Interannual Variability and Fisheries in the Northeast Pacific Ocean
PUB: Can. J. Fish. Aquat. Sci. 43(2):464-497
ABSTRACT:

This review describes the oceanic and atmospheric observations, physical mechanisms, and theories associated with El Nino-- Southern Oscillation (ENSO) warming episodes in the tropical Pacific, and critically examine the means by which these anomalous events are believed to produce unusual conditions in the northeast Pacific. However, not all tropical ENSO episodes have a noticeable effect at higher latitudes. Also, because of anomalous local atmospheric forcing, significant warmings, strong coastal currents, and high sea levels

along the west coast of North America can occur in years during which there are no tropical ENSO episodes. The possible impacts of ENSO-induced changes and of other interannual fluctuations in the northeast Pacific on various fisheries are described. Such impacts include changes in the migration routes of the bluefin tuna (Thunnus thynnus) and Fraser River sockeye salmon (Oncorhynchus nerka), increases in the Pacific herring (Clupea palasi) recruitment, earlier return times for the Bristol Bay sockeye salmon, and increases in the weight of mature Fraser River sockeye several years after a local warming event.

-1768-
AUTHOR(S): NAKAMURA, E.L.
YEAR: 1976
TITLE: Recreational Fisheries for Snappers and Groupers in the Gulf of Mexico
PUB: Proceedings: Colloquium on Snapper-Grouper Fishery Resources of the Western Central Atlantic Ocean, Re. No. 17, pp. 77-85
ABSTRACT:
Recreational fishing for snappers and groupers is conducted mainly from boats. Three general types of boats are used: party boats (also called head boats), charter boats, and private boats. Sizes of these boats range from small (12- to 16-foot) private boats to large (85-foot) party boats. Snappers and groupers are the top choices of species sought by anglers while fishing from party boats and charter boats. These species are also highly desired by private boat anglers.

-1769-
AUTHOR(S): NAKAMURA, E.L.
YEAR: 1980
TITLE: Carangids of the Northern Gulf of Mexico
PUB: Proceedings of a Workshop for Potental Fishery Resources of the Northern Gulf of Mexico, Mississippi-Alabama Sea Grant Consortium, pp. 18-33
ABSTRACT:
The purpose of the review is to summarize what is known about the carangid fishes of the northern Gulf of Mexico. Two dozen species of carangids are known to occur in the northern Gulf. Some are regarded as prized food fish (e.g., Florida pompano, Trachinotus carolinus), some as excellent game fish (e.g., greater amberjack, Seriola dumerili), some as curiosities (e.g., lookdown, Selene vomer), some as excellent bait for game fishes (e.g., Atlantic bumber, Chloroscombrus chrysurus). A brief account of each of the 24 species is presented. Knowledge of these species is inadequate to determine the feasibility of exploitation or of greater exploitation. More information on the early life history of these species is available than on their late juvenile and adult life history. Information on the distribution and abundance of economically harvestable quantities, yield estimates, and biomass estimates is needed.

-1770-
AUTHOR(S): NAKAMURA, E.L., J.R. TAYLOR AND I.K. WORKMAN
YEAR: 1980
TITLE: The Occurrence of Life Stages of Some Recreational Marine Fishes in Estuaries of the Gulf of Mexico
PUB: U.S. Dept. of Commerce, NOAA Tech. Memo., NMFS-SEFC-45, 53 pp.

ABSTRACT:
We reviewed what was known of the distribution and occurrence of the various life stages of recreational fishes in estuaries along the U.S. coast of the Gulf of Mexico. We examined various publications and tallied, by species and by life stages, those recreational fishes that had been reported in estuaries.

-1771-
AUTHOR(S): NAKATANI, R.E., G.J. PAULIK AND R. VAN CLEVE
YEAR: 1975
TITLE: Pink Salmon, Oncorhynchus Gorbuscha, Tagging Experiments in Southeastern Alaska, 1938-42 and 1945
PUB: NOAA Tech. Rep., NMFS Spec. Sci. Rep. Fish., No. 686:1-39, Vol. 117, Sec. 15, Cit. 04396
ABSTRACT:
A total of 20,532 pink salmon (Oncorhynchus gorbuscha) were tagged and released in southeastern Alaska north of Sumner Strait during the years of 1938 to 1942 inclusive, and in 1945. The recovery of 7,027 of these tags in the fish traps confirmed the findings of other investigators that the pink salmon stocks of the northern part of southeast Alaska are separate from those in the southern part. They also show that pink salmon enter the northern part of southeast Alaska through two paths: (1) through Icy Strait, and (2) through the lower end of Chatham Strait. The centers of density of each group of tags appeared to move in a consistent manner, but a smaller number of tags from each release were dispersed throughout the northern part of southeastern Alaska. Differences were noted between the movements of fish in odd and even years. Also a larger proportion of earlier tagged fish moved to recovery locations farther inland. In all areas and in all years the fishing season closed about the time of the greatest abundance of fish in the fishery; therefore, the later parts of the runs were not studied. Apparently the 1941 run was the largest and that in 1945 the smallest. Migration rates were studied by plotting the catch per trap as well as by the recovery of tags. The latter showed movements of 9.05 to 33.37 miles per day. Survival rates computed for thirty releases with total tag recovery periods of two or more weeks averaged 0.384. Weekly exploitation rates varied from 0.142 to 0.452 averaging 0.250. The weekly F exponential rate of fishing averaged 0.514. Recoveries of tags from seines were not used since their proportion of tags recovered was less than one-half their proportion of the catch. Recommendations are made for future tagging experiments based upon the results of this analysis.

-1772-
AUTHOR(S): NANCE, J.M. AND F.J. PATELLA
YEAR: 1987
TITLE: Review of the Tortugas Pink Shrimp Fishery from May 1985 to December 1986
PUB: NMFS/NOAA, Tech. Memo., Galveston, TX, 27 pp.
ABSTRACT:
The paper reviews the characteristics of the Tortugas fishery from May 1985 to December 1986 and compares results with historical data.

-1773-
AUTHOR(S): NANCE, JAMES M., ET AL.
YEAR:
TITLE: Review of the Tortugas Pink Shrimp Fishery from May 1984 to December 1985
PUB: Galveston Laboratory, Southeast Fisheries Center, NMFS/NOAA, and Department of Commerce
ABSTRACT:
Commercial pink shrimp fishing data from the Tortugas fishery were reviewed for biological year 1984 and the first 8 months of biological year 1985. The authors conclusion was that the Tortugas sanctuary has met the objectives of the Gulf of Mexico Shrimp Fishery Management Plan to protect small shrimp and thus increase the yield in the Tortugas pink shrimp fishery.

-1774-
AUTHOR(S): NARITA, R.E.
YEAR: 1986
TITLE: PacFIN Statistical Summary: 1984 Joint Venture Logbook Data
PUB: NWAFC Processed Report 86-13. Seattle, WA: NOAA/NMFS/NWAFC, 22 pp.
ABSTRACT:
This statistical report summarizes the 1984 joint venture logbook data in the Pacific Fisheries Information Network (PacFIN) database. These data were obtained from logsheets voluntarily submitted by fishermen. Since 1982, the number of logsheets submitted has steadily increased. As of December 1985, the numbers of logsheets received are provided.
This summary report comprises a series of database retrievals for statistical areas of the International North Pacific Fisheries Commission (INPFC). Also, retrievals have been run for all these areas combined (ALL NORTHEASTERN PACIFIC OCEAN and BERING SEA) and all Alaskan areas.

-1775-
AUTHOR(S): NAUMENKO, N.I.
YEAR: 1977
TITLE: Distribution and Feeding of Herring Underyearlings in the Eastern Bering Sea
PUB: In: Fishery Oceanography Hydrobiology and Fish Parasitology of the Pacific Ocean. Izv. TINRO, v. 101, pp. 51-55
ABSTRACT:
The paper is based on material collected during 5 yrs. The following conclusions are drawn: (1) underyearlings of abundant year-classes are distributed over a wider, area than those of poor year-classes, and their food spectrum appears to be somewhat wider, (2) year-classes of high and medium abundance are characterized by considerable variability of their size structure, (3) differently sized underyearlings of strong generations feed on different food organisms, and (4) the average length of underyearlings from abundant generations is usually higher than that of underyearlings from poor generations.

-1776-
AUTHOR(S): NEAL, R.A. AND R.C. MARIS
YEAR: 1985
TITLE: Fisheries Biology of Shrimps and Shrimplike Animals
PUB: In: The Biology of Crustacea. Vol. 10. Economic Aspects: Fisheries and Culture, Provenzano, A.J. Jr., ed. Academic Press, Orlando, FL. pp. 1-110

ABSTRACT:
A description is given of the major shrimp fisheries, their importance, and the biological aspects that relate directly to man's utilization of shrimp.

-1777-
AUTHOR(S): NEAL, R.A., H.A. BRUSHER AND L.F. SULLIVAN
YEAR: 1983
TITLE: Survey of Brown Shrimp Resources in the North-Western Gulf of Mexico 1961-1965
PUB: NMFS/NOAA Tech. Memo, NOAA No. 84070903, Galveston Lab., Galveston, TX
ABSTRACT:
A sampling program was conducted during 1961-65 to measure the general distribution and abundance of shrimp resources off the Texas and Louisiana coasts. Samples were taken monthly with standard commercial shrimping gear along 10 transects at depths ranging from 14 to 110 m. Due to limitations of sampling, analysis of brown shrimp abundance data detected no significant difference between years, although 1961, 1962 and 1964 were historically low abundance years for brown shrimp. Brown shrimp were more abundant off the Texas coast than off the Louisiana coast.

-1778-
AUTHOR(S): NEAVE, F., Y. YONEMORI AND R.G. BAKKALA
YEAR: 1976
TITLE: Distribution and Origin of Chum Salmon in Offshore Waters of the North Pacific Ocean
PUB: Int. N. Pac. Fish. Comm., Bull. No. 35, INPFC Doc. No. 1853, 66 pp.
ABSTRACT:
Studies on the offshore distribution of Pacific salmon began prior to World War II (Sato, 1938; Hirano, 1953; Fisheries Agency of Japan 1955; Kasahara, 1961; Barnaby, 1952) but were not fully developed until the advent of the Japanese mothership fishery for salmon in the North Pacific, the Bering Sea, and the Sea of Okhotsk in 1952 (Fisheries Agency of Japan, 1955; Taguchi, 1957; Kasahara, 1961). In 1955 a vast cooperative program was undertaken by member nations--Canada, Japan, and the United States--of the International North Pacific Fisheries Commission (INPFC) to determine the ocean distribution and migrations of the various stocks of Asian and North American salmon in relation to the Japanese fishery. Reviews of these studies, covering data available up to about 1962, were published for each species of Pacific salmon as bulletins of the Commission. Findings relating to chum salmon were reviewed by Shepard et al. (1968)-INPFC Bulletin No. 25. In the years since their publication was prepared, many further investigations have been reported. The purpose of the present review is to examine this newer information and, in conjunction with the earlier findings, to summarize our current understanding of the ocean life history of chum salmon. In general, the material treated extends to the end of 1971.

-1779-
AUTHOR(S): NEILL, W., R. FECHHELM, B. GALLAWAY, J. BRYAN AND S. ANDERSON
YEAR: 1983
TITLE: Modeling Movement and Distribution of Young Arctic Cisco (Coregonus autumnalis) Relative to Temperature-Salinity Regimes of the Beaufort Sea Nearthe Waterflood Causeway, Prudhoe Bay, Alaska
PUB: Biol. Pap. Univ. Alaska 21:39-61

ABSTRACT:
A mechanistic model was developed to evaluate the movement patterns of small arctic cisco relative to environmental heterogeneity associated with the Waterflood Causeway, a gravel pier that projects 3.9 km into the Beaufort Sea from the Alaskan coast near Prudhoe Bay. Fish movement and resultant changes in density were treated as a donor-controlled drift process biased by experimentally determined temperature preferences (given temperature and salinity acclimation) of the fish. Simulated fish density was significantly rank-correlated with actual catch. Goodness-of-fit was improved when observed data were filtered to remove the effects of presumed highly frequent changes in fish catchability. Under the assumption of model validity, small arctic cisco make appropriate use of the causeway's breach as a passageway. Causeway-induced variation in water quality during August 1981 directed fish movement in a manner that should reduce entrainment and impingement potential of planned water-intake structures, although these same water quality differences resulted in an estimated 7% reduction in fish density that would have been present in the area had environmental heterogeneity provided no directional bias in fish movements.

-1780-
AUTHOR(S): NELSON, J.I.
YEAR: 1981
TITLE: Inventory of the Natural Resources of Great Bay Estuarine System. Vol. I.
PUB: New Hampshire Fish Game Dept., 254 pp.
ABSTRACT:
This report is a detailed survey of abundance and distribution of biota of major habitats in this large boreal estuary. It is interesting for its attempt to fix economic values of biotic components, and valuable for its coverage of noneconomic species.

-1781-
AUTHOR(S): NELSON, M.O.
YEAR: 1969
TITLE: Use of Vertical Echo Sounders in Assessing the Abundance of Offshore Pacific Hake Populations
PUB: In: Pereyra, W.T. ed. Acoustical Workshop Abstract. Proceedings, Seattle, WA, Nov. 25-27, 1968. U.S. Bureau of Commercial Fisheries, NWAFC, pp. 29.
ABSTRACT:
A method of standing stock estimation based on straightforward application of the classic catch equation is discussed. The use of this method in determining the size of midwater hake stocks from echo-grams is described.

-1782-
AUTHOR(S): NELSON, M.O. AND E.P. NUNNALLEE
YEAR: 1986
TITLE: Results of Acoustic-Midwater Trawl Surveys for Walleye Pollock in Shelikof Strait, 1985
PUB: In: Major, R.L. (ed.). Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1985. NWAFC/NMFS/NOAA, Seattle, WA, 309 pp.
ABSTRACT:
Four acoustic midwater trawl surveys of the Shelikof Strait spawning walleye pollock stock were conducted during late February and March 1985. This report presents the 1985 abundance estimates and associated biological

information and compares them with the results of the 1981, 1983, and 1984 surveys. It also discusses sources of error and future research needs.

-1783-
AUTHOR(S): NELSON, M.O. AND H.A. LARKINS
YEAR: 1970
TITLE: Distribution and Biology of Pacific Hake: A Synopsis
PUB: U.S. Fish Wildl. Serv. Cir 332, pp. 23-34
ABSTRACT:
The Pacific Hake, Merluccius productus, is a resident of the upper continental slope and shelf and ranges from Alaska to Baja California. Adult hake migrate south in the late fall to spawn in the offshore waters of southern California from December to April. They return north to feed off the coast of Oregon, Washington, and British Columbia during the late spring to fall. The hake undergo extensive diel vertical migrations. They feed on several fish and vertebrate species with emphasis on this preferred food. Hake grow rapidly to age 6 and are reproductively mature at 4 years; however, mortality reaches 43% at 5 years. The larvae occur around the thermocline and little is known about the abundance and distribution of juvenile (1-3 year old) hake.

-1784-
AUTHOR(S): NELSON, M.O. AND T.A. DARK
YEAR: 1985
TITLE: Results of the Coastal Pacific Whiting, Merluccius productus, Surveys in 1977 and 1980
PUB: Mar. Fish Rev. 47(2):82-94
ABSTRACT:
A major research vessel survey was conducted in 1977 by the National Marine Fisheries Service (NMFS) and cooperating agencies to help assess the status of Pacific whiting, Merluccius productus, and other groundfish species, especially important species of rockfish, sebastes spp., in the California to Vancouver Island, B.C., region (Dark et al., 1980; Gunderson and Sample, 1980). This was the first of a triennial series of comprehensive multispecies roundfish surveys, and it was followed by a comparable survey in 1980. Both surveys included bottom trawl and acoustic (echo integrator)-midwater trawl sampling. A primary objective of each year's survey program was to determine the disribution, biomass, and the length and age composition of the exploitable portion of the whiting population. This report summarizes methodologies used in those surveys and presents Pacific whiting.

-1785-
AUTHOR(S): NELSON, M.O. AND T.A. DARK
YEAR: 1986
TITLE: The Distribution, Abundance, and Biological Features of the Pacific Whiting Resource Based on 1977 and 1980 Research Vessel Surveys
PUB: Bull. INPFC, No. 45, Symposium on Biology, Stock Assessment, and Management of Pollock, Pacific Cod and Hake in the North Pacific Region., pp. 334-364
ABSTRACT:
Comprehensive surveys of the Pacific whiting, Merluccius productus, resource were conducted by bottom trawl and acoustic-midwater trawl vessels in 1977 and 1980. These surveys were the first two of a series to be conducted in the California to southern British Columbia area on a triennial basis and provided information on whiting distribution, abundance, and age and length

composition. Various aspects of the survey methodology, including the precision and accuracy of the estimates of abundance, are discussed.

-1786-
AUTHOR(S): NELSON, R.E., JR.
YEAR: 1985
TITLE: Historical Review of the Coastal Pacific Whiting, Merluccius productus, Fishery
PUB: Mar. Fish. Rev. 47(2):39-41
ABSTRACT:

The Pacific whiting, Merluccius productus, resource found off the west coast of the United States has been exploited commercially since before 1900 by the U.S. fishing industry and since 1966 by foreign fishing fleets (Jow, 1973; Forrester et al., 1978). The U.S. domestic fishery has two components: the traditional shore-based fishery, which consists of the catching and processing of fish by U.S. fishermen and processors; and the recently developed joint-venture fishery, which consists of the delivery and sale of fish caught by U.S. vessels to foreign processing vessels on the fishing grounds. The U.S. fishery for Pacific whiting was small in comparison to the foreign fishery whose annual landings from 1966 to 1981 averaged nearly 138,000 metric tons (t) per year. The development and growth of the joint-venture fishery in the last few years have greatly increased the U.S. catch of Pacific whiting. This paper provides a historical review of the U.S. and foreign Pacific whiting fishery with emphasis on the changes which have occurred in the fishery since the enactment of the Magnuson Fishery Conservation and Management Act of 1976.

-1787-
AUTHOR(S): NELSON, W.R. AND D.W. AHRENHOLZ
YEAR: 1986
TITLE: Population and Fishery Characteristics of Gulf Menhaden, Brevoortia patronus
PUB: Fish. Bull. 84(2):311-326
ABSTRACT:

Landing data from 1964 to 1978 for the purse seine fishery in the north-central Gulf of Mexico for gulf menhaden, Brevoortia patronus, were analyzed to determine growth rate, yield-per-recruit and spawner-recruit relationships, and maximum sustainable yield (MSY). Estimates of stock size, year-class size, and rates of fishing were obtained from cohort analysis. The fishery is characterized by high rates of both fishing and natural mortality. During the period studied, an average of 40% of the population of age-1 and older fish were taken by the fishery and 47% was lost to other causes annually. Although there was substantial scatter about the fitted curve, a Ricker-type spawner-recruit relationship was found to be suitable. The number of age-1 recruits fluctuated annually between 7.5 and 25.4 billion during the period studied. Maximum biomass of a year-class is reached at an age of about 1.5 years. Yield-per-recruit estimates were obtained for an array of fishing mortalities and ages of entry. A deterministic simulation model incorporating growth, the spawner-recruit relationship, and age-specific rates of fishing provided an estimate of MSY at 585,118 t with 127% of the current mean rate of fishing. Implications for the current and future status of this fishery are discussed.

-1788-
AUTHOR(S): NESBIT, R.A.
YEAR: 1954
TITLE: Weakfish Migration in Relation to Its Conservation
PUB: U.S. Fish. Wildl. Serv. Spec. Sci. Rep. Fish. No. 115, 81 pp.
ABSTRACT:

There has been much speculation but little definite knowledge about the migrations of the fishes which summer in the inshore waters of the Middle Atlantic Bight. Foremost among the questions raised by the migrations of these fishes are those concerned with the unity or diversity of the populations. For several reasons the weakfish (Cynoscion regalis) is a particularly desirable species for study of this problem. It moves inshore for spawning in summer, and withdraws in winter.

-1789-
AUTHOR(S): NEW ENGLAND FISHERY MANAGEMENT COUNCIL
YEAR: 1980
TITLE: Amendment No. 3 to the Fishery Management Plan for the Atlantic Herring Fishery of the Northwest Atlantic
PUB: Federal Register 45(50):15957-15967
ABSTRACT:

Atlantic Herring FMP: Overview. The Fishery Management Plan for the Atlantic Herring Fishery of the Northwest Atlantic, prepared by the New England Regional Fishery Management Council, was implemented through emergency regulations published on December 28, 1978, and through final regulations published on March 21, 1979.

As a result of the reassessment of the regional herring stocks in January, 1979, several actions have been recommended to amend the FMP. These actions are responsive to two principal factors of the assessment: 1) a general improvement in the status of the stocks as a consequence of the strength of the recruiting 1976 year class, and 2) a strengthening of the assessment framework to include fishing activity in Maine territorial waters (in addition to the waters of neighboring states) and Canada. These factors, detailed in MMFS/NEFC Laboratory Reference 79-12 and summarized below, have influenced action on increasing the Gulf of Maine, OY, extending the management unit, and modifying the area/period allocation system.

-1790-
AUTHOR(S): NEW ENGLAND FISHERY MANAGEMENT COUNCIL
YEAR: 1981
TITLE: Fisheries Management Plan for Atlantic Sea Scallops (Placopecten magellanicus). Appendices.
PUB: NEFMC Saugus, MA, 277 pp.
ABSTRACT:

Provides a description of stocks of the Atlantic sea scallop, Placopecten magellanicus, including habitat, abundance and condition, habitat considerations, and environmental factors which can affect distribution and survival. The domestic harvesting sector is dicsussed for the New England dredge, the Mid-Atlantic dredge, and domestic recreational landings. Domestic processing, the international scallop industry, and domestic marketing and consumption are reviewed. A description of the economic impact of the sea scallop is presented with a variety of models. A biological analysis concludes this report with an estimation of fishing mortality rates.

-1791-
AUTHOR(S): NEW ENGLAND FISHERY MANAGEMENT COUNCIL
YEAR: 1982
TITLE: Fishery Management Plan: Final Environmental Impact Statement, Regulatory Impact Review for Atlantic Sea Scallops (Placopecten magellanicus)
PUB: NEFMC, 149 pp. plus appendices
ABSTRACT:
The sea scallop management program is needed to address resource and management problems which include the variable nature of sea scallop resource abundance, possible excessive levels of fishing effort, and the high potential for overexploitation due to increasing consumer demand. Although there presently is no estimate of absolute abundance of sea scallops, the FMP analyzes abundance indices and recruitment prospects for the Gulf of Maine, Georges Bank/Southern New England and Mid-Atlantic Bight resource areas.

-1792-
AUTHOR(S): NEW ENGLAND REGIONAL FISHERY MANAGEMENT COUNCIL
YEAR: 1978
TITLE: Draft Environmental Impact Statement/Fishery Management Plan for the Atlantic Herring Fishery of the Northwestern Atlantic
PUB: NEFMC, 371 pp.
ABSTRACT:
The Assistant Administrator for Fisheries has approved a Fishery Management Plan (FMP) for the Atlantic herring fishery, which was prepared by the New England Fishery Management Council. Regulations implementing the FMP are promulgated on an emergency basis, because current, unrestrained harvest levels may jeopardize the Gulf of Maine herring stocks. Comments on these regulations, which are also published as proposed rulemaking, are invited.

-1793-
AUTHOR(S): NEW HAMPSHIRE FISH AND GAME DEPARTMENT
YEAR: 1971
TITLE: Activities Report 1970
PUB: Division of Inland and Marine Fisheries, New Hamphsire Fish and Game Department, 38 pp.
ABSTRACT:
This report of inland and marine fisheries operations is the first of a planned annual effort to provide interested people with a comprehensive summary of work accomplished.

-1794-
AUTHOR(S): NEW HAMPSHIRE FISH AND GAME DEPARTMENT
YEAR: 1972
TITLE: Annual Report of Division Activities, 1971
PUB: Division of Inland and Marine Fisheries, New Hampshire Fish and Game Department, 64 pp.
ABSTRACT:
This report for the 1971 calendar year brings together for the first time a comprehensive summary of all of the activities involving the Division of Inland and Marine Fisheries. The report of hatchery operations has been combined with short summary reports of research and management operations.

-1795-
AUTHOR(S): NEW HAMPSHIRE FISH AND GAME DEPARTMENT
YEAR: 1973
TITLE: 1972 Annual Report
PUB: Division of Inland and Marine Fisheries, New Hampshire Fish and Game Department, 74 pp.
ABSTRACT:
This is the report of the Fisheries Division for 1972. A major portion of this report is concerned with the operation of our eight state hatcheries. In 1972 a combination of circumstances occurred which resulted in a significant drop in production. The chances of a similar combination of circumstances occurring again is very slim, but necessary steps have been taken to insure that all preventable occurrences will be avoided in the future.

-1796-
AUTHOR(S): NEW HAMPSHIRE FISH AND GAME DEPARTMENT
YEAR: 1975
TITLE: 1974 Annual Report
PUB: Division of Inland and Marine Fisheries, New Hampshire Fish and Game Department, 66 pp.
ABSTRACT:
The report of the Fisheries Division describes activities for the calendar year 1974. Although the report is prepared to provide sportsmen and other interested members of the public with details concerning our efforts to meet assigned responsibilities, a major use is found within the department as a valuable reference for planning future activities.

-1797-
AUTHOR(S): NEW HAMPSHIRE FISH AND GAME DEPARTMENT
YEAR: 1982
TITLE: 1981 Annual Report
PUB: Division of Inland and Marine Fisheries, New Hampshire Fish and Game Department, 129 pp.
ABSTRACT:
This is a report of the Fisheries Division activities for the calendar year 1981. The first section of the report contains the statistical data associated with the hatchery operations. The management investigation summaries illustrate the broad scope and complexity of a program required to protest and enhance our fisheries resources. Programs include Atlantic salmon and American shad restoration in the Merrimack and Connecticut Rivers; alewife restorations in all coastal streams; fish and wildlife habitat protection; salmon and lake trout egg taking; coho salmon program; red tide sampling; inventory of the natural resources of Great Bay Estuary and Piscataqua River; state-federal cooperative lobster, northern shrimp, striped bass, shad, and river herring management programs; smelt assessment on Great Bay; and New England Fish Management Council.

-1798-
AUTHOR(S): NEWELL, C.D.
YEAR: 1975
TITLE: Seasonal Abundance of the American Lobster, Homarus americanus, in the Boothbay Region of Maine
PUB: American Fisheries Society. Transactions 104(4):669-674
ABSTRACT:
Estimates of the abundance of the American lobster, Homarus americanus, in the inshore fishing grounds of Maine were made at monthly intervals by diver

biologists from August 1965 through August 1967. Pairs of divers searched 540 m to the power of 2 of ocean bottom at the 6-12 m and 18-24 m depth intervals at two stations in the Boothbay Region of Maine. Comparative estimates of lobster abundance were made at adjacent depths of 30-60 m from the research submersibles PC-8 and Deep Diver. The relatively constant estimates of lobster abundance shoaler than 24 m suggest that large-scale seasonal movements into and out of the shallow onshore fishing grounds do not occur.

Size structure and sex ratio of the lobster population shoaler than 24 m was defined from collections made by the divers during periods of maximum (September) and minimum (February) bottom water temperatures. Mean carapace lengths by sex are similar for the September and February samples. Males and females range in size rom 5-90 mm. A 50:50 sex ratio characterized the mid-summer and mid-winter samples. Lobsters observed at 30-60 m during June and September ranged from 85-100 mm, of which 76% were females.

-1799-
AUTHOR(S): NICHOLS, J.P., M. CROSS, V. BLOMO AND W.L. GRIFFIN
YEAR: 1975
TITLE: Utilization of Finfishes Caught Incidental to Shrimp Trawling in the Western Gulf of Mexico, Part II: Evaluation of Costs
PUB: Dept. of Agricultural Economics, Texas Agricultural Experiment Station, Texas A&M University, TAMU-SG-76-203
ABSTRACT:

This report presents estimates of the cost of operating several alternative systems for holding and landing finfish caught incidental to shrimp trawling operations. Freezer units, brine immersion tanks, an on-board fish meal plant, an extra crew member and a mother-ship concept are the systems evaluated. Break-even prices are estimated that would be necessary to cover operating costs and a 10% return on investment. Additionally, problems in traditional work patterns, crew incentives, and institutional arrangements are discussed. The analytical model presented may be used to evaluate other systems not considered directly in this study.

-1800-
AUTHOR(S): NICHOLS, P.R. AND P.M. KENEY
YEAR: 1963
TITLE: Crab Larvae (Callinectes) in Plankton Collections from Cruises of M/V
PUB: U.S. Fish and Wildl. Serv. SSR - Fisheries No. 448, 9 pp.
ABSTRACT:

During the course of nine GILL cruises, plankton was collected at 80 regular stations between Jupiter Light, FL., and Cape Hatteras, N.C., from near the beaches to beyond the axis of the Gulf Stream, and from nine special stations farther offshore.

-1801-
AUTHOR(S): NICHOLS, P.R. AND R.P. CHEEK
YEAR: 1966
TITLE: Tagging Summ. of Amer. Shad, Alsoa sapidissima (Wilson), and Striped Bass, Roccus saxatilis (Walbaum), BCM Bio. Lab., Beaufort, NC, 1950-65
PUB: U.S. Fish and Wildl. Serv., SSR-Fish. No. 539, 8 pp.
ABSTRACT:

Number and type of tags applied on American shad, Alosa sapidissima (Wilson), and striped bass, Roccus saxatilis (Walbaum), in 1950-65 are summarized in tables. A detailed description is given each type of tag and

how it was affixed to the fish. The report also gives the purpose of each tagging study and the status of reports on the indings.

-1802-
AUTHOR(S): NICHOLS, S.
YEAR: 1983
TITLE: Impacts of 1981 and 1982 Texas Closure on Brown Shrimp Yields
PUB: NOAA Tech. Memo. NMFS/SEFC-110
ABSTRACT:
This paper examines the effects of the Texas FCZ closure on yields of brown shrimp in the Texas FCZ area, and on yields from the Gulf-wide brown shrimp stock.

-1803-
AUTHOR(S): NICHOLSON, W.R.
YEAR: 1978
TITLE: Gulf Menhaden, Brevoortia patronus, Purse Seine Fishery: Catch, Fishing Activity, and Age and Size composition, 1964-73
PUB: NOAA Tech. Rep. NMFS/SSRF-722
ABSTRACT:
The menhaden purse seine fishery in the Gulf of Mexico, mainly for B. patronus, extends from about early April to early October. From 1964 to 1973 the total catch fluctuated between 317,000 and 728,000 tons, and the number of vessels ranged from 65 to 82. Larger and faster refrigerated vessels replaced most of the smaller nonrefrigerated vessels and modern methods of fishing were adopted. Population levels were high and there were no large fluctuations in year class abundance. Age-1 and -2 fish supplied from 95 to 99% of the catch by wt. Over 97% of the fish were between 120 and 225 mm fork length. The mean age and size generally were slightly greater in the center of the fishery (central and eastern Louisiana) than in the eastern (Mississippi) and western areas (western Louisiana and Texas). Mean age decreased as the season progressed.

-1804-
AUTHOR(S): NICKELSON, T.E.
YEAR: 1986
TITLE: Influences of Upwelling, Ocean Temperature, and Smolt Abundance on Marine Survival of Coho Salmon (Oncorhynchus kisutch) in the Oregon Production Area
PUB: Can. J. Aquat. Sci. 43(5):527-535
ABSTRACT:
The relationships between the marine survival of hatchery and wild coho salmon (Oncorhynchus kisutch) in the Oregon Production Area and ocean upwelling, ocean temperature, and smolt abundance were investigated. Hatchery coho appear to be more sensitive than wild coho to changes in upwelling-related factors although this difference may be due to errors in the estimates of wild smolts and adults that were used in the analysis. Two levels of upwelling (strong and weak), which are associated with a twofold difference in survival of hatchery coho smolts, were identified. Significant relationships were identified between survival of hatchery smolts and survival of wild smolts that migrated in strong upwelling years and sea-surface temperature during that year. Similar relationships were not as apparent for smolts migrating in weak upwelling years as they were for smolts migrating in strong upwelling years. Each major component of coho production (wild, public hatchery, and private hatchery), when treated separately, as well as public

and private hatchery coho combined, exhibited linear smolt-to-adult relationships.

-1805-
AUTHOR(S): NICKERSON, R.B.
YEAR: 1977
TITLE: A Study of the Littleneck Clam (Protothaca staminea) (Conrad) and the Butter Clam (Saxidomus giganteus) (Deshayes) in a Habitat Permitting Coexistence, Prince William Sound, Alaska
PUB: Proc. Natl. Shellfish. Assoc. Md. 67:85-102
ABSTRACT:
Frequency of occurrence is stratified by tide level and some individuals survived a 5.5 feet (2m) landmass upheaval following the 1964 Good Friday earthquake having endured 8 years in abnormally high zones on the low tide terrace. Growth and age were determined from mark and recovery studies which subsequently yielded age-length-weight relationships and determination of critical size. Histological studies yielded spawning information. Population estimates were obtained by stratified random sampling and probability density function parameters. Harvesting with high-pressure water jets appears practical and huge man-made pads of suitable substrate at optimum tide levels seem feasible on a crop rotation basis.

-1806-
AUTHOR(S): NIEBAUER, H.J.
YEAR: 1981
TITLE: Observations on Sea Surface Temperature Changes Around Kodiak, Int. Pandalid Shrimp Symp. Kodiak, AK
PUB: Proc. of Intl. Pandalid Shrimp Symp., Kodiak, AK, Feb. 13, 1979, pp. 377-379, Alaska Univ., Alaska Sea Grant Program, Alaska Sea Grant Rep.
ABSTRACT:
Relating the population and distribution of shrimp to oceanographic parameters in the Kodiak area is the objective of a project sponsored by Sea Grant because of the strong decline in the shrimp fishery. The project includes relating shrimp behavior to water temperature and presents a hypothesis on why temperature has been doing what it has for the past couple of years.

-1807-
AUTHOR(S): NIGGOL, K.
YEAR: 1982
TITLE: Data on Fish Species from Bering Sea and Gulf of Alaska
PUB: NOAA Tech. Memo. NMFS F/NWC-29
ABSTRACT:
The data presented here are mean values for two regions--the eastern Bering Sea and the Gulf of Alaska. Biometric characteristics of most species indicate that separate stocks exist in these two regions, although in some species considerable migrations and intermixing between these two areas occur.

-1808-
AUTHOR(S): NIKOLAEVA, E.T.
YEAR: 1980
TITLE: Dynamics of Abundance of Large Populations of the Chum Salmon, Oncorhynchus keta, in Kamchatka
PUB: J. Ichthyol. 20(3):66-78

ABSTRACT:

Long-term data on fluctuations in the abundance of the chum salmon, Oncorhynchus keta, from the two largest reproductive regions in Kamchatka, the basins of Bolshaya River, and Kamchatka River were analyzed. The relationships between year-class strength and the abundance of spawners, the hydrometeorological conditions of reproduction and of the Japanese fishing in the open sea was determined. The relationships established make it possible to considerably improve the accuracy of predicting the size of the spawning runs.

-1809-
AUTHOR(S): NISHIYAMA, T., K. HIRANO AND T. HARYU
YEAR: 1986
TITLE: The Early Life History and Feeding Habits of Larval Walleye Pollock, Theragra chalcogramma (Pallas), in the Southeast Bering Sea
PUB: Symposium on Biology, Stock Assessment, and Management of Pollock, Pacific Cod, and Hake in the North Pacific Region, Bull. Inpfc., No. 45, pp. 177-227
ABSTRACT:

Horizontal and vertical distribution patterns of walleye pollock (Theragra chalcogramma) eggs and larvae, feeding habits of larvae, and associated zooplankton were studied in the southeast Bering Sea based on the data obtained in the spawning season from 1976 through 1979.

-1810-
AUTHOR(S): NMFS
YEAR: 1969
TITLE: North Carolina Landings, Annual Summary, 1969
PUB: North Carolina DCD, DCSF, Curr. Fish. Stat. No. 5217, Morehead City, NC, 6 pp.
ABSTRACT:

This report contains the summary statistics, by county, for fishery products in North Carolina in 1969. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1811-
AUTHOR(S): NMFS
YEAR: 1970
TITLE: North Carolina Landings, Annual Summary, 1970
PUB: North Carolina DCD, DCSF, Curr. Fish. Stat. No. 5746, Morehead City, NC, 6 pp.
ABSTRACT:

This report contains the summary statistics, by county, for fishery products in North Carolina in 1970. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1812-
AUTHOR(S): NMFS
YEAR: 1971
TITLE: North Carolina Landings, Annual Summary, 1971
PUB: North Carolina DCD, DCSF, Curr. Fish. Stat. No. 5805, Morehead City, NC, 3 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1971. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1813-
AUTHOR(S): NMFS
YEAR: 1971
TITLE: Fisheries of the United States, 1970
PUB: NMFS/NOAA, Curr. Fish. Stat. No. 5600, Washington, DC
ABSTRACT:
United States fishermen caught 4,884 million pounds of fish, shellfish, and other aquatic plants and animals that sold for $602 million--the highest dollar value in the history of our fisheries. The value of the catch was $83.4 million or 16% more than in 1969 and 36% above the 1964-68 average. The volume taken was 591 million pounds or 14% more than in 1969 and the largest catch taken since the all-time record catch of 5.4 million pounds in 1962. The 1970 catch was the seventh largest on record. There were record landings of tuna, Gulf menhaden, California anchovies, shrimp, Dungeness crabs, snow crabs, surf clam meats, northern lobsters, and spiny lobsters in 1970; and sharp increases in the landings of Atlantic menhaden and Pacific salmon. Landings of Atlantic flounder and blue crabs also were higher in 1970 than in 1969. There were marked declines in the catches of Atlantic alewives and haddock; landings of Atlantic cod, bonito, jack mackerel, king crab, sea scallop meat, and oyster meats were somewhat lower than landings in 1969.

-1814-
AUTHOR(S): NMFS
YEAR: 1972
TITLE: North Carolina Landings, Annual Summary 1972
PUB: North Carolina DCD, DCSF, Curr. Fish. Stat. No. 6117, Morehead City, NC, 3 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1972. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1815-
AUTHOR(S): NMFS
YEAR: 1973
TITLE: Scallops, 1930-1972
PUB: NOAA/NMFS, U.S. Deppt. of Commerce, Curr. Fish. Stat. No. 6127, Washinton, DC, 35 pp.

ABSTRACT:

The purpose of "Basic Economic Indicators" is to bring together pertinent economic, technological, and biological data for each major U.S. fishery. The Economic Research Laboratory of the National Marine Fisheries Service (NMFS) has consolidated these basic variables which reflect the economic behavior of a fishery. Having this basic data set under one cover will materially aid research and development efforts currently being conducted on each fishery and will serve as a helpful guide to policy decisions. NMFS hopes that these data will be valuable in quantitative analyses of the Nation's fisheries.

-1816-
AUTHOR(S): NMFS
YEAR: 1973
TITLE: North Carolina Landings, Annual Summary, 1973
PUB: North Carolina DCD, DCSF, Curr. Fish. Stat. No. 6416, Morehead City, NC, 9 pp.
ABSTRACT:

This report contains the summary statistics, by county, for fishery products in North Carolina in 1973. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1817-
AUTHOR(S): NMFS
YEAR: 1974
TITLE: North Carolina Landings, Annual Summary, 1974
PUB: North Carolina DNER, DCSF, Curr. Fish. Stat. No. 6716, Morehead City, NC, 8 pp.
ABSTRACT:

This report contains the summary statistics, by county, for fishery products in North Carolina in 1974. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1818-
AUTHOR(S): NMFS
YEAR: 1975
TITLE: North Carolina Landings, Annual Summary, 1975
PUB: North Carolina DNER, DMF, Curr. Fish. Stat. No. 6916, Morehead City, NC, 9 pp.
ABSTRACT:

This report contains the summary statistics, by county, for fishery products in North Carolina in 1975. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1819-
AUTHOR(S): NMFS
YEAR: 1975
TITLE: Investigations by the United States for the International North Pacific Fisheries Commission--1972
PUB: NWAFC/NMFS/NOAA, Seattle, WA, 198 pp.
ABSTRACT:
The following report describes research by the United States for the INPFC on salmon in 1972 and on crabs in 1971-72. Results of research on eastern Bering Sea king and Tanner crabs in 1971-72 are reported as well as a description of the fishery for these species in these waters. A brief report on the 1952-71 catch, fishing effort, and catch per unit of effort by the Japanese mothership salmon fishery is included in addition to a status report on 1971-72 research on sablefish tagging, biology and gear development.

-1820-
AUTHOR(S): NMFS
YEAR: 1976
TITLE: Gulf Coast Shrimp Data Annual Summaries
PUB: USDOC, NOAA/NMFS, Washington, DC, Curr. Fish. Stat. No. 6925
ABSTRACT:
Tabulations in this bulletin contain data on the shrimp catch landed by U.S. craft at U.S. ports along the Gulf of Mexico for trips completed during the period indicated. The figures include the species, size, depth, area fished, and actual fishing time in number of days. A day's fishing is equivalent to 24 hours fishing time. A single trip is reported for each voyage. For craft in which portions of their catch are transported to port by other vessels, the trip is assigned to the area and the depth last fished by the craft. For craft landing their entire catch, the trips prorated to the areas and depths fished. The size shown is represented by the number of heads-off shrimp per pound. To convert to heads-on weight, multiply by the following factors: brown, 1.61; pink and Penaeus brasilienses, 1.60; white, 1.54; rock, 1.67; royal red, 1.80; and sea bobs, 1.53.

-1821-
AUTHOR(S): NMFS
YEAR: 1976
TITLE: Environmental Studies of the South Texas Outer Continental Shelf, 1975. Vol. I. Plankton and Fisheries
PUB: NMFS/NOAA, Gulf Fisheries Center, Galveston, TX, 154 pp.
ABSTRACT:
In January 1975 a coordinated research effort sponsored by the Bureau of Land Management began in Gulf of Mexico waters over the continental shelf off the south Texas coast for the purpose of establishing baseline information on specific marine parameters prior to mineral exploration. General areas of research were: sediments; biology/chemistry; and biology/physical oceanography.

-1822-
AUTHOR(S): NMFS
YEAR: 1976
TITLE: Demersal Fish and Shellfish Resources of the Eastern Bering Sea in the Baseline Year 1975
PUB: NOAA/NMFS, Northwest Fish Center, U.S. Dept. of Commerce, Processes Rep., Seattle, WA, 619 pp.

ABSTRACT:

This report contains (1) findings from a multi-vessel demersal trawl survey of the fauna in the eastern Bering Sea (August-October, 1975); (2) a review of data from historical research vessel surveys and commercial catch statistics; and (3) a summarization of information from the literature pertaining to commercially important species of demersal fish and shellfish. These studies were directed toward a description and assessment of the demersal fish and shellfish populations of the eastern Bering Sea with which the Bureau of Land Management can evaluate the real and potential impacts of petroleum exploration and development. The results of these studies also provide a data base for assessment of stock conditions that will be used in the development of management policies for domestic and international fisheries, and in planning future research.

-1823-
AUTHOR(S): NMFS
YEAR: 1976
TITLE: North Carolina Landings, Annual Summary, 1976
PUB: North Carolina DNER, DMF, Curr. Fish. Stat. No. 7216, Morehead City, NC, 8 pp.
ABSTRACT:

This report contains the summary statistics, by county, for fishery products in North Carolina in 1976. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1824-
AUTHOR(S): NMFS
YEAR: 1977
TITLE: Final Environmental Impact Statement/Preliminary Fishery Management Plan King and Tanner Crabs of the Eastern Bering Sea
PUB: NOAA/NMFS, Juneau, AK
ABSTRACT:

The proposed action is to adopt and implement a preliminary fishery management plan for the foreign king and Tanner crabs in the eastern Bering Sea under provisions of the Fishery Conservation and Management Act of 1976.

-1825-
AUTHOR(S): NMFS
YEAR: 1977
TITLE: Fisheries of the United States, 1976
PUB: NMFS/NOAA, Curr. Fish. Stat. No. 7200, Washington, DC, 96 pp.
ABSTRACT:

Statistics are presented for 1976 fish catches for commercial landings at ports in the U.S. and for U.S. flag vessel landings of tuna and shrimp at ports outside the U.S. Commercial landings in the U.S. were a new-record 5.4 billion pounds, an increase of 11% from 1975. The increase in quantities was due to increased landings of edible species and species for industrial purposes. Marine recreational landing data presented are from 1970. The U.S. supply of commercial fishery products was 11.6 billion pounds in 1976, increasing 14% over 1975.

-1826-
AUTHOR(S): NMFS
YEAR: 1977
TITLE: North Carolina Landings, Annual Summary, 1977
PUB: North Carolina DNER, DMF, Curr. Fish. Stat. No. 7514, Morehead City, NC, 8 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1977. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1827-
AUTHOR(S): NMFS
YEAR: 1978
TITLE: Alabama Landings, Annual Summary, 1977
PUB: NOAA/NMFS, Curr. Fish. Stat. No. 7518, Washington, DC
ABSTRACT:
Commercial landings of fish and shellfish at coastal ports of Alabama were 34.6 million pounds valued at a record $36.8 million. This was an 8.6% (2.7 million pounds) increase in volume and a 9.4% ($3.4 million) increase in value compared to 1976. Combined landings of shrimp and croaker accounted for 80% of the total volume and 92% of the total value. A record shrimp catch offset lower croaker landings. Alabama major ports, Bayou La Batre (Mobile County) and the Bon Secour to Gulf Shores Area (Baldwin County), were listed in the top U.S. ports in 1977. Bayou La Batre ranked 23rd in volume and 10th in value; the Baldwin County ports ranked 43rd in volume and 25th in value. Mobile County ports had 77% of the volume and 74% of the value of the Alabama 1977 landings; Baldwin County ports had the remainder.

-1828-
AUTHOR(S): NMFS
YEAR: 1978
TITLE: Mississippi Landings, Annual Summary, 1977
PUB: NOAA/NMFS, Curr. Fish. Stat. No. 7519, Washington, DC
ABSTRACT:
Commercial landings of fish and shellfish at Mississippi ports were 246.8 million pounds valued at $23.4 million in 1977, up to 22% in quantity and 27% in value over 1976 (excluding "unclassified fish for industrial purposes").

INDUSTRIAL FISH. Menhaden landings were 229.0 million pounds valued at $10.3 million, up 27% in volume and 51% in value over 1976. The sharp increase in value was due to a greater than 50% increase in prices of menhaden fish meal and oil. Despite the 27% increase in landings, the production of oil increased less than 5% because of low yields of oil from the fish.

EDIBLE FINISH. Landings of 4.0 million pounds valued at $1.4 million decreased 15% in volume and value from 1976. Trawl-caught food fish decreased slightly from 1976. The decrease in landings was due in part to shrimp boats and vessels not keeping foodfish caught incidental to shrimp because of the shortage of ice. Landings of red snapper decreased 21% from 1976. Landings of net-caught fish decreased 16% compared to 1976. Landings of red drum increased 72 % and landings of mullet increased 13% compared to 1976.

SHRIMP. Landings of 10.5 million pounds (heads-on) valued at $10.1 million showed a 40% increase in volume and a 20% increase in value compared to 1976. The lower percentage of value of 1977 shrimp landings reflected the

market conditions created by the heavy landings during season. Raw processing significantly increased, especially production of raw peeled frozen shrimp which was three times greater than 1976. Eighty-three percent of the total landings were brown shrimp, 85% of which were caught during the summer season.

OYSTERS. Landings of 1.4 million pounds of meats valued at $1.2 million showed a 9% decrease in volume, but a 14% increase in value compared to 1976 landings.

-1829-
AUTHOR(S): NMFS
YEAR: 1978
TITLE: North Carolina Landings, Annual Summary, 1978
PUB: North Carolina DNER, DMF, Curr. Fish. Stat. No. 7816, Morehead City, NC, 9 pp.
ABSTRACT:

This report contains the summary statistics, by county, for fishery products in North Carolina in 1978. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1830-
AUTHOR(S): NMFS
YEAR: 1978
TITLE: Fisheries of the United States, 1977
PUB: NMFS/NOAA, Curr. Fish. Stat. No. 7500, Washington, DC. 112 pp.
ABSTRACT:

A preliminary report for 1977 on the marine recreational and commercial fisheries of the United States and the foreign catches in the U.S. zone FCZ. The marine recreational fishing data contained in this report have been selected from the 1970 Salt-Water Angling Survey and other reports. Final data for U.S. commercial landings and foreign catches for 1977 will be published in annual summaries and later in the Fishery Statistics of the United States.

-1831-
AUTHOR(S): NMFS
YEAR: 1978
TITLE: Louisiana Landings, Annual Summary, 1977
PUB: NOAA/NMFS, Curr. Fish. Stat. No. 7520, Washington, DC
ABSTRACT:

Commercial landings of fish and shellfish in Louisiana coastal and inland waters were 920.1 million pounds, valued at $138.8 million in 1977--down 312 million pounds (25%) in volume, but about the same in value compared to 1976. The sharp decline in menhaden landings caused the drop in volume, while increased landings of shrimp kept the total value at last year's level.

Louisiana led all states in volume of landings and ranked third in value. In the commercial fisheries of Louisiana, menhaden led in volume of landings and ranked second in value (756.7 million pounds, $28.9 million); shrimp followed with a near-record catch of 104.0 million pounds and a record value of $87.2 million. Oysters ranked third in value ($10.4 million); blue crabs (hard, soft, and peeler) were fourth ($4.3 million).

The central district (Assumption, Lafourche, St. Mary, and Terrebonne Parishes) accounted for 50% of the value of Louisiana landings for 1977. The

eastern districts (Jefferson, Orleans, Plaquemine, St. Bernard, St. Charles, St. Tammany, and Tangipahoa) had 24% of total value; the western district (Calcasieu, Cameron, Jefferson Davis, and Vermilion parishes), 24%; and the inland district (all other parishes in the Red River and Mississippi River Drainage system), 1%.

-1832-
AUTHOR(S): NMFS
YEAR: 1979
TITLE: New Jersey Landings, December 1978
PUB: NOAA/NMFS, Curr. Fish. Stat. 7716, U.S. Dept. of Commerce, Washington, DC, 4 pp.
ABSTRACT:
New Jersey fisheries landings by counties for 1978. Species include: angler fish, bluefish, butterfish, cod, eels, flounders, hake, herring, Atlantic mackerel, scup or porgy, sea bass, sea trout, shad, striped bass, crabs, lobsters, clams, oysters, sea scallops, and squid.

-1833-
AUTHOR(S): NMFS
YEAR: 1979
TITLE: Commercial Fisheries of Louisiana, 1978
PUB: NMFS/NOAA, Curr. Fish. Stat., No. 7822, 2 pp.
ABSTRACT:
Commercial landings of fish and shellfish in Louisiana coastal and inland waters were 1.7 billion pounds and valued at $193.3 million--up 760 million pounds and $54.5 million over 1977. Substantial gains in landings of menhaden and shrimp were responsible for greater volume; strong markets caused the significant gain in value. Louisiana led all states in volume of landings and ranked third in value. Menhaden was the leading Louisiana species in volume and ranked second in value. Shrimp led in value of landings and was second in volume. Oysters ranked third and freshwater crawfish fourth in value.

-1834-
AUTHOR(S): NMFS
YEAR: 1979
TITLE: Rhode Island Landings, December 1978
PUB: NOAA/NMFS, Curr. Fish. Stat. No. 7714, Washington, DC, 3 pp.
ABSTRACT:
Rhode Island fisheries landings (preliminary) for 1977 and 1978. Species include: angler fish, bluefish, cod, croaker, cusk, eels, flounders, haddock, hake, herring, mackerel, pollock, scup or porgy, sea bass, sea trout, sharks, skates, striped bass, sturgeon, swordfish, tautog, tilefish, and whiting.

-1835-
AUTHOR(S): NMFS
YEAR: 1979
TITLE: North Carolina Landings, Annual Summary 1979
PUB: North Carolina DNRCD, DMF, Curr. Fish. Stat. No. 7976, Morehead City, NC, 4 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1979. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of

Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1836-
AUTHOR(S): NMFS
YEAR: 1979
TITLE: New York Landings, December 1978
PUB: NOAA/NMFS, Curr. Fish. Stat. No. 7715, Washington, DC, 3 pp.
ABSTRACT:
New York fisheries landings by counties for 1978. Species include: angler fish, bluefish, butterfish, cod, eels, flounders, hake, Atlantic mackerel, scup or porgy, sea bass, sea trout, sharks, skates, clams, oysters, scallops, and squid.

-1837-
AUTHOR(S): NMFS
YEAR: 1979
TITLE: Workshop on Ecosystem Models for Fisheries Assessment and Management, 16 April to 11 May 1979
PUB: NOAA/NMFS/NWAFC, NWAFC Processed Rept. 79-13, Seattle, WA
ABSTRACT:
The Ecosystem Models Workshop was held in the Northwest and Alaska Fisheries Center in Seattle from 16 April to 11 May 1979. The main purposes and objectives of this workshop were: 1) to review the present state of the art of multispecies and ecosystem models for fisheries assessment and management. 2) to compare two existing models (Andersen and Ursin model--The Danish model, and the Laevastu and Favorite model--the NWAFC model; and 3) to review all subject matter pertaining to fisheries ecosystem simulation and to suggest which processes are of primary importance to be included in the simulation models.

-1838-
AUTHOR(S): NMFS
YEAR: 1979
TITLE: Fisheries of the United States, 1978
PUB: NMFS/NOAA, Curr. Fish. Stat. No. 7800, Washington, DC, 120 pp.
ABSTRACT:
Statistics are presented for 1978 fish catches for commercial landings, from freshwater and marine fisheries by domestic fishermen at ports in the U.S., and foreign catches of fish and shellfish within the U.S. FCZ. Total catches from all areas by U.S. commercial fishermen and catches by foreign fishermen in the U.S. FCZ reached 4.6 million metric tons in 1978, an increase of 11% from 1977. This total excludes the weight of mollusk shells and estimated catches by recreational fishermen. The increase in the total catch was due to a moderate increase in U.S. landings and a slight increase in the foreign catch.

-1839-
AUTHOR(S): NMFS
YEAR: 1979
TITLE: Massachusetts Landings
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Curr. Fish. Stat. No. 7713, Washington, DC, 6 pp.
ABSTRACT:
Massachusetts fisheries landings by ports for 1978. Species include: butterfish, cod, cusk, flounders, haddock, hake, halibut, herring, Atlantic

mackerel, Atlantic ocean perch, sharks, skates, lobsters, sea scallops, and squid.

-1840-
AUTHOR(S): NMFS
YEAR: 1980
TITLE: Alabama Landings, Annual Summary, 1978
PUB: NOAA/NMFS, Curr. Fish. Stat. No. 7820, Washington, DC, 2 pp.
ABSTRACT:
Commercial landings of fish and shellfish at Alabama coastal ports were 29.7 million pounds valued at $35.4 million in 1978, down 14% in quantity and 4% in value compared to 1977. The marked catch declines of 3.9 million pounds of shrimp, heads-off, and 300,000 pounds of croaker accounted for the major portion of the volume decrease in 1978.

-1841-
AUTHOR(S): NMFS
YEAR: 1980
TITLE: North Carolina Landings, Annual Summary, 1980
PUB: North Carolina DNRCD, DMF, Curr. Fish. Stat./Morehead City, NC, 4 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1980. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1842-
AUTHOR(S): NMFS
YEAR: 1980
TITLE: Mississippi Landings, Annual Summary, 1978
PUB: NOAA/NMFS, Curr. Fish. Stat. No. 7821, Washington, DC
ABSTRACT:
Commercial landings of fish and shellfish at Mississippi ports were 214.6 million pounds valued at $25.5 million. Compared to 1977, this represents a 28% increase in volume and a 9% increase in value. These totals exclude "unclassified fish for industrial purposes" in order not to divulge the operations of individual petfood canning plants.

-1843-
AUTHOR(S): NMFS
YEAR: 1980
TITLE: Florida Landings, Annual Summary 1977 (recurring publication)
PUB: NOAA/NMFS, Curr. Fish. Stat., No. 7517, Washington, DC
ABSTRACT:
Commercial landings of fish and shellfish at Florida ports during 1977 were 166.5 million pounds valued at $95.2 million dockside, up 6% in quantity and 8% in value. Individual species landings are presented in greater detail.

-1844-
AUTHOR(S): NMFS
YEAR: 1980
TITLE: Fisheries of the United States, 1979
PUB: NMFS/NOAA, Curr. Fish. Stat. No. 8000, Washington, DC. 131 pp.

ABSTRACT:
A preliminary report for 1979 on commercial and marine recreational fisheries of the United States and foreign catches in the U.S. FCZ. Final data for U.S. commercial landings and foreign catches for 1979 will be published in annual summaries and later in Fishery Statistics of the United States. A section of this publication briefly describes the 1978-1979 survey of the U.S. marine recreational fishery. The results of this marine recreational survey will be available later in 1980.

-1845-
AUTHOR(S): NMFS
YEAR: 1980
TITLE: Marine Recreational Fishery Statistics Survey, Atlantic and Gulf Coasts, 1979 (recurring publication)
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Curr. Fish. Stat., No. 8063, 139 pp.
ABSTRACT:
This 1979 Marine Recreational Fishery Statistics Survey is the first in a series of planned surveys to obtain estimates of participation, catch, and effort by recreational fishermen in the marine waters of the United States. This report covers the Atlantic and Gulf Coasts for a 1-year period from January through December 1979.

-1846-
AUTHOR(S): NMFS
YEAR: 1980
TITLE: Report to Industry on the 1980 Eastern Bering Sea King and Tanner Crab Survey
PUB: NWAFC/NMFS/NOAA, USDOC, NWAFC Proc. Rep. 80-13, Seattle, WA
ABSTRACT:
An annual trawl survey is conducted in the easten Bering Sea to provide information on the distribution and abundance of four species of crabs. This information is provided to fishermen and processors as an aid in locating productive areas and judging the overall availability of crabs. Survey-derived information is also used as part of the basis for management decisions. This report deals with the distribution and abundance of red king crab (Paralithodes camtschatica), blue king crab (P. platypus), and two species of Tanner crab (Chionoecetes bairdi and C. opilio).

-1847-
AUTHOR(S): NMFS
YEAR: 1981
TITLE: Preliminary Review of the 1981 Atlantic and Gulf Menhaden Fisheries and Outlook for 1982
PUB: Unpublished. Report to the National Fish Meal and Oil Association. Georgetown, Washington, DC, 14 pp.
ABSTRACT:
This brief review presents information on four aspects of biological research conducted by the NMFS on the 1981 Atlantic and Gulf menhaden fisheries. Items discussed are (1) 1981 purse seine landings and fishing efforts; (2) evaluation of forecasts for 1981; (3) age of menhaden in 1981 landings to date; and (4) outlook for landings in 1982. Available information suggests that total landings in 1982 should approximate those in 1980 and 1981 and be in the 350,000 to 425,000 metric ton range.

-1848-
AUTHOR(S): NMFS
YEAR: 1981
TITLE: Fisheries of the United States, 1980
PUB: NMFS/NOAA, Current Fishery Statistics No. 8100, Washington, DC, 132 pp.
ABSTRACT:

Presents statistics for 1980 fish catches for commercial landings by U.S. fishermen at ports in the 50 states, at ports outside the 50 states and transferred in the U.S. fishery conservation zone (FCZ) onto foreign vessels (joint ventures), and foreign catches of fish and shellfish in the U.S. FCZ. The combined catch by U.S. and foreign vessels in the U.S. FCZ was 2.6 million metric tons in 1980, an increase of 3% compared with 1979. The U.S. share was 36% of the total, increasing 33% from the 1979 totals. Data are also presented for the commercial production of selected fish and shellfish through aquaculture techniques in the U.S.

-1849-
AUTHOR(S): NMFS
YEAR: 1981
TITLE: Stock Assessment Activities within the National Marine Fisheries Service
PUB: NMFS/NOAA, NOAA Tech. Memo. NMFS, 130 pp.
ABSTRACT:

The purpose of this report is to present results of the Stock Assessment Task Force investigation into the nature and scope of the existing stock assessment studies within NMFS. This report describes current stock assessment methodology used within NMFS, with examples and evaluation of adequacy for each method. These methods include collecting fishery statistics and conducting fishery-independent surveys, such as trawl surveys, aerial surveys, marine mammal counts, fish egg and larva surveys, acoustical assessment, and environmental indices.

-1850-
AUTHOR(S): NMFS
YEAR: 1981
TITLE: North Carolina Landings, Annual Summary, 1981
PUB: North Carolina DNRCD, DMF, Curr. Fish. Stat. No. 8112, Morehead City, NC, 3 pp.
ABSTRACT:

This report contains the summary statistics, by county, for fishery products in North Carolina in 1981. The bulletin is one of a series to be issued monthly by the U.S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-1851-
AUTHOR(S): NMFS
YEAR: 1982
TITLE: Fisheries of the United States, 1981
PUB: NMFS/NOAA, Curr. Fish. Stat. No. 8200, Washington, DC, 131 pp.
ABSTRACT:

A preliminary report for 1981 on commercial and marine recreational fisheries of the United States and foreign catches in the U.S. FCZ. Marine recreational fishery statistics are presented on catches by species, number, weight, area and mode of fishing, and number of fishermen and trips for the

Atlantic and Gulf coasts taken from the 1979 survey report. This annual report (1981) provides data on U.S. commercial landings, foreign catches, employment, prices, and production of processed products. Final data for 1981 will be published in Fishery Statistics of the United States.

-1852-
AUTHOR(S): NMFS
YEAR: 1982
TITLE: Gulf Menhaden
PUB: In: Report of the SEFC Stock Assessment Workshop, August 3-6, 1982. NOAA/NMFS, SEFC, U.S. Dept. of Commerce, Miami, FL, pp. 114-118
ABSTRACT:
Reports the catch trends and the extent of effort for the purse seine catches of Gulf menhaden which have increased from 9 KMT in 1946 to 820 KMT in 1981. Increases are not due to more vessels, but to the progressive introduction of larger, more efficient vessels. Tag recovery data indicate that the Gulf menhaden fishery exploits a single stock or population of fish. Gulf menhaden fishery is fully exploited at this time in view of age, composition, lifespan, and environmental factors. It is recommended that this fishery not be expanded by effort or area as it would lead to problems in sustained yield from the population.

-1853-
AUTHOR(S): NMFS
YEAR: 1982
TITLE: Groundfish and Coastal Pelagics (GCP), King Mackerel
PUB: In: Report of the SEFC Stock Assessment Workshop, August 3-6, 1982. NOAA/NMFS/SEFC, U.S. Dept. of Commerce, Miami, FL, pp. 37-48
ABSTRACT:
Reviews commercial and recreational fishery habits for king mackerel for Brazil, Mexico, the United States, and Venezuela. Catch trend data for the U.S. commercial fisheries indicate an average of 6.88 million pounds between 1970 and 1981. Tag data indicate two or more district populations of king mackerel in the southeast region of the U.S. Data for commercial and recreational king mackerel fisheries are limited and the status of the stock cannot be accurately determined since effort data which gauge commercial catch trends is nominal.

-1854-
AUTHOR(S): NMFS
YEAR: 1983
TITLE: Status of the Fishery Resources off the Northeastern United States for 1982
PUB: Northeast Fisheries Center. NOAA Tech. Memo. NMFS F/NEC-22
ABSTRACT:
The general status of major finfish and shellfish resources off the northeast coast of the U.S. from Cape Hatteras to Nova Scotia through 1982 are summarized. Stock assessment, commercial and recreational catch data, and management information are provided for 24 fish species or species groups and 8 shellfish species.

-1855-
AUTHOR(S): NMFS
YEAR: 1983
TITLE: Fisheries of the United States, 1982
PUB: NOAA/NMFS, Cur. Fish. Stat. No. 8300, U.S. Dept. of Commerce, Washington, DC, pp. 80-81
ABSTRACT:
This publication is a preliminary report for 1982 on the United States and foreign catches in the U.S. fishery conservation zone.

-1856-
AUTHOR(S): NMFS
YEAR: 1983
TITLE: Report to Industy on the 1983 Eastern Bering Sea Crab Survey
PUB: NWAFC/NMFS/NOAA, NWAFC Proc. Rep. 83-18, Seattle, WA
ABSTRACT:
An annual trawl survey is conducted in the eastern Bering Sea to determine the distribution and abundance of crab and groundfish resources. This report summarizes survey results for commercially important crabs. It is intended to aid fishermen and processors in locating productive grounds and judging overall availability of various species. Survey-derived data are also used as part of the basis for management decisions. Red king crab (Paralithodes camtschatica), blue king crab (P. Platypus), Korean hair crab (Erimacrus isenbeckii), and two species of Tanner crabs (Chionoecetes bairdi and C. opilio) are of primary interest. Hybrid Tanner crabs are also discussed.

-1857-
AUTHOR(S): NMFS
YEAR: 1984
TITLE: Cruise Report: FRS DELAWARE II Cruise 8403
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Pascagoula, MS, 17 pp.
ABSTRACT:
The purpose of the cruise was to continue evaluations of coastal herring fishing and surveying methods begun in 1983. Specific objectives included: (1) evaluating a midwater trawl designed to sample Pacific pollock, (2) evaluating a high-opening bottom trawl, (3) determining areas of trawlable concentrations of coastal herrings in the middle and eastern Gulf, (4) obtaining catch samples to determine species composition and length frequencies, (5) determining behavior patterns of target species, and (6) collecting associated environmental data.

-1858-
AUTHOR(S): NMFS
YEAR: 1984
TITLE: Marine Recreational Fishery Statistics Survey, Atlantic and Gulf Coasts, 1979 (revised) - 1980
PUB: NOAA/NMFS, Natl. Fish. Stat. Prog., Curr. Fish. Stat. No. 8322, Washington, DC.
ABSTRACT:
Recreational fisheries statistics (estimated total catch and estimated weights) are tabulated by species for each subregion: North Atlantic, Middle Atlantic, south Atlantic, and Gulf of Mexico. Estimated numbers of fish caught by species or species group are presented for each state. For each region estimated number of fish caught by species are presented by mode of fishing and area of fishing.

-1859-
AUTHOR(S): NMFS
YEAR: 1984
TITLE: Marine Recreational Fishery Statistics Survey, Pacific Coast, 1981-1982
PUB: NMFS/NOAA, Nat. Fish. Stat. Prog., Curr. Fish. Stat. No. 8323, Washington, D.C. 203 pp.
ABSTRACT:
The purpose of this survey was to establish a reliable data base for estimating the impact of marine recreational fishing on marine resources. The information required for management purposes includes size of catch by species, by subregion, by area, and by mode of fishing.

-1860-
AUTHOR(S): NMFS
YEAR: 1984
TITLE: Fishery Statistics of the United States (recurring publication)
PUB: NOAA, NMFS, Nat. Fish. Stat. Prog., Statistical Digest No. 71, Washington, DC, 407 pp.
ABSTRACT:
Tabular summaries of commercial catches of finfish and shellfish are presented by species, by regions (Atlantic, Gulf of Mexico, and Pacific), and by individual states for 1977. Numbers of fishing vessels and fishermen and economic value of catches (dockside value by species) and processed products are also presented.

-1861-
AUTHOR(S): NMFS
YEAR: 1984
TITLE: Fisheries of the United States, 1983
PUB: NMFS/NOAA, Washington, DC, 142 pp.
ABSTRACT:
This publication is a preliminary report for 1983 on commercial fisheries of the United States and foreign catches in the U.S. FCZ. A section of this publication briefly describes the background and results of Marine Recreational Fishery Statistics Surveys. Data are presented on recreational catch in number by species, and fishing trips by area for 1979-80 surveys on the Atlantic, Gulf, and Pacific coasts, Western Pacific Islands, and Caribbean.

-1862-
AUTHOR(S): NMFS
YEAR: 1985
TITLE: Synopsis of Biological Data on the Pink Shrimp, Pandalus borealis
PUB: NOAA, Seattle, WA, Tech. Rep. NMFS 30, 66 pp.
ABSTRACT:
The synopsis of the literature was designed to summarize the biological and biochemical studies involving Pandalus borealis as well as to provide a summary of the literature regarding the fisheries data published before early 1984.

-1863-
AUTHOR(S): NMFS
YEAR: 1985
TITLE: Fisheries of the United States, 1984
PUB: NMFS/NOAA, U.S. Dep. of Commerce, National Fishery Statistics Program, Curr. Fish. Stat. No. 8360, Washington, DC, 12 pp.
ABSTRACT:
This document describes the following topics: U.S. commercial fishery landings; U.S. joint venture catches; U.S. marine recreational fisheries; U.S. fishery conservation zone; world fisheries; U.S. production of processed fishery products; U.S. cold storage holdings; U.S. imports; U.S. exports; U.S. supply; prices; employment, craft, and plants; fishery products inspection; Fishery cooperatives.

-1864-
AUTHOR(S): NMFS
YEAR: 1985
TITLE: Marine Recreational Fishery Statistics Survey, Pacific Coast 1983-1984
PUB: NMFS/NOAA, Natl. Fish. Stat. Prog., Curr. Fish. Stat. No. 8325, Washington, DC, 189 pp.
ABSTRACT:
The purpose of this survey was to establish a reliable data base for estimating the impact of marine recreational fishing on marine resources. The information required for management purposes includes size of catch by species, by subregion, by area, and by mode of fishing.

-1865-
AUTHOR(S): NMFS
YEAR: 1986
TITLE: Cruise Report: CHAPMAN Cruise 86-02(3)
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Pascagoula, MS, 4 pp.
ABSTRACT:
The purpose of the cruise was to continue evaluations of coastal herring fishing and surveying methods. Specific objectives included: (1) locating areas of trawlable concentrations of coastal herrings for trawl evaluation, (2) evaluating fishing characteristics of a high-opening bottom trawl and two midwater trawls, (3) obtaining catch samples to determine species composition, (4) making preliminary evaluations of a trawlable midwater fish aggregating device (FAD,) and (5) determining species composition of acoustic targets with a pan and tilt video camera system.

-1866-
AUTHOR(S): NMFS
YEAR: 1986
TITLE: Cruise Report: CHAPMAN Cruise 86-01(10)
PUB: NOAA/NMFS, U.S. Dep. of Commerce, Pascagoula, MS, 7 pp.
ABSTRACT:
Specific objectives included: 1) surveying areas identified as potential sites of concentration for latent resources in the eastern Gulf of Mexico and 2) evaluating latent resource trawls under varied fishing conditions.

-1867-
AUTHOR(S): NMFS
YEAR: 1986
TITLE: Southeast Fisheries Center, Annual Report, 1986
PUB: NOAA/NMFS, U.S. Dept. of Commerce

ABSTRACT:
The Southeast Fisheries Center's Annual Report is an administrative report on key center research activities during the year. The SEFC's programs focus on species groupings that support major commercial and recreational fisheries within the region. SEFC research provides input required to ensure that harvests do not overtax the productive potential of species populations while ensuring that unnecessarily restrictive management measures are not imposed on fisheries. For the underutilized stocks, research is designed to produce information that can lead to increased harvests. Each of the species-oriented programs is responsible for developing data needed to assess/monitor stock characteristics and conditions. Center species programs include: Latent Resources, Mackerels, Menhaden, Molluscan Shellfish, Oceanic Pelagics, Protected Species, Red Drum, and Reef Resources.

-1868-
AUTHOR(S): NMFS
YEAR: 1986
TITLE: Fisheries of the United States, 1985 (recurring publication)
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Curr. Fish. Stat. No. 8368, Washington, DC, 121 pp.
ABSTRACT:
The publication is a preliminary report for 1985 on commercial and recreational fisheries of the United States and foreign catches in the U.S. FCZ.

-1869-
AUTHOR(S): NMFS
YEAR: 1986
TITLE: Marine Recreational Fishery Statistics Survey, Pacific Coast
PUB: NOAA/NMFS, Curr. Fish. Stat. No. 8328, Washington, DC, p. 109
ABSTRACT:
The purpose of this survey was to establish a reliable data base for estimating the impact of marine recreational fishing on marine resources. The information required for management purposes includes size of catch by species, by subregion, by area, and by mode of fishing.

-1870-
AUTHOR(S): NMFS
YEAR: 1986
TITLE: Status of the Fishery Resources off the Northeastern U.S. for 1986 (recurring publication)
PUB: NEFC/NMFS/NOAA, NOAA Tech. Memo. NMFS F/NEC-43, 130 pp.
ABSTRACT:
The report is in two parts, an overview section and a species synopses section. Trends in recreational and commercial fisheries are described in the overview section, and the general status of the resources through 1985 are described in the species synopses section.

-1871-
AUTHOR(S): NMFS
YEAR: 1986
TITLE: Cruise Report: CHAPMAN Cruise 86-03(12)
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Pascagoula, MS, 2 pp.
ABSTRACT:
The primary objective of this cruise was to determine the spatial distributions of squid and butterfish from Brownsville, TX to the Florida

panhandle. Additional objectives were to obtain length-weight data on fishes and squid, obtain samples of fish and squid for laboratory analysis, collect hydrographic and environmental data at each station, and collect samples of other latent resource species.

-1872-
AUTHOR(S): NMFS
YEAR: 1986
TITLE: Cruise Report: CHAPMAN Cruise 86-03(11)
PUB: NOAA/NMFS, U.S. Dept. Commerce, Pascagoula, MS, 7 pp.
ABSTRACT:

Objectives: Locate fish targets using sonar and color sounder in order to evaluate techniques in positioning the MANTA to encounter these targets. Evaluate the effective range of both still and video cameras on board MANTA for fish observation under differing turbidity and light conditions. Determine optimum methods of coordinating data outputs from the MANTA system with vessel positioning equipment and fish finding equipment. Perform an acoustic pilot survey to estimate a probability density function for acoustic targets. Develop and evaluate techniques for observing trawling gear using the MANTA. Evaluate gear/fish interactions using MANTA and diver observations. Identify possible modifications to either the 16" high opening bottom trawl (HOBT) or Shuman trawls to prevent fish escapement. Conduct an exploratory survey for Gulf butterfish along the 50 to 125 fathom slope south of Mobile Bay, AL.

-1873-
AUTHOR(S): NMFS
YEAR: 1986
TITLE: Proceedings of the Stock Identification Workshop November 5-7, 1985, Panama City Beach, Florida
PUB: NMFS/NOAA, NOAA Tech. Memo. NMFS-SEFC-199, 227 pp.
ABSTRACT:

The major objective of the Stock Identification Workshop was to gain a more comprehensive understanding of stock identification problems and approaches to their solutions. The workshop was designed to give an opportunity to the participants to share information on methods of stock identification and to review their application to aquatic resources.

-1874-
AUTHOR(S): NMFS
YEAR: 1987
TITLE: Southeast Fisheries Center, Annual Report, 1987
PUB: NOAA/NMFS, U.S. Dept. of Commerce, SEFC, Miami, FL, 76 pp.
ABSTRACT:

The Southeast Fisheries Center's Annual Report is an administrative report on key center research activities during the year. The SEFC's programs focus on species groupings that support major commercial and recreational fisheries within the region. SEFC research provides input required to ensure that harvests do not overtax the productive potential of species populations while ensuring that unnecessarily restrictive management measures are not imposed on fisheries. For the underutilized stocks, research is designed to produce information that can lead to increased harvests. Each of the species-oriented programs is responsible for developing data needed to assess/monitor stock characteristics and conditions. Center species programs include: Latent Resources, Mackerels, Menhaden, Molluscan Shellfish, Oceanic Pelagics, Protected Species, Red Drum, and Reef Resources, and Shrimp and Bottomfish.

-1875-
AUTHOR(S): NMFS
YEAR: 1987
TITLE: Status of the Fishery Resources off the Northeastern United States for 1987
PUB: NEFC/NMFS/NOAA, NOAA Tech. Memo. NMFS F/NEC-50, Woods Hole, MA, 132 pp.
ABSTRACT:
The Conservation and Utilization Division of the northeast Fisheries Center annually updates its assessments of finfish and shellfish resources off the Northeast coasts of the United States from Cape Hatteras to Nova Scotia, and presents detailed information as needed to administrators, managers, the fishing industries, and the public. This report describes trends in recreational and commercial fisheries in the overview section and summarizes the general status of the major finfish and shellfish resources off the northeast coast of the United States from Cape Hatteras to Nova Scotia through 1986 in the species synopses section.

-1876-
AUTHOR(S): NMFS
YEAR: 1987
TITLE: Fisheries of the United States, 1986
PUB: NMFS/NOAA, Washington, DC, 138 pp.
ABSTRACT:
The publication is a preliminary report for 1986 on commercial and recreational fisheries of the United States and foreign catches in the U.S. Exclusive Economic Zone. The annual report provides timely answers to frequently asked questions for the previous year.

-1877-
AUTHOR(S): NMFS
YEAR: 1987
TITLE: Cruise Report: CHAPMAN Cruise 86-06(15)
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Pascagoula, MS, 11 pp.
ABSTRACT:
Primary objectives included: 1) determining optimal rigging configurations for resource survey trawls, 2) evaluating trawl trapping and closing systems, and 3) testing Manta II to a depth of 100 fathoms.

-1878-
AUTHOR(S): NMFS
YEAR: 1988
TITLE: Southeast Fisheries Center, Annual Report, 1987
PUB: NOAA/NMFS, SEFC, Miami, FL, U.S. Dept. of Commerce, 75 pp.
ABSTRACT:
The SEFC's programs focus on species groupings that support major commercial and recreational fisheries within the region. SEFC research provides input required to ensure that harvests do not overtax the productive potential of species populations while ensuring that unnecessarily restrictive management measures are not imposed on fisheries. For the underutilized stocks, research is designed to produce information that can lead to increased harvests. Each of the species-oriented programs is responsible for developing data needed to assess/monitor stock characteristics and conditions. Center species programs include: Latent Resources, Mackerels, Menhaden, Molluscan Shellfish, Oceanic Pelagics, Protected Species, Red Drum, Reef Resources, and Shrimp and Bottomfish.

-1879-
AUTHOR(S): NMFS
YEAR: 1988
TITLE: Cruise Report: FRS DELAWARE II Cruise 8304
PUB: NOAA/NMFS, U.S. Dept. of Commerce, 4 pp.
ABSTRACT:

The purpose of the cruise was to evaluate the effectiveness of a pelagic trawl in the sampling of pelagic fish in the northeastern Gulf of Mexico; evaluate handling and performance characteristics of a Norwegian-built pelagic fish trawl; determine areas of trawlable concentrations of pelagic fish in the northeastern Gulf of Mexico; obtain catch samples to determine: species composition and length frequencies for selected species; and collect associated hydrographic and environmental data at each trawl station.

-1880-
AUTHOR(S): NMFS
YEAR: 1988
TITLE: An Evaluation of the Bottom Trawl Survey Program of the Northeast Fisheries Center
PUB: NMFS/NOAA, NOAA Tech. Memo., NMFS-F/NEC-52, 83 pp.
ABSTRACT:

Objectives were to document significant aspects of the Woods Hole bottom trawl survey program, including its history, areas covered, and vessels, gear, and procedures used; document current assessment-related uses of survey data; evaluate current levels of precision attained; investigate methods of improving survey precision and reliability; and study the implications of changes in sampling intensity including modifications in existing survey coverage.

-1881-
AUTHOR(S): NOAA
YEAR: 1977
TITLE: Environmental Assessment of the Alaskan Continental Shelf
PUB: Bureau of Land Management. Vol. VIII. Receptors--Fish, Littoral, Benthos
ABSTRACT:

Reports containing baseline studies are compiled in this annual report. They are intended to serve as markers or as points of departure from which to assess the potential environmental impact that might result from resources development on the Alaskan Continental Shelf. This compilation contains the following studies: Baseline/reconnaissance characterization, littoral biota, Gulf of Alaska and Bering Sea; Baseline studies of demersal resources of the Gulf of Alaska shelf and slope: A historical review; Baseline studies of fish and shellfish resources of Norton Sound and the southeastern Chukchi Sea; Beaufort Sea estuarine fishery study; The distribution, abundance, diversity, and biology of benthic organisms in the Gulf of Alaska and the Bering Sea; Summarization of existing literature and unpublished data on the distribution, abundance, and productivity of benthic organisms of the Gulf of Alaska and Bering and Chukchi Seas; Food and feeding relationships in the benthic and demersal fishes; and Illustrated keys to otoliths of forage fishes of the Gulf of Alaska, Bering Sea, and Beaufort Sea.

-1882-
AUTHOR(S): NOAA
YEAR: 1977
TITLE: Environmental Assessment of the Alaskan Continental Shelf
PUB: Bureau of Land Management. Vol. VII. Receptors--Fish, Littoral, Benthos, 802 pp.
ABSTRACT:
Reports containing baseline studies are compiled in this annual report. They are intended to serve as markers or as points of departure from which to assess the potential environmental impact that might result from resources development on the Alaskan Continental Shelf. This compilation contains the following studies: Alaska Marine Environmental Assessment Project, herring spawning surveys--Southern Bering Sea; Alaska Marine Environmental Assessment Project, finfish resource surveys in Norton Sound and Kotzebue Sound; razor clam (Siliqua patula) distribution and population assessment study; an ecological assessment of the littoral zone along the outer coast of Kenai Peninsula in the State of Alaska; and a description and numerical analysis of the factors affecting the processes of production in the Gulf of Alaska.

-1883-
AUTHOR(S): NOAA
YEAR: 1977
TITLE: Environmental Assessment of the Alaskan Continental Shelf
PUB: Bureau of Land Management. Vol. X. Receptors--Fish, Littoral, Benthos. 590 pp.
ABSTRACT:
Reports containing baseline studies are compiled in this annual report. They are intended to serve as markers or as points of departure from which to assess the potential environmental impact that might result from resources development on the Alaskan Continental Shelf. This compilation contains the following studies: Phytoplankton and primary productivity in the Northeast Gulf of Alaska and Lower Cook Inlet; Initial zooplankton investigations in Prince William Sound, Gulf of Alaska and Lower Cook Inlet; Zooplankton and micronekton studies in the Bering-Chukchi/Beaufort Seas; Demersal fish and shellfish assessment in selected estuary systems of Kodiak Island; Distribution of King Crab, Pandalid Shrimp, and brachyuran Crab larvae in Kachemak Bay, Alaska 1972; Trawl survey of the benthic organisms in two bays of Kodiak Island, Alaska.

-1884-
AUTHOR(S): NOAA
YEAR: 1977
TITLE: Environmental Assessment of the Alaskan Continental Shelf. Principal Investigators Reports October--December 1976
PUB: Bureau of Land Management. Vol. 2. Receptors (Biota)--Fish, Plankton, Benthos, Littoral, 988 pp.
ABSTRACT:
This volume contains the quarterly reports of baseline studies on the environmental effects related to petroleum development on the Alaskan Continental Shelf. The multi-year program is directed by NOAA under the sponsorship of BLM. The baseline studies in this volume deal with fish, plankton, benthos, and littoral biota.

-1885-
AUTHOR(S): NOAA
YEAR: 1977
TITLE: Environmental Assessment of the Alaskan Continental Shelf
PUB: Bureau of Land Management. Vol. VI. Receptors--Fish, Littoral, Benthos (Annual Report), 862 pp.
ABSTRACT:

Reports containing baseline studies are compiled in this annual report. They are intended to serve as markers or as points of departure from which to assess the potential environmental impact that might result from resources development on the Alaskan Continental Shelf. This compilation contains the following studies: The distribution, abundance, diversity, and productivity of the western Beaufort Sea benthos; Summarization of existing literature and unpublished data on the distribution, abundance, and life histories of benthic organisms.

-1886-
AUTHOR(S): NOAA
YEAR: 1978
TITLE: Environmental Assessment of the Alaskan Continental Shelf. Final Reports of Principal Investigators
PUB: NOAA, OCS Environmental Assessment Program, Vol. I. Biological Studies, Boulder, CO; NOAA-78110701, BLM, Washington, DC, 494 pp.
ABSTRACT:

Samples of ichthyoplankton collected with bongo and neuston nets at 64 locations in the eastern Bering Sea during 16 April-15 May 1977 contained 24,611 fish eggs and 14,171 fish larvae. Pollock (gadidae) accounted for 97% of the eggs and 59% of the larvae with the remainder divided among 18 families of which the eight most numerous were, in order of decreasing abundance, hexagrammidae, cottidae, pleuronectidae, ammodytidae, osmeridae, scorpaenidae, stichaeidae, and bathylagidae.

There were no marked differences in distribution and abundance of pollock eggs and larvae between 1976 and 1977, though eggs appeared to have been more abundant in 1976 and larvae more abundant in 1977. Comparison of bongo and neuston net catches indicated that almost all pollock larvae and a majority of pollock eggs were more than 0.25 m below the sea surface. However, larval hexagrammids and cottids were caught almost entirely with neuston nets in the upper 0.25 m of water, and more of these two groups were caught in 1977 than in 1976. Repetitive sampling at 24 locations showed that both pollock eggs and larvae were more abundant during late April and least abundant in mid-April. An estimated 7.829 x 10 to the 12th power pollock eggs and 7.498 x 10 to the 12th power pollock larvae were present in a survey area of 9.57 x 10 to the 10th power m to the 2nd power during 19-27 April 1977.

-1887-
AUTHOR(S): NOAA
YEAR: 1978
TITLE: Environmental Assessment of the Alaskan Continental Shelf
PUB: NOAA, OCS Environmental Assessment Program, Boulder, CO; BLM, Washington, DC, 377 pp.
ABSTRACT:

As part of the OCS Environmental Assessment Program, this volume contains the following annual reports for the year ending March 1978: Reconnaissance characterization of littoral biota, Beaufort and Chukchi Seas; Beaufort Sea

plankton studies; Ichthyoplankton of the eastern Bering Sea; Lower Cook Inlet meroplankton; and Seasonal composition and food-web relationships of marine organisms in the nearshore zone.

-1888-
AUTHOR(S): NOAA
YEAR: 1978
TITLE: Interim Synthesis Beaufort/Chukchi
PUB: In: Environmental Statement of the Alaskan Continental Shelf, NOAA/OCSEAP, U.S. Dept. of Commerce, Boulder, CO, 362 pp.
ABSTRACT:
The Alaskan Beaufort sea coast is a mosaic of marine, shoreline, and tundra habitats distributed over a length of several hundred kilometers. These habitats differ in abundance, in importance to wildlife and humans, and in resistance to disturbances arising from development. Some habitats, such as saltmarsh, are very important to wildlife and are easily damaged by OCS development, but are limited to a real extent and are dispersed in many small patches along the coast. It is not possible to depict all the locations of sensitive habitats on a simple map. Instead, we have assigned different sensitivity ratings to a list of habitats, and have noted the seasonal variations in sensitivity within each habitat.

-1889-
AUTHOR(S): NOAA
YEAR: 1979
TITLE: Environmental Assessment of the Alaskan Continental Shelf. Annual Reports of Principal Investigators for the Year Ending March 1979
PUB: Bureau of Land Management. Vol. III. Receptors--Fish, Littoral, Benthos, 643 pp.
ABSTRACT:
Volume three of a ten-volume set of annual reports of principal investigators for the year ending March 1979 on the environmental assessment of the Alaskan Continental Shelf deals with receptors--fish, littoral, benthos.

-1890-
AUTHOR(S): NOAA
YEAR: 1979
TITLE: Environmental Assessment of the Alaskan Continental Shelf. Annual Reports of the Year Ending March 1979
PUB: Bureau of Land Management. Vol. IV. Receptors--Fish, Littoral, Benthos, 669 pp.
ABSTRACT:
Field studies were initiated in intertidal and shallow subtidal habitats in Lower Cook Inlet to examine species composition, zonation and seasonal patterns, trophic structure, rates of production, and energy pathways. Habitats examined included rocky intertidal and subtidal areas, sand beaches, and mud flats.

-1891-
AUTHOR(S): NOAA
YEAR: 1980
TITLE: Environmental Assessment of the Alaskan Continental Shelf. Northeast Gulf of Alaska Interim Synthesis Report
PUB: Prepared for the OCS Environmental Assessment Program by Science Applications, Inc., Boulder, Co, 313 pp.

ABSTRACT:
Large populations of commercially valuable crabs, shrimp, and molluscs inhabit the coastal and oceanic waters of NEGOA. A host of other invertebrate species also occur in the region. Many of these organisms are the basic food of dense populations of fishes. The latter are important prey of marine birds and mammals of NEGOA. A number of these fishes--salmon, halibut, flounder, pollock, and cod--are the principal target of the Alaskan commercial fisheries. Thus a change in the composition and size of invertebrate populations by either natural events or human disturbance could affect populations of fishes and, ultimately, those of marine birds and mammals.

-1892-
AUTHOR(S): NOAA
YEAR: 1981
TITLE: Environmental Assessment of the Alaskan Continental Shelf. Final Reports of Principal Investigators
PUB: Bureau of Land Management. Vol. 14. Biological Studies, 682 pp.
ABSTRACT:
Contents: The epifauna of three bays (Port Etches, Zaikof Bay, and Rocky Bay) in Prince William Sound, Alaska, with notes on feeding biology; and distribution, abundance, community structure, and trophic relationships of the nearshore benthos of Cook Inlet.

-1893-
AUTHOR(S): NOAA
YEAR: 1981
TITLE: Environmental Assessment of the Alaskan Continental Shelf. Final Reports of Principal Investigators
PUB: Bureau of Land Management. Vol. 7. Biological Studies, 684 pp.
ABSTRACT:
This study was designed to be a closely integrated research investigation of the physical and biological processes in a barrier island-lagoon system on the Alaskan Beaufort coast. (Processes defined as water circulation, land-form erosion, sediment transport, and migration and feeding activities of fish and birds.) The program was to identify the processes that are sensitive to impacts and important to the ecosystem.

-1894-
AUTHOR(S): NOAA
YEAR: 1981
TITLE: Environmental Assessment of the Alaskan Continental Shelf. Final Reports of Principal Investigators
PUB: Bureau of Land Management. Vol. 10. Biological Studies, 790 pp.
ABSTRACT:
This volume of final reports includes the following: Forage Fish Spawning Surveys in the Southern Bering Sea; Effects of Oil Contamination in the Sea Otter; Reconnaissance of Intertidal Communities in the Eastern Bering Sea; Effects of Ice Scour on Community Structure; and Study of Microbial Activity and Crude Oil-Microbial Interactions in the Waters and Sediments of Cook Inlet and the Beaufort Sea.

-1895-
AUTHOR(S): NOAA
YEAR: 1983
TITLE: Summary of Living Marine Resource Analysis for Lease Sale 82
PUB: NOAA, National Ocean Service, 36 pp.

ABSTRACT:
The combined north and middle Atlantic catch data for 1981 are reported. Composite computer-generated maps show areal extent of spawning and areal extent of spawning weighed by economic value of 19 species and 6 invertebrate species. Sets of composite analysis maps show approximate abundance and approximate abundance weighed by economic value for both fish and invertebrate species. Spiny dogfish, cod, haddock, pollock, lobster, and sea scallops are treated individually.

-1896-
AUTHOR(S): NOAA
YEAR: 1985
TITLE: Gulf of Mexico Coastal and Ocean Zones Strategic Assessment: Data Atlas
PUB: NMFS/NOAA, U.S. Dept. of Commerce, Strategic Assessment Branch, Ocean Assessments Division, Natural Ocean Service and Southeast Fisheries Center
ABSTRACT:
This publication provides in-depth coverage of the scientific and economic characteristics of the Gulf of Mexico. The atlas is primarily made up of 161 detailed maps that present the systematic overview of the Gulf's coastal and oceanic resources, their uses, economic potential, and other related characteristics.

-1897-
AUTHOR(S): NOAA
YEAR: 1988
TITLE: Status of the Fishery Resources off the Northeastern United States for 1988
PUB: NOAA/NMFS, NOAA Tech. Memo. NMFS F/NEC-63, Northeast Fisheries Center, Conservation and Utilization Division
ABSTRACT:
The Conservation and Utilization Division of NEFC, with headquarters in Woods Hole, Massachusetts, annually updates its assessments of finfish and shellfish resources off the northeast coast of the United States, and presents detailed information as needed to administrators, managers, the fishing industries, and the public. This report is based on those assessments and summarizes the general status of the major finfish and shellfish resources off the northeast coast of the United States from Cape Hatteras to Nova Scotia through 1987. Included in the report is information for each species (where available) on: commercial fishery trends; recreational fishery trends; commercial fishery economic trends; summary status of the fishery resources; and aggregate resource trends.

-1898-
AUTHOR(S): NORCROSS, B.L. AND H.M. AUSTIN
YEAR: 1981
TITLE: Climate Scale Environmental Factors Affecting Year Class Fluctuations of Chesapeake Bay Croaker, Micropogonias undulatus
PUB: Va. Inst. Mar. Sci. Spec. Sci. Rep. 110, 78 pp.
ABSTRACT:
Abundance of young-of-the-year croaker, Micropogonias undulatus, in the York River correlate with VIMS (Virginia Institute of Marine Science) pier average January-February temperature ($R2 = 0.734$, R = Pearson correlation coefficient), allowing a prediction of summer abundance of the young-of-the-year croaker. Autoregressive analyses were done on both

young-of-the-year and commercial catch. No statistically significant autoregressive relationships were found. Autocorrelative analyses suggest experimentally and empirically that temperatures below 4 degree C can cause croaker mortalities. Direct correlation analyses of young-of-the-year abundance and commercial catch lagged by 2 or 3 yrs (1+2+ fish) show little statistical validity. This is due to the persistence of large year classes in the commercial catch over a 2-3 yr period. Small year classes are only represented during a single year of commercial catch. The relative contribution of a year class to commercial catch was examined by constructing an empirical year class contribution curve which provided a better fit than the young-of-the-year to commercial catch. The relative contribution of a year class contribution curve provided a better fit than the young-of-the-year to commercial catch. Hypothetical year class contributions to commercial catch are predicted from regressions on the summer year class index. From these relationships, a statistical model was developed using winter temperatures to predict young-of-the-year survival and, hence, the commercial catch contribution to commercial catch are predicted from regressions on the summer year class index. From these relationships, a statistical model was developed using winter temperatures to predict young-of-the-year survival and hence, the commercial catch contribution of each year class over a 1-3 yr period. Possible sources of error in the relationships have been identified in the data bases. These must be corrected before examining other environmental parameters in order to produce the final model which will predict yearly commercial catch from juvenile indices and environmental interactions.

-1899-
AUTHOR(S): NORCROSS, J.J., S.L. RICHARDSON, W.H. MASSMANN, AND E.B. JOSEPH
YEAR: 1974
TITLE: Development of Young Bluefish, Pomatomus saltatrix, and Distribution of Eggs and Young in Virginian Coastal Waters
PUB: Trans. Amer. Fish. Soc. 103:477-497
ABSTRACT:

Cruises were made off Chesapeake Bight from December 1959 through April 1963 to determine species composition and distribution of fishes spawned on the Continental Shelf. Illustrations of young fish, herein provided, now complete figures from newly hatched larvae to juveniles. Verbal descriptions provide prominent features of young bluefish to aid in identification and osteological development and to compare similar appearing larvae. Bluefish larvae can be distinguished from similar appearing species (Peprilus triacanthus and Urophycis chuss) with which they were taken in Chesapeake Bight by myomere numbers and pigment patterns. Bluefish larvae closely resemble the larval scombrids, Scomber scombrus and S. japonicus, and larval carangids. They may be separated by myomere numbers or relative lengths of the preopercular spine.

Continental Shelf waters off the Virginia-North Carolina coast are major spawning grounds of bluefish. Major spawning sites in the Chesapeake Bight were located over the outer half of the shelf between 55 km (30 nautical mi) and 148 km (80 nautical mi) offshore and where water temperatures were 22 degree C or greater and surface salinities were 31 0/00 or greater. Minimum temperature at the onset of spawning was 18 degree C and minimum salinity was 26.6 0/00. Our data show that bluefish spawning commences in June, peaks in July, and continues into August. Peak spawning activity occurred in early evening near sundown (1900-2100 hr). Eggs are thought to be transported south and offshore by prevailing surface currents. Larval bluefish inhabit surface waters and greatest numbers were found near the edge of the Continental Shelf.

Juvenile bluefish move inshore during their first growing season. Despite intensive sampling, none were captured in offshore waters. We speculate that with growth young bluefish move to depths above the thermocline. We suspect that the most important single factor in determining the fate of every year class is the circulation of Continental Shelf waters.

-1900-
AUTHOR(S): NORCROSS, J.J., W.H. MASSMANN AND E.B. JOSEPH
YEAR: 1961
TITLE: Investigations of Inner Continental Shelf Waters off Lower Chesapeake Bay. Part II. Sandlance Larvae, Ammodytes americanus
PUB: Chesapeake Sci. 2:49-59
ABSTRACT:

Plankton samples were collected monthly from 22 stations in the Atlantic Ocean and 3 in Chesapeake Bay. Numerous larvae of sandlance, Ammodytes americanus, were taken from January through April, 1960. Larvae were widely distributed over the survey area but were most abundant beyond 25 miles from shore.

Statistical analysis of sample mean lengths indicated movement offshore and a tendency for a group hatched together to remain together. Rate of larval development was approximated at 11.7 mm per month for the first four months. It is believed that spawning occurred at 5-12 fathoms in the study area. Hatching began in late November, reached a peak sometime after mid-December, and continued until mid-March. Few larvae were collected in waters with salinities less than 30%

-1901-
AUTHOR(S): NORDEN, C.R.
YEAR: 1966
TITLE: The Seasonal Distribution of Fishes in Vermilion Bay, Louisiana
PUB: Wis. Acad. Sci. Arts and Lett. 55:119-137
ABSTRACT:

Vermilion Bay is one of several shallow estuaries along the north shore of the Gulf of Mexico. The fish fauna of a number of these bays, from Texas to Florida, have been investigated by other workers (Gunter 1938a, 1938b, 1945; Suttkus et al. 1953-54; Reid 1955a, 1955b; Simmons and Hoese 1959; Arnold et al. 1960). Except for a study of nearby White and Grand Lakes by Gunter and Shell (1958), Vermilion Bay has received little attention from ichthyologists and fishery biologists.

-1902-
AUTHOR(S): NORSE, E.A.
YEAR: 1977
TITLE: Aspects of the Zoogeographic Distribution of Callinectes (Brachyura porunidae)
PUB: Bull. Mar. Sci. 27(3):440-447
ABSTRACT:

Three aspects of the geographic distributions of swimming crabs in the genus Callinectes are examined. C. Maracaiboensis, previously thought to be endemic to the Lake Maracaibo area, occurs in Jamaica, Colombia, and Curacao. Although typically found in fresh and brackish waters, available evidence indicates that C. maracaiboensis cannot complete its life cycle in waters of low or highly variable salinity, and could not have evolved in Lake Maracaibo when it was cut off from the Caribbean. The larvae of C. sapidus, the species most successful in temperate waters, can neither hatch nor molt much below 20 degree C, and females in the northerly part of the range spawn only during the

warm season. The occurrence of Callinectes in a geographic area implies settlement from the plankton, rather than adult immigration. Callinectes make their farthest poleward penetration in West Atlantic areas having warmer summers and cooler winters than those at comparable latitudes in the East Pacific and East Atlantic. Thus, latitudinal distribution seems to be limited by the effects of summer temperatures on larvae rather than winter temperatures. Caribbean high islands, typically possessing brackish and fresh as well as marine environments, have most or all potentially occurring Callinectes. Low islands, typically without significant amounts of water of reduced salinity, lack C. bocourti, C. maracaiboensis, C. sapidus, and C. danae. Analysis of geographic records shows that low salinity water may be an ecological requirement for some Callinectes, which are distributed similarly to freshwater shrimps, genus Macrobrachium. The most eurytopic Callinectes are absent from areas of the Caribbean populated by their less eurytopic congeners due to their lack of suitable reduced salinity refuges.

-1903-
AUTHOR(S): NORTH CAROLINA DEPT. OF CONSERVATION AND DEVELOPMENT
YEAR: 1967
TITLE: Migration and Growth of Commercial Penaeid Shrimps in North Carolina
PUB: North Carolina DNRCD, DMF, Morehead City, NC, SSR. No. 11, 29 pp.
ABSTRACT:

Pink, brown, and white shrimp, marked with biological stains and fluorescent pigments, were released in nursery areas tributary to the Core Sound and lower Cape Fear River estuaries in North Carolina to obtain information concerning population dynamics including movement and migration patterns, and growth and mortality rates.

-1904-
AUTHOR(S): NORTH CAROLINA FISHERIES ASSOCIATION
YEAR: 1961
TITLE: The Commerical Fishing Industry of North Carolina
PUB: The North Carolina Fisheries Assoc., New Bern, NC, 32 pp.
ABSTRACT:

Fifty-four different types of fish and shellfish are produced in the waters of North Carolina with many choice varieties such as shrimp, oysters, crabs, red snapper, pompano, bluefish, Spanish mackerel, striped bass, and others. The production of seafood has increased from a total of 32,902,000 pounds valued at $845,695 to the fishermen in 1880 until in 1959 a record production of 342,612,000 pounds yielded an income of $8,242,000 to the fishermen. North Carolina ranked sixth in 1959 among the 23 coastal states in the U.S. that produce fishery products.

-1905-
AUTHOR(S): NORTH CAROLINA FISHERIES STUDY COMMISSION
YEAR: 1973
TITLE: Final Report: North Carolina Commercial Fisheries Study Commission
PUB: North Carolina Commercial Fisheries Commission, Raleigh, NC, 11 pp.
ABSTRACT:

This report makes two recommendations. The first is the continuation and expansion of joint and separate efforts by government and the private sector to promote financial assistance to fishermen and publicize its availability. The second is to recommend the implementation of educational programs to promote safety in boat construction and maintenance, and in fishing operations and procedures. The commission makes these recommendations in an attempt to

promote fishing and develop a larger, more efficient commercial fishing industry in North Carolina.

-1906-
AUTHOR(S): NORTH CAROLINA INSTITUTE OF FISHERIES RESEARCH
YEAR: 1963
TITLE: Progress Report on Four Projects Concerning Specific Fisheries Resources and Problems
PUB: Unpublished Reports. 19 pp.
ABSTRACT:
This report is a summary of the progress of four projects supported partially by funds made available from the Department of Conservation and Development concerning fisheries resources and problems in the coastal areas. These studies include the trash fish study, the shrimp sampling study, the clam culture project and the salt-water fishing survey. A brief summary of the results to date are provided along with recommendations for further work.

-1907-
AUTHOR(S): NORTHRUP, T.
YEAR: 1975
TITLE: Coastal Dungeness Crab Study: 1973-1974
PUB: NOAA/NMFS, Seattle, WA, Project 1-929-R, 25 pp.
ABSTRACT:
Dungeness crabs in the ocean off Washington were of high quality from December 1973 to April 1974. Based on condition sampling during the closed period in the fall, a December 1 opening date was recommended. Ocean crabs sampled this contract period appeared to be in better condition than in previous years. Apparently related to low abundance, the molting period has become earlier and has extended over a longer time period so that the percentage of hardshells remained above 75% all year. The staff participated in the State-Federal crab management project, including working with the research team, providing data on various aspects, and participating in scientific, advisory, and policy committee meetings.

-1908-
AUTHOR(S): NORTHWEST ATLANTIC FISHERIES ORGANIZATION
YEAR: 1985
TITLE: Northwest Atlantic Fisheries Organization Statistical Bulletin Vol. 33 for the Year 1983
PUB: Stat. Bull. ICNAF, Vol. 33, 279 pp.
ABSTRACT:
The fishery statistics presented in this volume represent commercial catches from the marine finfish, invertebrate, and seaweed resources of the NAFO Convention Area as well as the catches of harp seals, Pagophilus groenlandicus, and hooded seals, Cystophora cristata.

-1909-
AUTHOR(S): NORTHWEST ATLANTIC FISHERIES ORGANIZATION
YEAR: 1985
TITLE: International Commission for the Northwest Atlantic Fisheries Statistical Bulletin Vol. 27 for the Year 1977 (revised)
PUB: Stat. Bull. ICNAF, Vol. 27 (rev), 281 pp (ICNAF is now NAFO)
ABSTRACT:
This fishery statistics presented in the revised 1977 bulletin represent commercial catches from the marine finfish, invertebrate, and seaweed

resources of the NAFO Convention Area as well as the catches of harp seals, Pagophilus groenlandicus, and hooded seals, Cystophora cristata.

-1910-
AUTHOR(S): NORTON, D.W. AND W.M. SACKINGER
YEAR: 1981
TITLE: Beaufort Sea (Sale 71) Synthesis Report
PUB: Proceedings of a Synthesis Meeting, Chena Hot Springs, AK, April 21-23, 1981. NOAA/BLM, OCSEAP, Juneau, AK, 178 pp.
ABSTRACT:
Section 1 of this synthesis report summarizes available data on the flora and fauna of the Sale 71 environment; discusses winds, tides, and storm surges in the region; and discusses the physical characteristics of the area. Section 2 considers interdisciplinary process analyses, impact prediction, and issue decisions.

-1911-
AUTHOR(S): NTIS
YEAR: 1984
TITLE: Fisheries Management: Marine Fishes and Shellfish, 1976-March 1984
PUB: NTIS, Springfield, VA.
ABSTRACT:
This bibliography contains citations concerning marine fishery management. Management topics include data collection on species and abundance, decision-making on quotas of fish taking, stocking and stock assessment, enforcement, programs and legal aspects, especially those aspects pertaining to jurisdiction.

-1912-
AUTHOR(S): NTIS
YEAR: 1985
TITLE: Fisheries: Environmental Aspects. 1977-November 1983
PUB: NTIS, Springfield, VA. Office of Water Research and Technology, Washington, DC, 305 pp.
ABSTRACT:
This bibliography contains citations concerning environmental studies and experiments as they pertain to fisheries, fish hatcheries, and marine wildlife services. Primary emphasis is on fish and shellfish, with some citations pertaining to benthic invertebrates. The studies included effects of weather, temperature, aquatic toxins, acidification, eutrophication, nutrients, water levels, water chemistry, and water pollution, such as oil spills, heavy metals, and chemical wastes. Aquatic toxins include both natural sources from algae and dinoflagellates and pollution sources, such as pulp mills and herbicides. Some studies report on tolerances by the fish to these environmental changes to their habitat. A few citations cover reproductive cycles in some lakes, and results of attempts to rehabilitate the aquatic habitats. (This updated bibliography contains 315 citations, 147 of which are new entries to the previous edition.)

-1913-
AUTHOR(S): NTIS
YEAR: 1986
TITLE: Fisheries: Environmental Aspects. December 1983-March 1986
PUB: NTIS, Springfield, VA. Office of Water Research and Technology, Washington, DC, 78 pp.

ABSTRACT:
This bibliography contains citations concerning research and experimentation of environmental effects on fisheries, fish hatcheries, and marine wildlife services. Primary emphasis is on fish and shellfish, with some citations pertaining to benthic invertebrates.

-1914-
AUTHOR(S): NTIS
YEAR: 1988
TITLE: Fisheries: Environmental Aspects. December 1983-April 1988
PUB: NTIS, Washington, DC, 59 pp.
ABSTRACT:
This bibliography contains citations concerning research and experimentation of environmental effects on fisheries, fish hatcheries, and marine wildlife services. Primary emphasis is on fish and shellfish, with some citations pertaining to benthic invertebrates. Effects of weather, temperature, aquatic toxins, construction eutrophication, nutrients, water levels, water chemistry, and such pollutants as oil spills, heavy metals, chemical wastes, and herbicides are discussed.

-1915-
AUTHOR(S): NUNNALLEE, E.P.
YEAR: 1988
TITLE: Results of Acoustic-Midwater Trawl Surveys for Walleye Pollock in Shelikof Strait in 1987
PUB: In: Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1987. NWAFC/NMFS/NOAA, Seattle, WA
ABSTRACT:
The annual acoustic-midwater trawl survey of the walleye pollock population in Shelikof Strait, Alaska, was conducted. The major objective was to provide data for age-specific abundance and biomass estimates of the midwater pollock stock during that portion of the prespawning-spawning period when adult fish were at a maximum. Estimates of relative values for comparing age-specific components of the pollock population within 1987 will be the focus of this report, although absolute estimates from previous survey years will be presented for reference and for composition where applicable.

-1916-
AUTHOR(S): NYBLADE, C.F.
YEAR: 1979
TITLE: The Strait of Juan de Fuca Intertidal and Subtidal Benthos, Second Annual Report, Spring 1977-Winter 1978
PUB: U.S. Environmental Protection Agency, Washington, DC, 129 pp.
ABSTRACT:
During the first year 10 sites, representative of the range of habitats present, were sampled quarterly. Stratified random replicates were collected at each area. Strata used were high (+6′), mid (+3′), low (+0′) intertidal, and -5 m and -10 m. Distribution sampling at intermediate strata was conducted once. During the second year seven of the same sites were again sampled quarterly in the intertidal, while the remaining three intertidal sites and all subtidal strata were sampled once.

-1917-
AUTHOR(S): O'CONNELL, C.P., R. LASKER AND K. SHERMAN (EDS.)
YEAR: 1981
TITLE: Estimation by Histological Methods of the Percent of Starving Larvae of the Northern Anchovy (Engraulis mordax) in the Sea
PUB: In: The Early Life History of Fish: Recent Studies. ICES Symposium, 2 April, 1979, Woods Hole, MA, pp. 357-360.
ABSTRACT:

One of the goals of pelagic fish stock investigations is to predict how large year-classes will be at the time of recruitment to the adult population. While the primary approach to this problem for the northern anchovy (Engraulis mordax) is the estimation of larval mortality rates on the basis of abundance estimates from egg and larval surveys, other methods are being sought for corroborative purposes, or to reduce time and costs. The approach described in this report is estimation by histological methods of the proportion of larvae in the sea showing symptoms of starvation. If based on adequate sampling, such a proportion could be an indicator of ultimate year-class success. Of the 318 larvae examined from the Southern California Bight, 26 were classified as severely or moderately emaciated on the basis of such anomalies. Another 11 were classified incipient emaciation; these are not included in the emaciated or starving contingent.

The proportion of emaciated larvae in the present survey could be considered a net daily mortality from starvation of 8%, which is 40% of the average daily mortality mentioned above. If starvation contributes this substantially to total mortality, the proportion observed to be starving may relate reasonably well to eventual recruitment.

-1918-
AUTHOR(S): O'CONNOR, J.S.
YEAR: 1972
TITLE: The Benthic Macrofauna of Moriches Bay, New York
PUB: Biol. Bull. 142:84-102
ABSTRACT:

The eutrophication of estuaries follows patterns that are well known in their broadest aspects but poorly known in detail. Moriches Bay on the south shore of Long Island is a textbook example (Odum, 1959) of estuarine eutrophication. While the principal cause of eutrophication here was known to be effluent from intensive duck farming along tributaries of the bay, it was aggravated by cesspool seepage and by closure between 1951 and 1954 of the only direct access to the ocean, Moriches Inlet. During this period the bay became anaerobic in summer, a situation that has been alleviated by dredging Moriches Inlet and by the gradual decline in duck farming. The bay bottom, however, contains organic sediments several feet deep in some of its more eutrophic reaches. In an effort to learn more of the details of the changes associated with eutrophication of estuaries and as a part of a longer term series of studies of the estuaries of Long Island, I have made an extensive survey of the subtidal benthic macrofauna of Moriches Bay.

-1919-
AUTHOR(S): O'NEIL, P.E. AND M.F. METTEE
YEAR: 1982
TITLE: Alabama Coastal Region Ecological Characterization. Vol. 2. A Synthesis of Environmental Data
PUB: National Coastal Ecosystem Team, Office of Biological Services, FWS/USDOI, 346 pp.

ABSTRACT:
The pertinent (to OCSMAPS) portion of this document presents a distribution map of seagrasses and marshes, bird colonies, wintering populations of ducks and coots, sightings of coastal and marine mammals, and a list of endangered and threatened plants, amphibians, reptiles, and birds of lower Alabama.

-1920-
AUTHOR(S): OBENCHOIC, C.L.
YEAR: 1981
TITLE: A Study of the Larval Fish Community in the New York Bight. July 1974 to June 1976
PUB: Rapp. P.-V. Reun. Cons. Int. Explor. Mer. 178:217-219
ABSTRACT:
Seasonal mean of larvae by species is reported from a two-year study, New York Bight, July 1974-June 1976.

-1921-
AUTHOR(S): OCEANOGRAPHIC INSTITUTE WASHINGTON
YEAR: 1977
TITLE: A Summary of Knowledge of the Oregon and Washington Coastal Zone and Offshore Areas. Vol. II.
PUB: U.S. Dept. of the Interior, Bureau of Land Management
ABSTRACT:
The volume presents general and detailed information about the biological, physical, estuarine, and chemical processes that occur on the ORWA coast.

-1922-
AUTHOR(S): OESTERLING, M.J. AND V.C. CHASE (EDS.)
YEAR: 1985
TITLE: The Virginia Blue Crab: Life History, Research Activities and Commercial Fishery
PUB: In: The Chesapeake: Prologue to the Future. Proceedings from the Chesapeake Bay Symposium. National Marine Educators Conference, July 30-August 3, 1985,Williamsburg, VA, pp. 39-40
ABSTRACT:
The blue crab, Callinectes sapidus (Rathbun), is a common coastal inhabitant. The relative ease in which it may be captured and delicacy of the meat makes the blue crab a highly prized sport and commercial fisheries species. Although the complete range of the blue crab extends from Nova Scotia south to northern Argentina, Chesapeake Bay is considered to be the center of abundance, annually producing almost 50% of the total U.S. harvest. In Virginia, life history studies concentrating on larval and early stage juveniles are continuing at the Virginia Institute of Marine Science (VIMS) and Old Dominion University (ODU). Scientists at VIMS are studying blue crab ecology in seagrass beds and tidal marshes; research demonstrating that grassbeds may be important winter nursery areas for young blue crabs less than an inch wide. The research at ODU is focusing on a two-pronged approach coupling physical and biological oceanography in this study of larval crab distribution and movement.

-1923-
AUTHOR(S): OGREN, L.H. AND H.A. BRUSHER
YEAR: 1977
TITLE: The Distribution and Abundance of Fishes Caught with a Trawl in the St. Andrew Bay System, Florida
PUB: Northeast Gulf Science 1(2):83-105
ABSTRACT:

Fish collections were made by trawling biweekly at 12 stations in the deeper portions (1.5-12.2 m) of the bay system from September 1972 through August 1973. In 312 trawl hauls, 207,447 fish were caught, and 128 species (51 families) were identified from the collections. The bay system is characterized by high salinity and low turbidity waters similar to the coastal waters of the Gulf of Mexico. This permits the occurrence of many marine shore fish in the bay and greatly increases the faunal diversity. In general, these shore species are more numerous in, but not restricted to, the higher salinity waters of the lower bay area. One subarea, however, was more typical of other estuaries of the northern Gulf of Mexico due to its lower salinity waters and occurrence of significantly greater numbers of juveniles of estuarine-dependent fish such as the gulf menhaden (Brevoortia patronus), spot (Leiostomus xanthurus), and Atlantic croaker (Micropogonias undulatus). This nursery area, North Bay, receives most of the fresh water discharged into the system. An unusual abundance of Atlantic threadfin (Polydactylus octonemus) occurred during the latter half of the sampling period. This abundance was also observed over widespread areas in the northeastern gulf. Marked seasonal abundance of the catches was observed. The number of fish caught in winter declined to about 6% of the total catch. Movements out of the sampling area in response to low water temperature are inferred. Other movements into and within the bay system are discussed. Smaller individuals were found in the lower salinity area; the larger were more frequently observed in the higher salinity water.

-1924-
AUTHOR(S): OKADA, J.J., J.J. TRAYNOR, T.M. SAMPLE, H. YAMAGUCHI, M.S. ALTON AND M.O. NELSON
YEAR: 1985
TITLE: Results of Cooperative U.S.-Japan Groundfish Investigations in the Bering Sea during May-August 1979
PUB: INPFC Bull. No. 44, International North Pacific Fisheries Comm., Vancouver, B.C. (Canada). 252 pp.
ABSTRACT:

From late May to late August, 1979, six research vessels from Japan and the United States cooperatively surveyed the groundfish resources of the Bering Sea. The major portion of the eastern Bering Sea continental shelf and slope were sampled with demersal trawls, and hydroacoustic-midwater trawling techniques were used to assess off-bottom concentrations of pollock (i.e., walleye pollock, Theragra chalcogramma) over the outer shelf and slope of the eastern Bering Sea and the population occupying upper layers of the deep water Aleutian Basin in the central Bering Sea. This report describes survey and analytical methods used and presents results on species encountered, distributions, abundances of major families and principal species in catches, and biological characteristics of principal species.

-1925-
AUTHOR(S): OKADA, K.
YEAR: 1986
TITLE: Biological Characteristics and Abundance of Pelagic Pollock in the Aleutian Basin
PUB: In: Symposium on Biology, Stock Assessment, and Management of Pollock, Pacific Cod, and Hake in the North Pacific Region. Bull. INPFC No. 45, pp. 150-176
ABSTRACT:
Japan conducted an acoustic trawl survey in the Aleutian Basin during January to March 1983 to examine the spawning pollock in the winter season. With that winter survey, additional biological information on the pollock stock in the research area was obtained. The characteristics of the pelagic pollock stock in the Basin are discussed in relation to the stock on the continental shelf.

-1926-
AUTHOR(S): OLIPHANT, M.S.
YEAR: 1979
TITLE: California Marine Fish Landings for 1976
PUB: Calif. Dep. Fish Game. Fish. Bull. No. 170, 56 pp.
ABSTRACT:
Landing bulletins provide basic catch records of amounts and values of marine resources taken by California's commercial fisheries plus summarizations of catches by the passenger carrying fishing industry. Small quantities of freshwater fish taken commercially in inland areas also are detailed. These figures are of local, national, and international significance to those interested in the wise utilization and management of California's living marine and freshwater resources.

-1927-
AUTHOR(S): OLLA, B.L., A.L. STUDHOLME, AND A.J. BEJDA
YEAR: 1985
TITLE: Behavior of Juvenile Bluefish, Pomatomus saltatrix, in Vertical Thermal Gradients: Influence of Season, Temperature Acclimation and Food
PUB: Coop. Inst. Mar. Resour. Stud., Mar. Ecol. Prog. Ser. 23(2):165-177
ABSTRACT:
Behavioral responses of juvenile bluefish, P. saltatrix (L.) exposed to cold water in a vertical thermal gradient were measured under controlled laboratory conditions. The temperature regime was similar to conditions that these fish encounter in their inshore and estuarine habitats along the Middle Atlantic coast. Measures included activity, schooling, position with respect to depth and temperature, and feeding. Bluefish, acclimated to 20 or 14 degree C, avoided cold water as it was introduced into the experimental aquarium by initially increasing swimming speed and shifting their distribution upward in the water column. Fish with a similar thermal history were distributed into progressively colder water from August through November, reflecting a predisposition for lower temperatures. This change in behavioral response to temperature coincided with this species southern fall migration. When food was presented at potentially debilitating temperatures which were normally avoided, motivation to feed modified their avoidance response, with the fish entering these temperatures and successfully feeding.

-1928-
AUTHOR(S): OLNEY, J.E.
YEAR: 1983
TITLE: Eggs and Early Larvae of the Bay Anchovy, Anchoa mitchilli, and the Weakfish, Cynoscion regalis, in Lower Chesapeake Bay With Notes on Associated Ichthyoplankton
PUB: Estuaries 6(1):20-35
ABSTRACT:

The seasonal abundance and spatial distribution of eggs and early larvae of the bay anchovy, A. mitchilli, and the weakfish, C. regalis, were determined from plankton collections taken during 1971-1976 in the lower Chesapeake Bay. Eggs and larvae of the bay anchovy dominated the ichthyoplankton, making up 96% of the total eggs and 88% of all larvae taken. A comparison of egg and larval densities from the lower Chesapeake Bay to existing data from other East Coast estuaries suggested that Chesapeake Bay is a major center of spawning activity for this species. A. mitchilli spawning commenced in May when mean water column temperatures approached 17 degree C and abruptly ceased after August. Eggs and early larvae presented a continuous distribution throughout the study area during these months. Eggs and larvae of several sciaenid species, especially C. regalis, ranked 2nd in numerical abundance. Larval weakfish were consistently taken in late summer of each sampling year but peak abundance and distribution were observed in August 1971. Sciaenid eggs exhibited a distinct polyhaline distribution with greatest concentrations observed at the Chesapeake Bay entrance or along the Bay eastern margin. Analysis of sciaenid egg morphometry and larval occurrence suggested spawning activity of at least 4 spp. Additional important species represented by eggs and/or larvae in the lower Chesapeake Bay were Hypsoblennius hentzi, Gobiosoma ginsburgi, Trinectes maculatus, Symphurus plagiusa, and Paralichthys dentatus with the remaining species occurring infrequently.

-1929-
AUTHOR(S): ORCUTT, H.G.
YEAR: 1977
TITLE: Dungeness Crab Research Program Report for the Year 1977
PUB: Calif. Dep. Fish Game. Long Beach, CA. Mar. Res. Tech. Rep. No. 77-21, 55 pp.
ABSTRACT:

The San Francisco Bay complex and Gulf of Farallones north to Crescent City are historic sites for Dungeness crab fisheries. This report discusses the observed long-term decline of crabs and crab larvae in central and northern California.

-1930-
AUTHOR(S): ORCUTT, H.G.
YEAR: 1978
TITLE: Dungeness Crab Research Program Report for the Year 1978
PUB: Calif. Dep. Fish Game. Long Beach, CA. Mar. Resour. Admin. Rep. No. 78-16
ABSTRACT:

Tables show the decline in central California and the increase in northern California of Dungeness crabs.

-1931-
AUTHOR(S): ORSI, J.A. AND J.H. LANDINGHAM
YEAR: 1985
TITLE: Numbers, Species, and Maturity Stages of Fish Captured with Beach Seines During Spring 1981 and 1982 in Some Nearshore Marine Waters of Southeastern Alaska
PUB: NOAA/NMFS/NWAFC, Auke Bay, AK, Tech. memo. PR PC A03/MF A01, 40 pp.
ABSTRACT:

The authors collected fish with beach seines at 12 sites during spring 1981 and 1982. During the 2-year study, the authors captured over 212,000 fish representing 15 families and 42 species. In each of the 2 years, 95% of the catch was pink salmon, chum salmon, Pacific sand lance, Dolly Varden, and coho salmon. Of these five species, pink salmon fry were the most abundant in both 1981 and 1982.

-1932-
AUTHOR(S): ORSI, J.A., A.G. CELEWYCZ, D.G. MORTENSEN AND K.A. HERNDON
YEAR: 1987
TITLE: Sample Juvenile Chinook Salmon (Oncorhynchus tshawytscha) and Coho Salmon (O. Kisutch) by Small Trolling Gear in the Northern and Central Regions of Southeastern Alaska, 1985
PUB: NOAA/NMFS/NWAFC, Dept. of Commerce, Auke Bay Lab., Auke Bay, AK, 97 pp.
ABSTRACT:

Juvenile chinook salmon (Oncorhynchus tshawytscha) and coho salmon (O. Kisutch) were sampled by small trolling gear in the marine waters of southeastern Alaska from January to December 1985 to determine their stock composition, age, size distribution, and abundance.

-1933-
AUTHOR(S): ORSI, J.J.
YEAR: 1971
TITLE: The 1965-1967 Migrations of the Sacramento-San Joaquin Estuary Striped Bass Population
PUB: Calif. Fish Game 57(1):257-267
ABSTRACT:

Striped bass (Morone saxatilis) migrations are described based on tag returns from the third in a series of tagging programs dating back to 1950. In 1965-66 the general migration pattern was essentially the same as it was in 1958-61. No return to the pattern of the early 1950's in which few bass entered San Francisco Bay or the Pacific Ocean occurred. In general, larger fish moved farther downstream. Only medium-sized and large fish went to sea, and then only in the summer and fall. Small fish were the only ones common in fresh water during the summer.

Major differences between 1958-61 and 1965-66 were a population shift from San Francisco Bay to San Pablo Bay during the winter, a downstream movement of small and medium-sized fish into San Francisco Bay during the fall, and a shorter residence time in the ocean during the summer and a reduced oceanic range. All are difficult to explain. Fish length seemed to influence migration pattern more than sex did.

-1934-
AUTHOR(S): ORSI, J.J.
YEAR: 1986
TITLE: Interaction Between Diel Vertical Migration of a Mysidacean Shrimp and Two-Layered Estuarine Flow
PUB: Hydrobiologia 137(1):79-88

ABSTRACT:

Neomysis mercedis (Holmes) has a diel vertical migration pattern that interacts with two-layered estuarine flow and a turbid entrapment zone to keep the population from being swept out of the upper Sacramento-San Joaquin Estuary (California, U.S.A.). In the entrapment zone mysids are found near the surface on all night tides but are present at that level during the day only on flood tides. In the clearer water downstream from the entrapment zone mysids are not found near the surface during the day. In both locations a higher percentage of juveniles than adults are near the surface. Individuals swept downstream from the entrapment zone in the seaward moving service layer are apparently transported back upstream via the bottom density current. Thus, the population circulates both vertically and longitudinally but there is no net seaward movement except in response to changes in location of the entrapment zone. Due to their greater near-surface abundance on flood tides which move them upstream, neonates are less abundant than adults seaward of the entrapment zone.

-1935-
AUTHOR(S): ORSI, J.J. AND D.C. KNUTSOU
YEAR: 1979
TITLE: An Extension of the Known Range of Neomysis mercedis, the Opossum Shrimp
PUB: CFR 65(2):127-130
ABSTRACT:

The opossum shrimp is an extremely important fish food in the Sacramento-San Joaquin Estuary. This Estuary and Lake Merced were reported to be the southernmost locations from which it had been collected (Holmquist 1973). Temperatures farther south were thought to exceed its upper lethal limit of approximately 25.4 degree C (77.8 degree F) (Hair 1971, Heubach 1972). However, Needham (1940) found N. mercedis in Waddell Creek, 23 km (39 miles) south of Lake Merced. During August and October 1977 we sampled the mouths of 18 small coastal streams from 50 km (30 miles) south of San Francisco to Ventura, California, to determine how far south this species actually ranged.

-1936-
AUTHOR(S): ORTEGA, S.
YEAR: 1981
TITLE: Environmental Stress, Competition and Dominance of Crassostrea virginica near Beaufort, NC, USA
PUB: Mar. Biol. 62(1):47-56
ABSTRACT:

Observations and experiments were made at two intertidal areas near Beaufort, North Carolina, U.S.A. from May 1977 to July 1978 to determine why the oyster Crassostrea virginica dominated the community in areas protected from wave action but not in areas directly exposed to waves. Barnacles, oysters, the greenalga entermorpha sp., and the mussel brachiodontes exustus were the main occupiers of primary space at the mid and low intertidal levels of exposed areas. The intertidal community at the protected site consisted of a mild intertidal occupied by the barnacles Balanus amphitrite and Chthamalus fragilis, and the oyster C. virginica, and a low intertidal dominated by C. virginica. The exposed area was highly variable with high colonization and mortality for all species producing large seasonal changes in structure. The protected site remained constant throughout the year. Recolonization experiments, selective removal of species, and growth and survival data demonstrated that C. virginica does not become dominant at exposed locations

because (1) the constant wave shock at the ocean site reduces growth and increases mortality of young and adult oysters and (2) oysters are outcompeted by the mussel B. exustus.

-1937-
AUTHOR(S): ORTH, F.L., C. SCHELCER, H.M. FEDER AND J. WILLIAMS
YEAR: 1975
TITLE: The Alaska Clam Fishery: A Survey and Analysis of Economic Potential
PUB: Inst. Mar. Sci., University of Alaska, pp. 1-137
ABSTRACT:
In the U.S. as a whole and on the Pacific coast, demand for clams should grow steadily over the next several decades. This growth in demand will result from increases in population and consumer real income and changes in the relative prices of fish and shellfish that are favorable to clams. Because there are large unexploited stocks of clams in both U.S. and foreign waters, supply will be relatively elastic. This means that the projected increases in demand will be supplied without large increases in the real price of clams.

-1938-
AUTHOR(S): OSAKO, M.
YEAR: 1976
TITLE: Distribution and Origin of Sockeye Salmon (Oncorhynchus nerka) in Offshore Waters of the North Pacific Ocean
PUB: Interl North Pac. Fish. Comm. Bull. 34, 116 pp.
ABSTRACT:
An important part of the work of the International North Pacific Fisheries Commission (Canada, Japan, United States), which began its investigations on Pacific salmon in 1955, culminated in the mid-1960's with the publishing of a comprehensive report on salmon of the North Pacific Ocean. The report was published as a series whose organization and purpose were described in Part I (Jackson, 1963). Part VI of that series entitled "Sockeye Salmon in Offshore Waters" (INPFC Bull. No. 20) described the oceanic distribution, migrations, and extent of intermingling of the major stocks of sockeye salmon (Oncorhynchus nerka) based upon data obtained through 1962. That report was based upon research which included tagging, parasitological and morphological studies, studies of scale characteristics, and studies of serology of sockeye salmon stocks. The present contribution on sockeye salmon is essentially an updating of Part VI and includes summaries of all new research and data collections from 1963 through 1971. Data collected prior to 1963 have been included in certain instances for the sake of completeness.

-1939-
AUTHOR(S): OSAKO, M. AND M. KATO
YEAR: 1978
TITLE: Distribution of Immature Sockeye Salmon, Oncorhynchus nerka (Walbaum), in the Northwestern North Pacific Ocean and Bering Sea
PUB: In: Japan Far Seas Fish. Res. Lab. Bull. No. 16, pp. 59-74
ABSTRACT:
Data from a grid survey during the summers, mainly August, from 1968 to 1973 by Japanese research vessels are presented and discussed for distribution and abundance of O. nerka. Characteristics of immature oncorhynchus in each area and relationship between the successive ages are discussed.

-1940-
AUTHOR(S): OSBURN H.R. AND M.O. FERGUSON
YEAR: 1985
TITLE: Trends in Finfish Catches by Private Sport-Boat Fishermen in Texas Marine Waters through May 1984
PUB: Texas Parks and Wildlife Department, Coastal Fish. Branch, Austin, TX, Management Data Ser. No. 78, 165 pp.
ABSTRACT:

Creel surveys conducted in Texas bays since fall 1974 have shown a decline in annual finfish landings by weekend sport-boat fishermen. This decline in landings was accompanied by a decline in the mean annual catch rates and possibly in fishing pressure. The Galveston Bay system had the highest fishing and the San Antonio Bay system had the lowest fishing pressure. Spotted seatrout was the fish most frequently landed (40%) in each year. Red drum and black drum accounted for 6% and 4% of the total annual landings, respectively.

-1941-
AUTHOR(S): OSBURN, H.R. AND M.O. FERGUSON
YEAR: 1985
TITLE: Charterboat Fishermen Finfish Catch Statistics for Texas Marine Water (May 1983-May 1984)
PUB: Texas Parks and Wildlife Department, Coastal Fish. Branch, Austin, TX, Management Data Ser., No. 77, 64 pp.
ABSTRACT:

From 15 May 1983-14 May 1984 headboat and party-boat fishermen fishing in inshore and offshore marine waters of Texas and the adjacent U.S. FCZ were surveyed. Headboat and party-boat fishermen spent over 748,000 man-hours to land 828,2000 finfish from Texas marine waters. Reef fishes, mainly red snapper, dominated offshore headboat catches; sand seatrout dominated the inshore headboat catches. King mackerel and red snapper dominated offshore party-boat catches; spotted seatrout dominated inshore party-boat catches.

-1942-
AUTHOR(S): OSBURN, H.R., G.C. MATLOCK AND A.W. GREEN
YEAR: 1982
TITLE: Red Drum (Sciaenops ocellatus) Movement in Texas Bays
PUB: Contrib. Mar. Sci. 25(Aug):85-98
ABSTRACT:

Red drum movement in Texas bays was studied by means of fish tagged with internal abdominal anchor tags and subsequently released. Intrabay movement was minimal with the majority (>71%) of returned tagged red drum moving < or equal to 10 km. Few fish were returned from the Gulf or from outside the bay in which they were tagged. Movement patterns of red drum, however, differed significantly among some bay systems. There was no detectable relation between minimum distance moved by red drum and seasons or size of fish. The previously reported mass migration of red drum in winter was not detected in this study. Texas bay systems can be considered closed systems for fish ~305-625 mm TL when managing red drum stocks. Due to the restricted movement patterns, local populations of red drum could be vulnerable to intense fishing pressure.

-1943-
AUTHOR(S): OSBURN, H.R., G.E. SAUL AND C.L. HAMILTON
YEAR: 1985
TITLE: Trends in Texas Commercial Fishery Landings, 1977-1984
PUB: Texas Parks and Wildlife Department, Coastal Fish. Branch, Austin, TX, Management Data Ser., No. 84, 95 pp.
ABSTRACT:
Shrimp continue to be the most important commercial seafood product in Texas. They comprised 86% of the pounds and 94% of the value of total seafood landings, while oysters, crabs, and finfish accounted for 14% of the total pounds landed and 6% of the value in 1984. Total reported landings in 1984 were 104,801,100 lb with an ex-vessel value of $191,689,700. This is the third highest poundage recorded and the fourth year in a row of record high value.

-1944-
AUTHOR(S): OSBURN, H.R., W.D. QUAST AND C.L. HAMILTON
YEAR: 1987
TITLE: Trends in Texas Commercial Fishery Landings, 1977-1986
PUB: Texas Parks and Wildlife Department, Coastal Fish. Branch, Austin, TX, Management Data Ser., No. 131, 108 pp.
ABSTRACT:
Shrimp continue to be the most important commercial seafood product landed in Texas. They represented an average 84%, by weight, of all seafood landed from 1977 through 1986 and more than 93% of the total ex-vessel value. The remaining landings were comprised of blue crabs (9%), Eastern oysters (4%), and finfish (4%). The remaining ex-vessel value resulted from the sale of Eastern oysters (3%), blue crabs (2%), and finfish (2%).

-1945-
AUTHOR(S): OTTO, R.S.
YEAR: 1979
TITLE: Report to Industry on 1979 Eastern Bering Sea Survey, King and Tanner Crab
PUB: NOAA/NMFS, Northwest and Alaska Fisheries Center, Processed Report 137
ABSTRACT:
An annual trawl survey is conducted in the eastern Bering Sea to provide information on the distribution and abundance of four species of crabs. This report deals with the distribution and abundance of red king crab (Paralithodes camtschatica), blue king crab (P. platypus), and two species of Tanner crab (Chionoecetes bairdi and C. opilio). Hybrid Tanner crabs are also discussed. Data on the distribution and abundance of groundfish are also collected as part of the survey and are available from the National Marine Fisheries Service Seattle Laboratory.

-1946-
AUTHOR(S): OTTO, R.S.
YEAR: 1981
TITLE: Report to Industry on the 1981 Eastern Bering Sea Crab Survey
PUB: NOAA/NMFS, Northwest and Alaska Fisheries Center, Seattle, WA, PR 81-08
ABSTRACT:
An annual trawl survey is conducted in the eastern Bering Sea to provide information on the distribution and abundance of five species of crabs. This report deals with the distribution and abundance of red king crab, blue king crab, brown king crab and two species of Tanner crab.

-1947-
AUTHOR(S): OTTO, R.S.
YEAR: 1982
TITLE: An Overview of the Eastern Bering Sea Tanner Crab Fisheries
PUB: In: Proceedings of the International Symposium on the Genus Chionoecetes, May 3-6, 1982. Lowell Wakefield Symposia Series, pp. 83-115
ABSTRACT:
Eastern Bering Sea Tanner (Snow) crab (Chionoecetes bairdi and C. opilio) fisheries developed as an outgrowth of Japanese and Soviet king crab (paralithodes spp.) operations. Development of Japanese and Soviet Fisheries was spurred by progressively smaller king crab quotas and relatively high tanner crab abundance. The U.S. entered the fishery in 1968 but almost all catches were incidental to king crabbing until 1974. The U.S.S.R. discontinued tanner crab fishing in 1971. The Secretary of Commerce, at the suggestion of the North Pacific Fishery Management council, eliminated annual quotas for Japan in 1981. Currently, the U.S. is the only country participating in directed fisheries. Eastern Bering Sea fisheries are fully developed and production has probably exceeded 40% of the world total catch of Tanner crabs over the past 5 years. Various trends in Tanner crab populations and fisheries are presented and their probable future discussed.

-1948-
AUTHOR(S): OTTO, R.S.
YEAR: 1982
TITLE: Report to Industry on the 1982 Eastern Bering Sea Crab Survey, Kodiak, Alaska
PUB: NOAA/NMFS, Northwest and Alaska Fisheries Center, Seattle, WA.
ABSTRACT:
An annual trawl survey is conducted in the eastern Bering Sea to determine the distribution and abundance of crab and groundfish resources. This report summarizes survey results for commercially important crabs. Red king crab, blue king crab, Korean hair crab, and two species of Tanner crabs are of primary interest.

-1949-
AUTHOR(S): OTTO, R.S.
YEAR: 1984
TITLE: Report to Industry on the 1984 Eastern Bering Sea Crab Survey, Kodiak, Alaska
PUB: NOAA/NMFS, Northwest and Alaska Fisheries Center, Seattle, WA
ABSTRACT:
In September and October 1985, the National Marine Fisheries Service conducted a trawl survey of Norton Sound and the northeast Bering Sea. This report includes data on the abundance and distribution of red king crab (Paralithodes camtschatica), blue king crab (P. platypus), and Tanner crabs (Chionecetes bairdi and C. opilio) in those regions. All four species occurred in Norton Sound, but only C. opilio was found in the northeast Bering Sea. An estimated 1,203 million legal size (>104 mm carapace length) male red king crabs occurred in the Norton Sound survey area; the majority of these were undergoing or had recently completed molting in September. The only other species reaching legal size in Norton Sound was C. opilio, but in very few numbers. Egg clutches were absent from female C. opilio in Norton Sound, but were present in the northeast Bering Sea in relatively low numbers. These

data suggest that some factor prevented female C. opilio in those regions from maturing or spawning at the same size as in the more southerly eastern Bering Sea.

-1950-
AUTHOR(S): OTTO, R.S., A.K. FUKUYAMA, T.M. ARMETTA, R.A. MACINTOSH AND J. MCBRIDE
YEAR: 1979
TITLE: United States King and Tanner Crab Research in the Eastern Bering Sea, 1979
PUB: INPFC Ann. Rep. 1979
ABSTRACT:
An annual trawl survey is conducted in the eastern Bering Sea to provide information on the distribution and abundance of four species of crabs. This information is provided to fishermen and processors as an aid in locating productive areas and judging the overall availability of crabs. Survey-derived information is also used as part of the basis for management decisions. This report deals with the distribution and abundance of red king crab (Paralithodes camtschatica), blue king crab (P. platypus), and two species of Tanner crab (Chionoecetes bairdi and C. opilio). Hybrid Tanner crabs are also discussed. Data on the distribution and abundance of groundfish are also collected as part of the survey and are available from the National Marine Fisheries Service Seattle Laboratory.

-1951-
AUTHOR(S): OTTO, R.S., R.A. MACINTOSH, A.K. FUKUYAMA, T.M. ARMETTA AND C.J. PACE
YEAR: 1979
TITLE: Report to Industry on 1979 Eastern Bering Sea Survey--King and Tanner Crab
PUB: NOAA/NMFS, Dept. of Commerce, Northwest and Alaska Fisheries Center, Kodiak, AK. Northwest and Alaska Fisheries Center Processed Report 79-14
ABSTRACT:
An annual trawl survey is conducted in the eastern Bering Sea to provide information on the distribution and abundance of four species of crabs. This information is provided to fishermen and processors as an aid in locating productive areas and judging the overall availability of crabs. This report deals with the distribution and abundance of red king crab, blue king crab, and two species of Tanner crab. Data on the distribution and abundance of groundfish are also collected as part of the survey and are available from the National Marine Fisheries Service Seattle Laboratory.

-1952-
AUTHOR(S): OVERHOLTZ, W.J.
YEAR: 1985
TITLE: Managing the Multispecies Otter Trawl Fisheries of Georges Bank with Catch Optimization Methods
PUB: North American J. Fish. Manage. 5:252-260
ABSTRACT:
Linear programming was used to study the potential yield of several demersal fish assemblages on Georges Bank. Two different scenarios were investigated, a directed fishery for all species in the assemblage and directed fisheries for at least two species with associated by-catch of the other species. Objective functions were based on maximizing the total catch in each assemblage. Results showed that the goal of harvesting each

single-species allocation was highly dependent on species richness, relative abundance, and seasonal distribution. For example, the shallow assemblage with many species and a wide disparity in relative abundance and seasonal shifts in distribution had a low yield potential. Another assemblage, the Northeast Peak, was much less complex and generally had much higher harvest potential. These findings suggest that the maximum harvest of marine groundfish complexes, when based strictly on single-species criteria, may be unattainable because of technological interactions in the fishery and the additional biological complexity of the exploited assemblage of fishes.

-1953-
AUTHOR(S): OVERSTREET, R.M.
YEAR: 1983
TITLE: Aspects of the Biology of the Spotted Seatrout, Synoscion nebulosus, in Mississippi
PUB: Gulf Res. Rep. 1:1-43
ABSTRACT:

About 3000 specimens of the spotted seatrout from Mississippi Sound and adjacent water grouped by males and females had a nearly identical standard length (SL) versus total length (TL) relationship, although the equation for males in winter differed from that for those in other seasons. When investigating the SL-weight relationship, some differences occurred both among seasons and between sexes. Condition coefficients (K) were calculated to compare male and female groups according to their length and state of maturation on a seasonal basis. The hepatosomatic index (HSI) tended to increase with fish length, with relatively high values occurring in winter compared to low ones in summer when livers exhibited an abundance of lipid. Seasonal values of gonosomatic (GSI) were typically less than those for HSI, except for ripe or nearly ripe fish. Males and females often concurrently exhibited contrasting values for both HSI and GSI. Females matured as short as 189 mm SL and males by 201 mm, and the percentage of gravid females in summer increased with increasing SL. By the time fish reached 40 cm, females constituted 85.7% of the sample from Mississippi Sound, not counting additional samples in 1982 that contained more males between 350 and 475 mm than females. Ovaries contained more oocytes than indicated in the literature. The larges estimate of oocytes over 30 mu.m in diameter per female was 10.5 million using a simple volumetric techique. Based on histological and other evidence, most individual fish in Mississippi apparently spawned periodically from April-September, and even longer during years with appropriate temperature conditions. When gravid, fish tended to group in schools composed primarily of males or females. Tagging studies indicated that neither C. nebulosus nor C. arenarius moved farther than 25 km from their locations of release. Both seatrouts hosted parasites that harm the host in natural water and culture conditions, that adversely affect their respective fisheries, and that potentially cause human distress. Several listed parasites were not reported previously from the fishes.

-1954-
AUTHOR(S): OVERSTREET, R.M.
YEAR: 1983
TITLE: Aspects of the Biology of the Red Drum, Sciaenops ocellatus, in Mississippi U.S.A.
PUB: Gulf Coast Res. Lab., Gulf Res. Rep. 1:45-68

ABSTRACT:
Several hundred specimens of the red drum from Mississippi were critically assessed. Regression equations for SL versus TL differed between males and females and between small and large members of the same sex. A single regression line represented the weight-SL relationship for males with females.

-1955-
AUTHOR(S): OVIATT, C.A. AND S.W. NIXON
YEAR: 1973
TITLE: The Demersal Fish of Narragansett Bay and Analysis of Community Structure Distribution and Abundance
PUB: Estuarine Coastal Mar. Sci. 1(4):361-378
ABSTRACT:
Monthly samples of demersal fish were collected from 9 regular and 13 occasional stations in Narragansett Bay, Rhode Island, throughout a year. While over 9,000 individuals representing 99 species were taken, the 10 most abundant species made up 91% of the catch. Taxonomic composition and dominance of the fish community were generally similar to that reported for adjacent Block Island Sound and Long Island Sound, though diversity was slightly higher in the bay. Winter flounder, Pseudopleuronectes americanus, was by far the most abundant species, and accounted for 36% of the total catch. Multiple regression analysis of fish numbers and biomass for total catch and for the dominant flounder indicated that of 14 environmental variables considered, only depth, sediment organic content, temperature, and wind speed were significant in explaining distribution within the bay. No clear pattern of fish abundance was apparent, except for higher diversity near the mouth of the bay. The mean annual standing crop of 117 + or - 151 fish/acre and 28.5 + or - 16.0 lbs/acre (wet weight) was comparable to values reported for a variety of New England coastal and offshore areas. The total biomass of fish remained remarkably constant throughout the year when compared to adjacent coastal environments, while the abundance of particular species varied substantially with season.

-1956-
AUTHOR(S): OWEN, D.L. AND J.E. BLACKBURN
YEAR: 1983
TITLE: Bottomfish Catch and Trawl Data from an Otter Trawl Survey in N. Shelikof Strait, Chignik Area and Chiniak Gully, Alaska, July and August 1981
PUB: AK Dep. Fish and Game Tech. Data Rep. No. 82, 68 pp.
ABSTRACT:
Report assesses abundance, distribution, and size-age-sex composition of bottomfish stocks in northern Shelikof Strait, Chignik, and in Chiniak Gully. Distribution and CPUE for major taxa are tabulated and presented in figures.

-1957-
AUTHOR(S): OWEN, R.D., R.L. BEDENBAUGH AND R.S. BIRDSONG
YEAR: 1984
TITLE: Seasonality and Abundance of Demersal Fishes in an Industrialized Estuary
PUB: Va. J. Sci. 35(2):117
ABSTRACT:
Seasonal occurrence and abundance of demersal fishes taken from the Elizabeth River, Virginia, during a 2-year environmental impact study are described. Monthly samples were taken with a 16' otter trawl from three sites from January 1982-January 1984. Major species taken include Leiostomus

xanthurus, Micropogonias undulatus, Cynoscion regalis, Urophycis regia, and Trinectes maculatus. Year class indicates that both juvenile and adult fishes frequent the river suggesting the continued use of this industrialized estuary by some species for feeding, spawning, and nursery grounds.

-1958-
AUTHOR(S): P. BERRIEN
YEAR: 1982
TITLE: Atlantic Mackerel, Scomber scombrus
PUB: In: Fish Distribution MESA New York Bight Atlas Monograph 15. New York Sea Grant Institute, Albany, New York, pp. 99-102
ABSTRACT:
The Middle Atlantic Bight is a complex ecosystem characterized by rapid latitudinal changes in water temperatures and associated fauna. Subtropical and boreal fish fauna overlap in the region from Cape Hatteras to Georges Bank, resulting in a highly diverse fish community with large seasonal fluctuations in distributions. The general ecology of Atlantic Mackerel, Scomber scombrus, species, fish, and shellfish in the Middle Atlantic Bight is summarized in terms of 1) distribution and seasonal movements, 2) population size and fisheries, 3) reproduction-growth-lifespan, 4) feeding interrelationships, and 5) environmental sensitivity to pollutants and natural environmental factors.

-1959-
AUTHOR(S): PACHEO, A.L. (ED.)
YEAR: 1973
TITLE: Proceedings of a Workshop on Egg, Larval, and Juvenile Stages of Fish in Atlantic Coast Estuaries
PUB: NOAA/NMFS, Middle Atlantic Coastal Fisheries Center, Highlands, NJ. Tech. Pub. No. 1, 335 pp.
ABSTRACT:
This report contains the material presented at a workshop concerning egg, larval and juvenile stages of fish in Atlantic Coast estuaries held at Bears Bluff Laboratories, Wadmolaw Island, South Carolina. Papers are presented discussing research techniques, estuarine habits and life histories of fishes, distribution studies, mortality rate, environmental adaptations, and range and distribution of estuarine fishes. Approximately 40 papers by nearly 35 different investigators were presented at this workshop.

-1960-
AUTHOR(S): PACIFIC MARINE FISHERIES COMMISSION
YEAR: 1986
TITLE: 38th Annual Report of the Pacific Marine Fisheries Commission for the Year 1985
PUB: Pacific Marine Fisheries Comm., Portland, OR, 36 pp.
ABSTRACT:
The Annual Meeting report highlights included a presentation on the status of limited entry analyses and proposals, discussion and approval by the Commission on a number of 1985 issues, a scientists' workshop on salmon-hooking mortalities, and selection of issue topics for 1986. In addition, a series of poster papers reviewed the status of Pacific Coast fisheries in 1985.

-1961-
AUTHOR(S): PAFFENHOFER, G.A.
YEAR: 1980
TITLE: Zooplankton Distribution as Related to Summer Hydrographic Conditions in Onslow Bay, North Carolina
PUB: Bull. Mar. Sci. 30(4):819-832
ABSTRACT:
Zooplankton concentration and composition were related to hydrographic parameters in Onslow Bay, North Carolina. During summer the hydrography of Onslow Bay, North Carolina, is often characterized by the presence of nutrient-rich Gulf Stream waters. These originate from greater depths of the Gulf Stream, intrude at subsurface depths, frequently strand in the Bay, and have high concentrations of particulate matter and chlorophyll a. Since such water masses can maintain their integrity for up to one month, temporal changes in phyto- and zoo-plankton communities may be followed.

This paper describes the concentration, composition, and distribution of abundant zooplankton taxa from summer 1976. Zooplankton distribution was affected by hydrography as, for example, oncaeidae and corycaeidae were significantly more abundant in intrusions than in the upper mixed layer. Zooplankton biomass and composition indicate relatively high production of low predation rates on zooplankton in intruded waters.

-1962-
AUTHOR(S): PAPERNO, R. AND J. DOBARRO
YEAR: 1985
TITLE: Distribution and Abundance of the Blue Crab, Callinectes sapidus, in Delaware Bay, U.S.A., 1981-1984
PUB: In: 30th Annual Meeting of the New Jersey Academy of Science and Affiliated Societies, Trenton, NJ, Bull. NJ Acad. Sci. 30(1):47
ABSTRACT:
The Delaware Bay Blue Crab, Callinectes sapidus (Rathbun), population undergoes yearly fluctuations in abundance that are reflected in the New Jersey commercial landings. The data suggest that yearly environmental characteristics (temperature, salinity, stream flow) may affect crab abundance throughout the Bay. In the spring and early summer months the crab population is dominated by larger (greater than 60 mm) size classes. Mid-summer and autumn bring a shift in size class dominance to smaller recruit-size (less than 60 mm) individuals. The less saline portions of the Bay tend to be dominated by larger male crabs although, the overall sex ratio in the Bay was found to be 3:4 (M:F) for the years 1981-1984.

-1963-
AUTHOR(S): PARBER, K.
YEAR: 1985
TITLE: Biomass Model for the Egg Production Method
PUB: In: Lasber, R., ed. An Egg Production Method for Estimating Spawning Biomass of Pelagic Fish: Application of the Northern Anchovy, Engraulis mordax. AMFS/NOAA, NOAA Tech. Rept. NMFS 36. 96 pp.
ABSTRACT:
The spawning fraction of multiple spawners is estimable when females exhibit morphological characteristics which indicate when spawning will take (or has taken) place. The length of time in which characteristics remain detectable must in itself be estimable and constant over the field sampling interval. Spawning biomass is then estimated as a function of the estimated spawning frequency and other parameters: egg production, batch fecundity, sex

ratio, and average weight of mature females. Based on the delta method, approximate variance estimates for spawning biomass are derived and given.

-1964-
AUTHOR(S): PARK, E.T.
YEAR: 1977
TITLE: Zooplankton
PUB: In: Groover, R.D., Ed. Environmental Studies, South Texas Outer Continental Shelf, Biology and Chemistry. Final Report to the BLM, Contract AA550-CT6-17, Chapter 6
ABSTRACT:

Reported herein are results of the second year (1976) efforts of the baseline zooplankton study of the South Texas Outer Continental Shelf initiated in October 1974. The study was based on zooplankton samples collected from four transects across the shelf, each transect consisting of three stations. The four transects were sampled during three seasons (winter, spring, and summer) and one of the four transects (II) was also sampled during six intervening months to obtain a series of monthly samples. Zooplankton abundance in terms of biomass and number displayed a considerable degree of spatial as well as temporal variation, and these variations were progressively extensive from the deep to shallow stations. Copepods were the most abundant group, comprising approximately 60% of the zooplankton by number. When the zooplankton increased in spring and summer, the relative abundance of copepods decreased, indicating that other organisms were increasing faster than copepods. Numerically important groups besides copepods were caldocera, ostracoda, barnacle larvae, mollusca, chaetognatha and tunicates. In contrast with the total zooplankton, the copepods did not show extensive seasonal variation. Species diversity indices and coefficients of equitability, based on adult female copepods, generally increased seaward in conformity to the number of species. Of the other biological and physical data obtained at the time of zooplankton collection, salinity and chlorophyll a values seemed to be most closely correlated with the zooplankton. This correlation was most readily discernible in spring when the zooplankton was highly productive in low-salinity water.

-1965-
AUTHOR(S): PARK, E.T.
YEAR: 1979
TITLE: Historical Zooplankton
PUB: In: Jackson, W.B., Ed. Environmental Studies of the South Texas Outer Continental Shelf. Vol. II. Submitted to the BLM. 3 vol. 61 pp. + appendicies
ABSTRACT:

Monthly samples taken at seven stations on two transects off the South Texas coast between 1963 and 1965 were used to examine temporal and spatial variability in zooplankton populations. These data were compared to data from four stations on a previously examined transect in the same area. Seasonal peaks of density in the zooplankton and copepods generally occurred in the spring and fall. Seasonal and year to year variability, however, was high. A trend of decreasing density with distance from shore was commonly exhibited in these major groups. The dominant groups of zooplanktonic organisms included copepoda, larvacea, mollusca, euconchoecia (ostracoda), and caetognatha. copepods generally comprised 50 to 65% of the zooplankton and were examined in detail.

-1966-
AUTHOR(S): PARK, E.T. AND P. TURK
YEAR: 1980
TITLE: Zooplankton Project
PUB: In: Flint, R.W. and N.N. Rubalais, eds. Environmental Studies, South Texas Outer Continental Shelf, 1975-1977. Vol. III. Study Area Final Reports. Submitted to the BLM, Wash. D.C.
ABSTRACT:
Three years of data were analyzed for spatial/temporal related patterns of zooplankton distribution. Frequency of occurrence on cluster analysis showed that copepods formed depth-related clusters on the basis of copepod species composition; station clusters produced by monthly data indicated that the species group composition changed semi-annually at the shallow and mid-depth stations. Parametric analyses were used to determine if the zooplankton varied significantly between water depths, transects, and seasons. One-way analysis of variance showed that changes in zooplankton variables were most often significantly related to water depth. Depth and season were treated as paired factors in two-way analysis of variance. In more than half the cases where zooplankton variables changed significantly with depth and/or season, the test for interaction between depth and season was also significant. The results of multiple regression analysis failed to show clear relationships between zooplankton and environmental variables. Environmental variables which most frequently explained part of the variation in zooplankton variables were ichthyoplankton, salinity, and phytoplankton at Stations 1, 2, and 3, respectively.

-1967-
AUTHOR(S): PARKER, J.C.
YEAR: 1965
TITLE: Ecology of Western Gulf Estuaries
PUB: U.S. Fish Wildl. Serv. Circ. 246:32-36
ABSTRACT:
Hydrological and biological sampling was conducted throughout the Galveston Bay estuary. Specific topics this report deals with include hydrology, primary productivity, fresh-water discharge and salinity, distribution and density of juvenile brown shrimp, and bottom fauna study--distribution and relative abundance of Rangia cuneata.

-1968-
AUTHOR(S): PARKER, J.C.
YEAR: 1966
TITLE: A Study of the Distribution and Condition of Brown Shrimp in the Primary Nursery Areas of the Galveston Bay System, Texas
PUB: M.S. Thesis, Texas A & M Univ., College Station, 55 pp.
ABSTRACT:
The objectives of this study are: (1) to outline the general migration of brown shrimp within the Galveston Bay system and define their primary nursery areas of the system based on information obtained by previous studies, (2) to attempt to show that this general migration pattern suggests that shrimp populations within certain nursery areas of the system are isolated from each other, (3) to attempt to show, through a study of the condition (based on the length-weight relationship) of juveniles and subadults within these nursery areas, that the populations are probably separated and that the nursery areas differ ecologically, and (4) to examine the effect of population density on the condition of these shrimp by comparing their condition during the time when shrimp are abundant and during the time when only a scattering of

individuals remain after the bulk of populations returned to the Gulf. Although it has been suggested in this study that certain areas of the Galveston Bay system (portions of Upper Galveston, Trinity, and East Bays) differ ecologically where brown shrimp are concerned, it was not possible to define those factors which contributed to the observed differences. Although food must logically be considered as the primary factor regulating the condition of these shrimp, its availability could, in turn, be regulated by any of a number of independently acting or interacting factors.

-1969-
AUTHOR(S): PARKER, J.C.
YEAR: 1970
TITLE: Distribution of Juvenile Brown Shrimp (Penaeus aztecus, Ives) in Galveston Bay, Texas, as Related to Certain Hydrographic Features and Salinity
PUB: Contrib. Mar. Sci. 15:1-12
ABSTRACT:

A survey of juvenile brown shrimp, Penaeus aztecus (Ives), was conducted in Galveston Bay during 1963 and 1964 to determine where they are concentrated, to establish their movement patterns, and to determine to what extent salinity affects their distribution.

Upon entering the bay, these shrimp were found concentrated primarily along the shores and in the marshes and bayous. Redistribution did not occur until Gulfward emigration began. The path of emigration appeared to be along a direct route to the passes and not the result of a random search. Size at emigration varied between 70-100 mm. Shrimp were abundant at salinities from 0.9 to 30.8 ppt and it was concluded that salinity per se had no detectable effect on distribution.

-1970-
AUTHOR(S): PARKER, K.
YEAR: 1980
TITLE: A Direct Method for Estimating Northern Anchovy, Engraulis mordax, Spawning Biomass
PUB: Fish. Bull. U.S. 78:541-544
ABSTRACT:

Estimates of biomass for the northern anchovy, Engraulis mordax, are calculated using the direct method of dividing an estimate of egg production by the product of batch fecundity and female proportion in the mature stock. Spawning products, present all year, are most abundant in late winter and early spring. Production in eggs, batch fecundity (eggs/unit weight), fraction spawning (weight of spawning females/weight of all mature females), weight of females per weight of spawning stock, and the adjustment factor are 2.321 x 10E3, 3.96 x 10E8, 0.159, 0.550, and 1.080, respectively. This yields a spawning biomass of 0.72 million, with a coefficient of variation (CV) of 0.614. Egg production adds 8 times more to the CV than all other parameters.

-1971-
AUTHOR(S): PARKER, R.O., JR., R.B. STONE, AND C.C. BUCHANAN
YEAR: 1979
TITLE: Artificial Reefs Off Murrells Inlet, South Carolina
PUB: Mar. Fish. Rev. 41(9):12-24
ABSTRACT:

Between the spring of 1971 and the summer of 1974, the benthic community of reefs constructed of vessels and tires in 11 m of water off Murrells Inlet was studied. Some 63 species representing 33 families were observed; the most

frequently encountered species were black bass, Centropristis striata; longspine porgy, Stenotomus caprinus; pinfish, Lagodon rhomboides; spottail pinfish, Diplodus holbrooki; pigfish, Orthopristis chrysoptera; tomtate, Haemulon aurolineatum; scad, Decapterus sp.; Atlantic spadefish, Chaetodipterus faber; cubbyu, Equetus umbrosus; Carolina hake, Urophycis earlii; sheepshead, Archosargus probatocephalus; and summer flounder, Paralichthys dentatus. Some species resided on the reefs throughout the year but fluctuated in abundance with the seasons; others were seasonal residents. General species inhabited specific areas of the reefs. In the summer and fall, tropical fish occupied the reefs but rarely overwintered. In the winter there were fewer species of fish but larger individuals.

-1972-
AUTHOR(S): PARKER, R.O., JR., S.W. ROSS AND R.S. JONES
YEAR: 1982
TITLE: Observations From Submersibles of the Reef Ichthyofauna of Offshore North Carolina
PUB: Unpublished manuscript
ABSTRACT:
The sumbersibles JOHNSON SEA LINK and NEKTON GAMMA were used for 18 dives at 13 sites on hard substrate reefs in Raleigh, Onslow, and Long Bays, North Carolina, during August and September 1979. Depths ranged from 2 m to 153 m. Reefs with the highest profile and in depths of 52 m to 92 m exhibited the greatest species diversity and biomass while adjacent sandy areas were noticeably depopulated. A total of 109 fish species (35 families) were observed, dominated by the families serranidae, holocentridae, sparidae, chaetodontidae, pomacentridae, and labridae. Many tropical species previously thought to be rare in this region were abundant. Reef fish biomass estimates made during these observations will be combined with surveys of the amount of reef habitat conducted from the R/V OREGON II to provide estimates of the total amount of reef fish important in the recreational and commercial catches. These estimates in turn will be used to estimate potential yield of reef fish.

-1973-
AUTHOR(S): PARKS, N.B.
YEAR: 1978
TITLE: Trawl Surveys of Groundfish Resources in the Eastern Gulf of Alaska and SE Alaskan Waters, 1976-1977
PUB: USDOC, NOAA/NMFS/NWAFC, Seattle, WA. Processed Report
ABSTRACT:
The National Marine Fisheries Service (NMFS) in Seattle has conducted a series of eight cruises in the Gulf of Alaska and southeastern Alaska waters since 1972 to determine the distribution, abundance, and biological condition of groundfish resources in these areas. Results of surveys conducted in 1972-75 in western and central Gulf of Alaska waters have been reported by Hughes and Alton (1974); Hughes and Parks (1975); Ronhold et al. (1976); and Hughes and Hirschhorn (1978).

-1974-
AUTHOR(S): PARKS, N.B.
YEAR: 1979
TITLE: Trawl Survey of Demersal Fish and Shellfish Resources in Prince William Sound Alaska, Spring 1978
PUB: NOAA, NMFS, NWAFC, PR 79-2. 49 pp.

ABSTRACT:

Since 1972, the NMFS, in Seattle, Washington, has conducted a series of research cruises in waters of the Gulf of Alaska and southeastern Alaska to determine the distribution, abundance, and biological condition of groundfish resources in these areas. Results of the surveys have been reported by Hughes and Alton (1974); Hughes and Parks (1975); Ronholt et al. (1976); Hughes and Hirschhorn (in press); and Parks and Zenger (1978).

This report is based upon data collected during a trawl survey carried out in April and May 1978 in Prince William Sound, Alaska. The principal objectives were: (1) to assess the distribution, abundance, and biological condition of demersal fish and shellfish resources within Prince William Sound, and (2) to evaluate the feasibility and impact of a trawl fishery in the Sound. The survey was conducted in cooperation with the Prince William Sound Fishery Development Steering Committee and the Alaska Department of Fish and Game.

-1975-

AUTHOR(S): PARR, W.H., JR. AND P.C. PEDERSEN

YEAR: 1969

TITLE: Forecast of the Sockeye Salmon Run to Chignik in 1969

PUB: Information Leaflet 132. State of Alaska Dep. Fish Game, 12 pp.

ABSTRACT:

Annual forecasts of the magnitude of the run of sockeye salmon to the Chignik River system were begun by the Fisheries Research Institute in 1958. The Alaska Department of Fish and Game has assisted in the collection and evaluation of data since 1960. Dalhberg (1968) analyzed the catch, escapement, and age records of the Chignik sockeye runs since 1958, modified the system of forecasting the magnitude and timing of the Black Lake stock, and developed a new method of forecasting for the Chignik Lake stock. The present forecast of the Chignik sockeye run is a result of cooperative effort of biologists of the Fisheries Research Institute and the Alaska Department of Fish and Game.

-1976-

AUTHOR(S): PARRISH, R.H. AND D.L. MALLICOATE

YEAR: 1983

TITLE: On the Variability of Population Biology Rates: Examples from the California Pelagic Fisheries

PUB: Fao Fish. Rep. Fao Inf. Pesca., No. 219, Vol. 3, Proceedings of the Expert Consultation to Examine Changes in Abundance and Species Composition of Neritic Fish Resources, 18-29

ABSTRACT:

Fishery sampling and resource surveys carried out through the CalCOFI program in California have produced a data base which is approaching the magnitude which will allow the direct assessment of egg production, egg mortality, larval growth and mortality, and post-recruit growth and mortality. Expansion of the post-recruit and egg production components of fisheries models is possible on stocks which have a time series of traditional fishery sampling. California Department of Fish fishery sampling and sea survey data on anchovy, Engraulis mordax, and mackerel, Scomber japonicus, were used to describe the variability of post-recruit life history rates. The extreme variability of population rates observed in California pelagic fisheries and the potential accumulative or synergistic effects of combinations of these rates suggest that the population biology of these stocks are exceedingly complex.

-1977-
AUTHOR(S): PARRISH, R.H., C.S. NELSON AND A. BAKUN
YEAR: 1981
TITLE: Transport Mechanisms and Reproductive Success of Fishes in the California Current
PUB: Biol. Oceanogr. 1:175-203
ABSTRACT:

The California current and various oceanic conditions were considered in respect to transport mechanisms of larval fish. Coastal fish species were found to spawn typically during winter when surface drift was onshore. Few fish with planktonic larvae spawned during the upwelling period when surface water movement was directed offshore. The fish biomass of this region is dominated by migrating species. The local resident stocks make up a small proportion of the individuals. The closed gyre circulations in the southern California Bight have fostered favorable conditions for spawning and led to distinct subpopulations of pelagic fish. The observations suggested that anomalies in surface drift patterns could be a major cause of observed variations in spawning success of major fishery species.

-1978-
AUTHOR(S): PASZKOWSKI, C.A. AND B.L. OLLA
YEAR: 1985
TITLE: Social Interactions of Coho Salmon (Oncorhynchus kisutch) Smolts in Seawater
PUB: Can. J. Zool. 63(10):2401-2407
ABSTRACT:

The behavior of coho salmon (Oncorhynchus kisutch) smolts was examined under laboratory conditions to determine if the hierarchical-territorial social system characteristic of this species in freshwater persisted in seawater. When held in groups of two to eight fish, hatchery-reared, accelerated underyearling smolts formed hierarchies controlled by a single dominant who was responsible for most of the observed movement, chases, and feeding. Agonistic behavior also occurred within pairs of recently smolted fingerlings from two hatchery stocks with different rearing histories and in groups containing free-ranging fish captured off the Oregon coast. Possible relationships between the observed social behavior and marine distribution patterns of juvenile coho salmon are discussed.

-1979-
AUTHOR(S): PATTIE, B.
YEAR: 1978
TITLE: The 1977 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 76
ABSTRACT:

The 1977 Washington trawl fishery catch data presented in this report were obtained through a system of trawl fishermen interviews conducted by the Department's Marine Fish Division. Trawl catch data for years 1963 through 1976 have been distributed in similar format in issue Nos. 2, 5, 9, 12, 14, 16, 18, 20, and 22 of the Groundfish Data Report Series, and Progress Report Nos. 11 and 37. The catch figures in this report do not include shrimp trawl landings of bottomfish.

-1980-
AUTHOR(S): PATTIE, B.
YEAR: 1984
TITLE: The 1982 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 218
ABSTRACT:
The distribution by area and time for 1982 Washington trawl fishery data presented in this report was obtained through a system of trawl fishermen interviews conducted by the WDF Fish Program. Trawl landings for the years 1963 through 1981 are reported in similar format in the Groundfish Data Report Series Nos. 2, 5, 9, 12, 14, 16, 18, 20, 22, and Progress Report Nos. 11, 37, 76, 151, 166, 178, and 192. The catch figures in this report do not include shrimp trawl landings of bottomfish.

-1981-
AUTHOR(S): PATTIE, B.
YEAR: 1985
TITLE: The 1983 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries (WDF), Prog. Rep. No. 230
ABSTRACT:
The distribution by area and time for 1983 Washington trawl fishery data presented in this report was obtained through a system of trawl fishermen interviews conducted by the WDF Fish Program. Trawl landings for the years 1963 through 1982 are reported in the Groundfish Data Report Series Nos. 2, 5, 9, 12, 14, 16, 18, 20, 22, and Progress Report Nos. 11, 37, 76, 151, 166, 178, 192, and 218. The catch figures in this report do not include shrimp trawl landings of bottomfish.

-1982-
AUTHOR(S): PATTIE, B.
YEAR: 1986
TITLE: The 1984 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 246
ABSTRACT:
The distribution by area and time for 1984 Washington trawl fishery data presented in this report was obtained through a system of trawl fishermen interviews conducted by the WDF Fish Program. Trawl landings for the years 1963 through 1983 are reported in the Groundfish Data Report Series Nos. 2, 5, 9, 12, 14, 16, 18, 20, 22, and Progress Report Nos. 11, 37, 76, 151, 166, 178, 192, 218, and 230. The catch figures in this report do not include shrimp trawl landings of bottomfish.

-1983-
AUTHOR(S): PATTIE, B. AND J. TAGART
YEAR: 1981
TITLE: The 1978 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 151
ABSTRACT:
This report represents total landings for Washington State's otter trawl fishery in 1978. The distribution by area and time was obtained through a system of trawl fishermen interviews conducted by the Department's Marine Fish Program. Trawl catch data for the years 1963 through 1977 have been

distributed in similar format in issue Nos. 2, 5, 9, 12, 14, 16, 18, 20, and 22 of the Groundfish Data Report Series, and Progress Report Nos. 11, 37, and 76. The catch figures in this report do not include shrimp trawl landings of bottomfish.

-1984-
AUTHOR(S): PATTIE, B. AND J. TAGART
YEAR: 1983
TITLE: The 1980 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 178
ABSTRACT:
The distribution by area and time for 1980 Washington trawl fishery data presented in this report was obtained through a system of trawl fishermen interviews conducted by the WDF Fish Program. Trawl landings for the years 1963 through 1977 are reported in similar format in the Groundfish Data Report Series Nos. 2, 5, 9, 12, 14, 16, 18, 20, 22, and Progress Report Nos. 11, 37, 76, 151, and 166. The catch figures in this report do not include shrimp trawl landings of bottomfish.

-1985-
AUTHOR(S): PATTIE, B. AND J. TAGART
YEAR: 1983
TITLE: The 1981 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 192
ABSTRACT:
The distribution by area and time for 1981 Washington trawl fishery data presented in this report was obtained through a system of trawl fishermen interviews conducted by the WDF Marine Fish Program. Trawl landings for the years 1963 through 1979 are reported in similar format in the Groundfish Data Report Series Nos. 2, 5, 9, 12, 14, 16, 18, 20, 22, and Progress Report Nos. 11, 37, 76, 151, 166, and 178. The catch figures in this report do not include shrimp trawl landings of bottomfish.

-1986-
AUTHOR(S): PATTIE, B. AND W. GORMLEY
YEAR: 1977
TITLE: The 1975 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 11
ABSTRACT:
The 1975 Washington trawl fishery catch data presented in this report were obtained through a system of trawl fishermen interviews conducted by the Department's Management and Research Division. Trawl catch data for years 1963 through 1974 have been distributed in similar format in issue Nos. 2, 5, 9, 12, 18, 20, and 22 of the Groundfish Data Report Series. The catch figures in this report do not include any shrimp trawl landings of bottomfish.

-1987-
AUTHOR(S): PATTIE, B. AND W. GORMLEY
YEAR: 1978
TITLE: The 1976 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 37

ABSTRACT:
The 1976 Washington trawl fishery catch data presented in this report were obtained through a system of trawl fishermen interviews conducted by the WDF Management and Research Division. Trawl catch data for years 1963 through 1975 have been distributed in similar format in issue Nos. 2, 5, 9, 12, 14, 16, 18, 20, and 22 of the Groundfish Data Report Series, and Progress Report No. 11. The catch figures in this report do not include any shrimp trawl landings of bottomfish.

-1988-
AUTHOR(S): PATTIE, B., J. TAGART AND D. BARTON
YEAR: 1982
TITLE: The 1979 Washington Trawl Landings by Pacific Marine Fisheries Commission and State Bottomfish Statistical Areas
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 166
ABSTRACT:
The distribution by area and time for 1979 Washington trawl fishery data presented in this report was obtained through a system of trawl fishermen interviews conducted by the WDF Fish Program. Trawl catch data for the years 1963 through 1978 have been distributed in similar format in the Groundfish Data Report Series Nos. 2, 5, 9, 12, 14, 16, 18, 20, and 22, and Progress Report Nos. 11, 37, 76, and 151. The catch figures in this report do not include shrimp trawl landings of bottomfish.

-1989-
AUTHOR(S): PAUL, A.J. AND H.M. FEDER
YEAR: 1976
TITLE: Clam, Mussel, and Oyster Resources of Alaska
PUB: Inst. Mar. Sci., Fairbanks, AK., Rep. No. 76, 41 pp.
ABSTRACT:
This report is a compilation of data gathered in the course of a University of Alaska Sea Grant project: The Biology of Economically Important Bivalves and Other Molluscs. This project concentrated on the study of hard-shell clams and was designed to complement ongoing Alaska Department of Fish and Game razor clam research. The primary purpose of this report is to provide the public with existing biological information on the clam, mussel, and oyster resources of the state. It is intended to be supplementary to a previous report--The Alaska Clam Fishery: A Survey and Analysis of Economic Potential, IMS Report No. R75-3, Sea Grant No. 75-5, (Orth et al., 1975).

-1990-
AUTHOR(S): PAULEY, G.B., D.A. ARMSTRONG, AND T.W. HEUN
YEAR: 1986
TITLE: Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Pacific Northwest)--Dungeness Crab
PUB: U.S. Fish Wildl. Serv. Biol. Rep. 82(11.63). U.S. Army Corps of Engineers, TR EL-82-4, 20 pp.
ABSTRACT:
This species profile is one of a series on coastal aquatic organisms, principally fish, of sport, commercial, or ecological importance. The profiles are designed to provide coastal managers, engineers, and biologists with a brief comprehensive sketch of the biological characteristics and environmental requirements of the species and to describe how populations of the species may be expected to react to environmental changes caused by

coastal development. Each profile has sections on taxonomy, life history, ecological role, environmental requirements, and economic importance, if applicable.

-1991-
AUTHOR(S): PEARCY, W.G.
YEAR: 1965
TITLE: Species Composition and Distribution of Pelagic Cephalopods from the Pacific Ocean off Oregon
PUB: Pacific Science 19:261-266
ABSTRACT:
Much of our present knowledge about the species composition and distribution of cephalopods of the Pacific Ocean is derived from collections made on cruises of the "Albatross" steamer of the U.S. Fish Commission, during the late nineteenth and early twentieth centuries. "Albatross" collections along the west coast of North America were taken mainly off California and Central America or Alaska, and comparatively few collections were made off Oregon (Townsend, 1901). Neither Berry (1912) nor Hoyle (1904) lists any cephalopods taken off Oregon. A description of a new species of squid (Pearcy and Voss, 1963) and an abstract (Pearcy, 1963) are the only reports of pelagic cephalopods off Oregon. Clearly, more data are needed before comparison of fauna and generalization on zoogeographic distribution can be made.

-1992-
AUTHOR(S): PEARCY, W.G.
YEAR: 1970
TITLE: Vertical Migration of the Ocean Shrimp, Pandalus jordani: A Feeding and Dispersal Mechanism
PUB: Calif. Fish. Game 56(2):125-129
ABSTRACT:
Ocean shrimp, Pandalus jordani, were taken in night midwater trawl collections off Oregon over a 7-year period. The catches consisted of mainly immature males and varied widely over various seasons. No shrimp were caught during May and June. Stomach contents suggested the shrimp caught in midwater trawls were feeding on euphausiids and copepods. Shrimps collected in bottom trawls fed only on benthos. The results indicated shrimp vertically migrate to forage on midwater prey. However, the use of midwater currents may have been an important dispersal mechanism.

-1993-
AUTHOR(S): PEARCY, W.G.
YEAR: 1976
TITLE: Seasonal and Inshore-Offshore Variations in the Standing Stocks of Micronekton and Macroplankton Off Oregon
PUB: Fish. Bull. 74:70-80
ABSTRACT:
Dry weights of pelagic animals captured along an inshore-offshore station line with Isaacs-Kidd midwater trawls and 1 m diameter plankton nets during a 5-yr period provided evidence for seasonal changes in the standing stocks of carnivores. Micronekton catches (fishes, shrimps, and squids) were largest inshore (28 and 46 km offshore) in the winter (November-April), and offshore (84 and 120 km) during the summer (May-October), the season coastal upwelling. No seasonal difference was detected in the biomass of herbivores, or in its primary components, the copepods and euphausiids. Increased biomass of medusae during the summer resulted in significant seasonal differences in the planktonic carnivores at the inshore stations.

The average biomass (grams per square meter) of small nektonic and planktonic carnivores, averaged over the year, peaked at the 84 km station. The biomass of fishes was greater than shrimps and the biomass of shrimps was greater than that of squids at all stations, except 46 km where shrimps predominated. Herbivore biomass was maximal at 46 km, over the inner continental slope, largely because of the high catches of euphausiids at this station. The occurrence of largest average catches at intermediate distances from shore, and inshore-offshore shifts in peak biomass with seasons, may result from seasonal changes in upwelling and downwelling and exclusion of vertical migrants from shoal waters on the shelf.

-1994-
AUTHOR(S): PEARCY, W.G.
YEAR: 1978
TITLE: Distribution and Abundance of Small Flat Fishes and Other Demersal Fishes in a Region of Diverse Sediments and Bathymetry off Oregon
PUB: Fish. Bull. 76:629-640
ABSTRACT:

Demersal fishes were sampled at seven stations located inshore of Heceta Bank, on Oregon's continental shelf, over a 2-yr period with a 3-m beam trawl designed to catch small flatfishes. Two general assemblages of fishes were recognized: a shallow water (74-102m), sandy-bottom association where Pacific sanddab, Citharichthys sordidus, was numerically the dominant species, and a deeper (148-195 m) assemblage, generally on mud, where the slender sole, Lyopsetta exilis, predominated. Rex sole, Glyptocephalus zachirus, was usually the second most common species at all stations. Dover sole, Microstomus pacificus, ranked fourth to sixth by numbers and composed the largest biomass (wet preserved weight) at three stations. Species diversity was lowest at the shallowest station where sediments were well-sorted, fine sands that contained only 0.1% organic carbon.

The biomass of all fishes captured ranged from 0.9 to 2.4 g m to the negative 2nd power. These values are low compared with estimates made by others off Oregon and Washington using commercial-sized otter trawls, presumably because of avoidance of the small beam trawl by large fishes. An analysis of variance of the catches of all fishes combined, of Dover, rex, and slender soles, and of Pacific sanddab revealed few significant effects of sediment, depth, or season. Sediment type had a significant effect on the catches of slender sole--largest catches were on a clayey-silt bottom. Catches of sanddab were inversely related to depth of water. Depth-season interactions were signiifcant for all species combined, and for rex and Dover soles, numbers were higher at the deepwater stations during winter than summer, indicating seasonal bathymetric movements. Annual variations were marked-total catches and catches of most species were larger for unknown reasons during 1968 and 1969 than 1970. Based on length-frequency data, age-group 0 (<50 mm standard length) rex sole were found in high proportions at the deepest stations on the outer edge of the continental shelf. Small sanddab (<70 mm) composed a larger proportion of the catch by numbers on sandy silt than on sand where larger fish predominated.

-1995-
AUTHOR(S): PEARCY, W.G. AND S.S. MYERS
YEAR: 1974
TITLE: Larval Fishes of Yaquina Bay, Oregon: A Nursery Ground for Marine Fishes
PUB: NOAA, Fish. Bull. 72:201-213

ABSTRACT:

Based on a survey of planktonic fish larvae, the Yaquina Bay estuary appears important as a spawning or rearing ground only for Clupea harengus pallasi (Pacific herring) and a variety of small cottids, gobies, and stichaeids. Other investigators, however, have found an abundance of juvenile Parophrys vetulus (English sole), Citharichthys stigmaeus (sanddab), Hypomesus pretiosus (surf smelt), Platichthys stellatus (starry flounder), and embiotocids (surf perches), indicating that the bay is an important nursery area for these species. Of the 44 types of larval fishes found in the bay, C. h. pallasi and Lepidogobius lepidus (bay goby) were co-dominants each year, 1960-1970, comprising 90% of all larvae collected. There was no evidence of trends in abundances or species composition during the 11-yr study.

Maxima of planktonic fish eggs and L. gobius larvae occurred in the summer; maxima of all larvae combined and most species of larvae occurred in the winter and spring. High densities of larval herring were found in February and March, and peak numbers appeared earlier in the lower than in the upper estuary. Larvae of C. h. pallasi, L. lepidus, and Cottus asper were common at all stations from 0.5 to 8 nautical miles up the estuary, but not in the adjacent open ocean. Larvae of many species that were found in the estuary in small numbers were more abundant in offshore waters. Although English sole and sanddab were rare in the bay as larvae, juveniles were numerous.

-1996-
AUTHOR(S): PEARCY, W.G. AND S.W. RICHARDS
YEAR: 1962
TITLE: Distribution and Ecology of Fishes in the Mystic River Estuary, Connecticut
PUB: Ecology 43:248-259
ABSTRACT:

Although the marine fishes of New England have been the subject of many investigations, little is known about the fish communities of small coastal estuaries of the region. During 1958-1960 the fishes of the Mystic River estuary were sampled. Since eggs, larvae, juveniles, and adults were collected, a general treatment of the estuarine community is possible. The following aspects are emphasized: (i) seasonal fluctuations of abundance, (ii) distribution of eggs and larvae, and (iii) adaptive significance of demersal eggs in this biotope.

-1997-
AUTHOR(S): PEARCY, W.G., M.J. HOSIE AND S.L. RICHARDSON
YEAR: 1977
TITLE: Distribution and Duration of Pelagic Life of Larvae of Dover Sole, Microstomus pacificus; rex sole, Glyptocephalus zachirus; and petrale sole, Eopsetta jordani, in waters Off Oregon
PUB: Fish. Bull. U.S. 75:173-183
ABSTRACT:

Paper summarizes data on the distribution, dispersal, and length of larval life of Dover sole, rex sole, and petrale sole, commercially important flatfish, obtained from examining the catches of 593 bongo net tows and over 2,200 Isaacs-Kidd midwater trawls collected off Oregon.

-1998-
AUTHOR(S): PEARSE, A.S. AND L.G. WILLIAMS
YEAR: 1951
TITLE: The Biota of the Reefs off the Carolinas
PUB: J. Elisha Mitchell Sci. Soc. 67:133-161
ABSTRACT:

The plants and animals on the reefs lying off the coasts of the Carolinas have been collected at depths of 12 to 55 ft. One hundred and two species and two varieties of algae (two new varieties) and 300 species of animals were taken or recorded (some fishes). Of the algae, 29 were from shallow water (12 to 20 ft), 26 from deep water (40 to 55 ft), and 49 from both shallow and deep water. Of these, 64 were oceanic and 40 were estuarine and oceanic. In their latitudinal range 56 species of algae were distributed from North Carolina southward, 29 north and south, and 11 have been found in the Carolinas only. The identity and distribution of six species are unknown. Twenty-three are reported for the first time from the Carolinas. A general description of the reefs and their flora is presented. The flora of the reefs is described in relationship to the flora of the nearby estuaries, and a general classification is given of the algal habitats in the Carolinas. Animals were mostly of southern-ranging species (167), but some (63) had wide ranges along the Atlantic coast, and a few (18) ranged toward the north. In depth 102 species of animals came from deep water, 96 from shallow, and 102 from both. About a third of the species of animals were found off the Carolina coasts for the first time.

The reefs are mostly made of Trent Marl. On this, algae form a thick coating and in crevices and the flat sandy bottom associated with some of the deep Trent Marl, sand is loosely compacted by calcareous deposits from algae and shells of molluscs, but on the whole algae contribute little as reef builders. Sessile snails and tubiocolous annelids are the chief reef builders. Their shells form coatings 4 to 5 inches thick and are being added to year after year. Two clams (Saxicava and Lithophaga) bore into the reefs, and the shells of oysters and other molluscs add to them. Though none of the reefs studies was more than 10 miles offshore and still several miles from the Gulf Stream, the flora and fauna were predominantly southern in their relationships. Though madreporian and gorgonian corals were present, they were apparently not as a rule significant in adding to the reefs.

-1999-
AUTHOR(S): PEARSON, J.C.
YEAR: 1929
TITLE: Natural History and Conservation of the Redfish and Other Commercial Sciaenids on the Texas Coast
PUB: Fish. Bull. 44:129-214
ABSTRACT:

The natural histories of the three leading food fishes of coastal Texas--the redfish (Sciaenops ocellatus), the black drum (Pogonias cromis), and the spotted seatrout (Cynoscion nebulosus)--have been little understood in any section of the distribution of these species. Along the Texas coast serious debates often arise as to the habits of the redfish, drum, and spotted trout, with special reference to the location of spawning areas and the distribution of young and adult fish.

-2000-
AUTHOR(S): PEARSON, J.C.
YEAR: 1932
TITLE: Winter Trawl Fishery Off the Virginia and North Carolina Coasts
PUB: U.S. Bur. Fish. Invest. Rep. 10, 31 pp.
ABSTRACT:
A winter trawl fishery has been established off Virginia and North Carolina. A discussion of the history of the industry, the location of the fishery, methods of the fishery, and quantity and composition of species supporting the fishery is given by this paper. A study of the size and composition of the market catch revealed that an excellent grade of food fish was taken and marketed by the trawlers. The fishery is expected to expand and develop owing to the need of a winter fishery able to supply fresh fish of varieties previously unobtainable during the colder months of the year. The possible depletion of species now subjected to year-round exploitation is suggested.

-2001-
AUTHOR(S): PEARSON, J.C.
YEAR: 1939
TITLE: The Early Life Histories of Some American Penaeidae, Chiefly the Commercial Shrimp, Penaeus aztecus (Linnaeus)
PUB: Fish. Bull. US 49:1-72
ABSTRACT:
The present study is concerned primarily with the neglected field of the early development of this species of shrimp. A comprehensive program of research on the life histories of the commercial American shrimps or prawns of the family Penaeidae was initiated in 1931 along the South Atlantic and Gulf coasts of the United States. The following report is based on the data obtained from an examination of plankton collections and on specimens obtained by rearing planktonic eggs and young.

-2002-
AUTHOR(S): PEARSON, J.C.
YEAR: 1948
TITLE: Fluctuation in the Abundance of the Blue Crab in Chesapeake Bay
PUB: U.S. Fish Wildl. Ser., U.S. Dept. of the Interior, Research Report, 26 pp.
ABSTRACT:
Analyzes catch per unit of fishing effort of blue crabs (Callinectes sapidus) and correlates abundance data with variable survival rates in the first year of life and volume of discharge from James and Potomac rivers. Relative abundance of female adults and their progeny was studied, as was the influence of spawning stock size on population size surviving to commercial age.

-2003-
AUTHOR(S): PEDERSEN, M.
YEAR: 1985
TITLE: Puget Sound Pacific Whiting, Merluccius productus, Resource and Industry: An Overview
PUB: Mar. Fish. Rev. 47(2):35-38
ABSTRACT:
There may be several aggregations of Pacific whiting, Merluccius productus, in Puget Sound, Washington, but only one currently supports a commercial fishery. This is the central Puget Sound population, which spawns

locally in Port Susan. It is distinct from the large oceanic population which spawns off Baja California and undergoes a long migration off Oregon, Washington, and British Columbia (Nelson, 1967). Utter and Hodgins (1971) have demonstrated the genetic isolation of these two populations.

-2004-
AUTHOR(S): PEDERSEN, M., M.L. MILLS AND M. GOSHO
YEAR: 1978
TITLE: Bottomfish Studies in Hood Canal, Washington
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 54
ABSTRACT:

Hood Canal is a narrow, fjord-like inlet about 65 miles long, making up about 5% of the total water surface area of the U.S. portion of Puget Sound. It may be defined geographically as the waters of Puget Sound lying southerly of a line from Tala Point to Foulweather Bluff. A significant amount of commercial and recreational fishing occurs in Hood Canal. These waters involved two Washington Department of Fisheries Puget Sound Commercial Bottomfish Management Areas. The waters south of the Hood Canal Floating Bridge are designated as Area 6, and those waters north of the bridge to Foulweather Bluff are included in Area 7. Hereafter, the term "Hood Canal" will refer to Area 6 only, unless otherwise stated. A list of common and scientific names of fish used in the text appears in Appendix 1.

-2005-
AUTHOR(S): PELLA, J.J. AND H.W. JAENICKE
YEAR: 1978
TITLE: Some Observations on the Biology and Variations of Populations of Sockeye Salmon of the Naknek and Ugashik Systems of Bristol Bay, Alaska
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Northwest Fisheries Center, Northwest and Alaska Fisheries Center Processed Report. 120 pp.
ABSTRACT:

The first sections of this report deal with potential egg deposition, smolt migrations, and returning adults. Estimates of potential egg deposition, smolt production, and adult returns form the basis for the subsequent analysis of population processes, especially as related to productivity of the stocks.

-2006-
AUTHOR(S): PELLA, J.J., J.C. OLSEN, J.H. HELLE, J.H. EILER, J.A. ORSI AND D.G. MORTENSEN
YEAR: 1988
TITLE: Sockeye Salmon (Oncorhynchus nerka) Escapements to Southern Southeast Alaska in 1982 and 1983
PUB: NOAA/NMFS, Dept. of Commerce, Northwest and Alaska Fisheries Center, National Marine Fisheries Service, Auke Bay Lab., Auke Bay, AK, 33 pp.
ABSTRACT:

Sockeye salmon escapement to 59 lake systems in southern Southeast Alaska was estimated as part of joint U.S./Canada research on interceptions in boundary region fisheries of Alaska and British Columbia. Escapements to individual lakes were counted or estimated in 1982 and 1983. Counts were made from weirs and estimates were made by Petersen experiments or corrected counts of stream surveys. Information from these sources was extrapolated to unexamined lakes and total escapement was educed. These results represent the first reliable estimates of Alaskan sockeye salmon escapement for this region.

-2007-
AUTHOR(S): PELLEGRIN, G.J. JR., S.B. DRUMMOND AND R.S. FORD, JR.
YEAR: 1981
TITLE: The Incidental Catch of Fish by the Northern Gulf of Mexico Shrimp Fleet
PUB: NOAA/NMFS, Mississippi Laboratories, Southeast Fisheries Center, Pascagoula, MS, 47 pp.
ABSTRACT:
The northern Gulf of Mexico shrimp fleet was monitored from 1972 to 1980 in order to estimate the magnitude and species composition of fish by-catch. Mean ratios of fish to heads-on shrimp were computed by geographical areas, seasons, and depths, and multiplied times mean shrimp landings for 1973 through 1977 by these respective categories in order to estimate the average annual fish by-catch of the northern Gulf shrimp fleet. Species compositions were calculated and by-catch estimates of dominant fish species were computed.

-2008-
AUTHOR(S): PENNINGTON, M.
YEAR: 1983
TITLE: Efficient Estimators of Abundance for Fish and Plankton Surveys
PUB: Biometrics 39:281-286
ABSTRACT:
The data from marine surveys often contain a large proportion of zeros. Treating the zeros separately can lead, in some cases, to more efficient estimators of abundance. To this end, the results of Aitchison (1955, Journal of the American Statistical Association 50, 901-908) on the estimation of the mean and variance of a distribution with a discrete probability mass at zero are applied and extended to give an estimate of the variance associated with the estimate of the mean. It is shown that under some conditions these are minimum variance unbiased estimators. The case in which the nonzero values are lognormally distributed is examined in detail and applied to an ichthyoplankton survey.

-2009-
AUTHOR(S): PENNINGTON, M.
YEAR: 1986
TITLE: Some Statistical Techniques for Estimating Abundance Indices from Trawl Surveys
PUB: Fish. Bull. 84(3):519-526
ABSTRACT:
Methods are presented for estimating an index of relative abundance from trawl survey catch per tow data. The estimated variance of the index takes into account the within-survey variability in catch and possible yearly changes in catchability. Applying the techniques to a series of surveys for yellowtail flounder, Limanda ferruginea, off the northeast coast of the United States yields an abundance index with a variance which is 40% lower than the variance of the original survey index for the current value and 57% lower for values not near the ends of the survey series.

-2010-
AUTHOR(S): PENNINGTON, M. AND B.E. BROWN
YEAR: 1981
TITLE: Abundance Estimator Based on Stratified Random Trawl Surveys
PUB: In: Doubleday, W.G. and D. Rivard, eds. Bottom Trawl Surveys. Can. Spec. Pub. Fish. Aquat. Sci. 58:149-153

ABSTRACT:

One complication in the construction of abundance estimators based on a stratified design is that the catchability coefficients may be unknown and may vary from stratum to stratum. In this case, absolute changes in abundance cannot be measured, but an estimate can be made of the average relative change in the population over the strata. A related problem is when the relationship between the abundance estimator and the actual population varies over time. This results, in general, in an underestimate of the uncertainty associated with the abundance estimate for a particular survey. In some situations, a replicated stratified design can be used to estimate more truly the accuracy obtained by the survey.

-2011-
AUTHOR(S): PENNOYER, S., R. PAULUS AND A.S. DAVIS
YEAR: 1972
TITLE: Cook Inlet Sockeye Salmon Investigations: Completion Report for Period July 1965-June 1971
PUB: NOAA/NMFS, Proj. Nos. 5-6-R and 5-18-R, 76 pp.
ABSTRACT:

The three main objectives of the original project were as follows: (1) adult enumeration of salmon in the major spawning streams of Cook Inlet which are mainly glacial in nature and preclude normal escapement estimates made by visual means, (2) age and sex composition of salmon in catch and escapement, and (3) studies of downstream migrant sockeye salmon. These initial objectives are really just components of the primary objective which might be better stated as: "Definition of the various stocks contributing to the Cook Inlet sockeye run and accumulation of the knowledge necessary to their scientific management." Ultimately we would hope to be able to forecast and determine optimal escapement levels for these run components.

-2012-
AUTHOR(S): PENTTILA, D., S. BURTON AND G. GONYEA
YEAR: 1985
TITLE: Summary of 1983 Herring Recruitment Studies in Puget Sound
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 223, 24 pp.
ABSTRACT:

The Herring Recruitment Studies project, within the WDF Marine Fish Program and Baitfish Management Division, continued to monitor herring spawning activity, and young-of-the-year herring abundance and distribution in selected priority areas of Puget Sound during 1983. These areas are presumed to contribute the majority of the juvenile herring to the Puget Sound salmon sport bait fishery and subsequently to the general biomass of herring in Puget Sound. Data such as these, including the long-term database should allow a more complete picture of the early life history and current trends in 0+ herring abundances for management purposes, than could be gained from only fishery landings or the one or two winter hydroacoustic/midwater trawl surveys that are now assigned to the southern Puget Sound area.

-2013-
AUTHOR(S): PEQUEGNAT, L.H. AND J.H. WORMORTH
YEAR: 1977
TITLE: Neuston Project
PUB: In: Groover, R.D., ed. Environmental Studies, South Texas Outer Continental Shelf, Biology and Chemistry. 1976 Final Report to the BLM, Washington, DC. Contract AA550-CT6-17, pp. 7-1 to 7-8

ABSTRACT:

A total of 108 day and night neuston samples from 12 stations along four transects sampled regularly during 1976 on the South Texas OCS were subjected to taxonomic analyses. Differences in numerical abundances of taxonomic groups were determined in relation to seasonal, diurnal, distance-from-shore, and geographic considerations. These differences are discussed for such major taxonomic groups as Foraminifera, Cnidaria, Ctenophora, Nematoda, Polychaeta, Mollusca, Crustacea, Echinodermata, Chaetognatha, Tunicata, Insecta, and ichthyoplankton. Species groups which occurred frequently and showed relationships to each other were determined by recurrent group analysis of variance to determine station and transect differences.

Biomass calculations (dry and ash-free dry weights) are presented for the June through December samples and showed considerable seasonal, geographic, and diurnal variations as did species diversity and dry weight of floating tar. Species diversities were greater at night, at the offshore stations and at Transect II during 1976. Dry weights of tar showed overall average values consistent with those reported previously from the Gulf of Mexico.

Detailed species analyses were provided for decapods, decapod larvae (85 taxa), and fish eggs and larvae (110 taxa). Decapod larvae were consistently more abundant and diverse in night samples with the most abundant decapod taxa being the sergestid shrimp Lucifer faxoni, portunid crab megalops larvae, Callinectes zoea larvae, Portunus zoea larvae, sergestid shrimp postlarvae, and pinnotherid crab zoeas. Fish eggs were most abundant in March, while fish larvae most abundant in June, were represented most commonly by the families clupeidae, sciaenidae, mugilidae, exocoetidae, mullidae, engraulidae, and gobiidae.

-2014-

AUTHOR(S): PEQUEGNAT, W.E., L.H. PEQUEGNAT, J.A. KLEYPAS, B.M. JAMES AND E.A. KENNEDY

YEAR: 1983

TITLE: Ecological Communities of the Continental Slope and Adjacent Regimes of the Northern Gulf of Mexico: Text, Photographic Atlas, and Appendices (FinalReport)

PUB: Minerals Management Service, Gulf of Mexico OCS Region, Metairie, LA. 675 pp.

ABSTRACT:

This report presents a comprehensive overview of the deep sea benthic environment of the Gulf of Mexico from the continental slope to the abyssal plain. Interpretations of biological communities are based on the analysis of a series of deep sea macroinfaunal and megaepifaunal samples and accompanying photographic documentation taken in the period 1964-1973. A description and discussion of the ecological nature and distribution of the macroepibenthic assemblages is presented. A photographic atlas provides photodocumentation of the nature of the benthic environment within which these assemblages exist. As a part of this summary, an assessment of the significance of potential impacts from oil and gas exploration and production on the macrobenthic communities was provided.

-2015-
AUTHOR(S): PEQUEGNAT, W.E., R.M. DARNELL, B.M. JAMES, E.A. KENNEDY, L.H. PEQUEGNAT AND J.T. TURNER
YEAR: 1976
TITLE: Ecological Aspects of the Upper Continental Slope of the Gulf of Mexico
PUB: Prepared for the Division of Minerals Environmental Assessment, BLM, Washington, DC, 360 pp.
ABSTRACT:

This report describes the faunal assemblages of the deep-water benthic communities associated with the upper continental slope of the northern Gulf of Mexico, primarily in the area between Brownsville, Texas, and Cape San Blas, Florida. Based on data derived from the original analysis of 111 deep-water benthic samples, and from information from the published literature and unpublished data sources, the authors present a description of the study area and of the upper slope physio-chemical environment; describe the faunal communities of the study area, and consider their organisms and communities; discuss the fishery potential of the area; and present a simple conceptual model which describes the upper continental slope ecosystem processes. Additionally, approximately 200 references are cited, a list of species encountered is presented, and lists of faunal assemblages (100 to 1050 m, at 50 m intervals) are given.

-2016-
AUTHOR(S): PERERA, P.A.B. AND S.S. DE SILVA
YEAR: 1978
TITLE: Studies on the Biology of Young Grey Mullet (Mugil cephalus) Digestion
PUB: Mar. Biol. 44:383-387
ABSTRACT:

The effect of body size and salinity on the rate of digestion of young grey mullet, Mugil cephalus (L.), was studied using the "sacrifice" method. The rate of digestion was found to be salinity dependent, being slower at lower salinities than at higher salinities. This is correlated to higher food intake at the lower salinities. Rate of digestion was also found to be dependent on body size, increasing with increasing body weight.

-2017-
AUTHOR(S): PEREYRA, W., T. REEVES, J.E. BAKKALA AND R.G. BAKKALA
YEAR: 1976
TITLE: Demersal Fish and Shellfish Resources of the Eastern Bering Sea in the Baseline Year 1975
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Northwest and Alaska Fisheries Center, Processed Report, 619 pp.
ABSTRACT:

This report contains (1) findings from a multi-vessel demersal trawl survey of the fauna in the eastern Bering Sea (August-October, 1975); (2) a review of data from historical research vessel surveys and commercial catch statistics; and (3) a summarization of information from the literature pertaining to commercially important species of demersal fish and shellfish. These studies were directed toward a description and assessment of the demersal fish and shellfish populations of the eastern Bering Sea with which the BLM can evaluate the real and potential impacts of petroleum exploration and development. The results of these studies also provide a database for assessment of stock conditions that will be used in the development of management policies for domestic and international fisheries and in planning future research.

-2018-
AUTHOR(S): PEREYRA, W.T.
YEAR: 1977
TITLE: Baseline Studies of Fish and Shellfish Resources of Norton Sound and the Southeastern Chuckchi Sea
PUB: In: Annual Reports of Principal Investigator, for Year End March 1977, Vol. VIII, Receptors--Fish, Littoral, Benthos. NOAA, U.S. Dept. of Commerce, pp. 288-319
ABSTRACT:

General nature and scope of study: (1.) Historical data--Along with a review of pertinent biological literature, existing historic data bases will be examined to provide a perspective to the status of demersal populations in the baseline period; and (2.) 1976 Baseline survey--A BLM-funded offshore reconnaissance-level survey was conducted in Norton Sound, the northern Bering Sea, and southeastern Chukchi Sea during September-October 1976 based on a stratified systematic sampling design. Demersal fish and shellfish were sampled with otter trawls, and qualitative samples of near-surface fish species were obtained with gillnets and pelagic trawls. Catch data for this survey will be used to provide estimates of standing stock for all principal fish and shellfish in the survey region for the 1976 baseline year. Biological data obtained will be used to provide estimates of various population parameters outlined above. These data will provide an index to the magnitude and relative importance of fish and shellfish resources vis-a-vis potential offshore oil and gas resources of Norton Sound and the southeastern Chukchi Sea. Furthermore, stock size and population parameter estimates will provide a data base for comparison with future information if major alternations of the marine environment are to occur.

-2019-
AUTHOR(S): PEREYRA, W.T. AND J.A. RICHARDS
YEAR: 1970
TITLE: Economic Aspects of the 1967 Offshore Pacific Hake Fishery
PUB: U.S. Fish Wildl. Serv. Cir. 332:103-120
ABSTRACT:

The purpose of this study was to provide economic information for vessel owners, fishermen, and fish processors which they would need to develop a feasible fishery for Pacific hake (Merluccius productus). Included in this study is information on cost and revenue aspects of the 1967 Pacific hake fishery. Also of interest was the relative economic success of different sized vessels and their fishing gear. The study was conducted by chartering 10 vessels to participate in an experimental fish meal processing venture. If the government assistance is neglected, four vessels showed a loss in the operation, one would have broken even, and four would have made return, though all the ships were able to make large hauls. The larger ships on the average did better economically than did the smaller ships.

-2020-
AUTHOR(S): PEREYRA, W.T. AND L.L. RONHOLT
YEAR: 1976
TITLE: Baseline Studies of Demersal Resources of the Northern Gulf of Alaska Shelf and Slope
PUB: NOAA/OCSEAP, Environmental Assessment of the Alaskan Continental Shelf. Quart. Rep., Oct-Dec. 2:234-244
ABSTRACT:

Growth information collected during the 1975 Northeastern Gulf of Alaska (NEGOA) survey was analyzed for the following species: turbot (Aleresthes

stomias), Dover sole (Microstomus pacificus), rex sole (Glyptocephalus zachirus), flathead sole (Hippoglossoides elassodon), Pacific ocean perch (Sebastes alutus), Pacific cod (Gadus macrocephalus), and walleye pollock (Theragra chalcogramma).

-2021-
AUTHOR(S): PEREYRA, W.T. AND M.S. ALTON
YEAR: 1972
TITLE: Distribution and Relative Abundance of Invertebrates off the Northern Oregon Coast
PUB: In: Pruter, A.J. and D.L. Alverson, eds. The Columbia River Estuary and Adjacent Ocean Waters. Bioenvironmental Studies. University of Wash. Press,Seattle and London, Chapter 21
ABSTRACT:

Epibenthic invertebrate fauna was surveyed on a track line running southwest from the mouth of the Columbia River at depths from 50 to 1150 fathoms (91 to 2103 m). In the collections examined 11 phyla and 343 species were identified, and we estimate about 150 other species were contained in the samples. The relative abundance of invertebrates was approximately three times higher at depths of 100 to 375 fathoms (183 to 686 m) than at shallower or deeper depths. Coelenterates, arthropods, molluscs, and echinoderms made up the bulk of the catches. Echinoderms were dominant in depths of 100 to 250 and 700 to 1050 fathoms (183 to 457 and 1280 to 1920 m), whereas arthropods dominated catches made at 275 to 650 fathoms (503 to 1189 m). There was a tendency for several phyla to share dominance at deeper stations. In depths of 50 to 475 fathoms (91 to 869 m), the dominance pattern shifted seasonally owing primarily to the movement of male Tanner crabs. The depth distribution for species identified from the track line and the replacement of species with depth are discussed. Species assemblages are presented to characterize the five major benthic divisions which delineate the track line. The distribution of organic carbon in the surface sediments appears to be the environmental factor most responsible for the observed bathymetric distribution of epibenthic biomass.

-2022-
AUTHOR(S): PEREYRA, W.T. ET AL.
YEAR: 1977
TITLE: Baseline Studies of Demersal Resources of the Gulf of Alaska Shelf and Slope: A Historical Review
PUB: NOAA/OCSEAP, EAACS, Annual Reports 8:229-287
ABSTRACT:

General nature and scope of study: (1.) analysis of existing historical survey data at Northwest and Alaska Fisheries Center to provide (a) species composition and biomass estimates by area, depth, and time; (b) charts showing the distribution and relative abundance (catch in weight per unit area) of the major fish and shellfish species; and (c) average length and length composition of major species; (2.) domestic and foreign fisheries statistics will be examined for historical changes in the magnitude of catches by species and fishing grounds and the location of important fishing areas; and (3.) exploratory fishing records will be analyzed to determine the location and relative abundance of commercially important marine fish and shellfish resources.

-2023-
AUTHOR(S): PEREYRA, W.T., L.L. RONHOLT, H.H. SHIPPEN AND R. MINTEL
YEAR: 1976
TITLE: Baseline Studies of the Demersal Resources of the Eastern and Western Gulf of Alaska Shelf and Slope
PUB: Environmental Assessment of the Alaskan Continental Shelf, Quarterly Reports of Principal Investigators, Oct.-Dec., Vol. 2, NOAA, U.S. Dept. of Commerce.pp. 245-248
ABSTRACT:

The scope of the survey area has been extended to include the area from Unimak Pass (165 degrees 30'W long.) to Cape Spencer (136 degrees 30'W long.). Data sources for the additional areas (165 degrees 30'W to 157 degrees W and 140 degrees W to 136 degrees 30'W) have been gathered, the data keypunched and verified, and the information now awaits loading onto discs for analysis. Length frequency data analyses for the Yakutat Bay to Semidi Islands are 30% complete. Records of commercial catches by domestic and foreign fishermen have been reanalyzed according to new and revised area groupings and are 50% complete. Specific areas of outstanding importance to commercial fisheries are being delineated; this task is 75% complete.

-2024-
AUTHOR(S): PEREZ, FARFANTE I.
YEAR: 1969
TITLE: Western Atlantic Shrimp of the Genus Penaeus
PUB: Fish. Bull. 67(3):461-591
ABSTRACT:

Four subgenera of the genus Penaeus are described (litopenaeus, enaes s.s., fenneropenaeus, and melicertus). Eight species and subspecies (P. setiferus, P. schmitti, P. duorarum duorarum, P. duorarum notialis, P. aztecus aztecus, P. aztecus subtilis, P. paulensis, and P. brasiliensis) are recognized as occurring in the western Atlantic. Synonymies are given. Lectotypes have been designated for two species, and the disposition of all types is shown. Diagnoses, detailed descriptions, and illustrations are presented for each species and subspecies. Geographic and bathymetric distributions are given. Affinities are discussed, and conclusions concerning ranges of variation and their spatial distribution are based on morphometric studies and other characters. The development of the external genitalia through the juvenile stage and the size range at which each taxon reaches the subadult stage are presented. Many details of ecology and life history are critically summarized and reviewed. A brief appraisal of the commercial importance of each form is also given.

-2025-
AUTHOR(S): PERLMUTTER, A., W.S. MILLER AND J. C. POOLE
YEAR: 1956
TITLE: The Weakfish in New York Water
PUB: N.Y. Fish Game J. 3:1-43
ABSTRACT:

A reported scarcity of weakfish in New York waters led to the initiation of a study of this species by the New York State Conservation Department in 1952. Based on data collected both by Nesbit in the early 1930's and by the present investigators, it was found that the resource of weakfish available to New York fishermen consists of both locally spawned and southern-spawned fish. Weakfish are abundant in New York waters only when the southern-spawned stock is large. In recent years this stock has been smaller than ever before in the history of the fishery, and the New York fishery has depended mostly on

locally spawned fish. For New York to enjoy once more the abundant weakfish supply of the 1920's would necessitate an increase in the stock of southern-spawned fish. The feasibility of increasing this stock can only be determined through cooperative study by the conservation agencies of those states whose waters contribute, in important measure, to the weakfish resource.

-2026-
AUTHOR(S): PERRET, W., ET AL.
YEAR: 1971
TITLE: Cooperative Gulf of Mexico Estuarine Inventory and Study, Louisiana. Phase IV Biology
PUB: Louisiana Wildlife and Fisheries Commission, New Orleans, LA
ABSTRACT:

Tabular data are presented on water volume, vegetation, stream discharge, commercial fishery operations, coastal populations, pollution, filled areas, drained areas, and navigation channels in Louisiana's estuarine zone. Comparisons are made between past years' data and recent information.

-2027-
AUTHOR(S): PERRET, W.S. AND C.W. CAILLOUET, JR.
YEAR: 1974
TITLE: Abundance and Size of Fishes Taken by Trawling in Vermilion Bay, LA
PUB: Bull. Mar. Sci. 24:52-74
ABSTRACT:

Fishes were collected with a 4.9-m flat otter trawl at three sampling stations (Vermilion River Cutoff, Redfish Point, and Southwest Point) in Vermilion Bay, Louisiana, from June 1964 through September 1965. In 273 10-minute tows, 10,710 fish representing 43 species and 24 families were collected. The greatest number of species and the greatest number of individuals were taken at Southwest Point, the sampling station nearest the Gulf of Mexico. Vermilion River Cutoff, the northernmost location, most distant from the Gulf, exhibited the fewest species and individuals. Fishes in the family sciaenidae occurred most frequently and in greatest number in the trawl catches. The Atlantic croaker (Micropogonias undulatus) was the most abundant species taken. For each sampling station, the species collected, their frequencies of occurrence, and their numerical abundance were reported. Relative abundance and frequency distribution of size of the most frequently occurring fishes were determined.

-2028-
AUTHOR(S): PERRET, W.S., J.E. WEAVER, R.O. WILLIAMS, P.L. JOHANSEN, T.D. MCILWAIN, R.C. RAULERSON AND W.M. TATUM
YEAR: 1980
TITLE: Fishery Profiles of Red Drum and Spotted Seatrout
PUB: Gulf States Marine Fisheries Commission, 60 pp.
ABSTRACT:

In recognition of the substantial interest in these two species of fish and many associated user problems common to each of the Gulf States in varying degrees, the Gulf State Federal Fisheries Management Board (GSFFMB) voted to undertake the development of a cost estimate on initial work towards a management plan for red drum and spotted seatrout with the understanding that the Technical Coordinating Committee (TCC), as the Board's scientific advisory, report back the next day after the recess of that meeting. The TCC recommended (1) that the development of a profile on red drum and spotted seatrout be undertaken similar to that for shrimp and menhaden, commensurate

with available funds; (2) that the profile be handled by a small subcommittee under the TCC and be comprised of one representative from each resource agency and one individual from the NMFS; and (3) that this subcommittee be funded up to $10,000 to cover costs for transportation, loading, and meals for an estimated three or four meetings. The board approved the proposed development of a "Fishery Profiles for Red Drum and Spotted Seatrout" as presented.

-2029-
AUTHOR(S): PERRY, A.
YEAR: 1979
TITLE: Fish of Timbalier Bay and Offshore Louisiana Environments Collected by Trawling
PUB: In: Ward, C.H., M.E. Bender and D.J. Reish, eds. The Offshore Ecology Investigation: Effects of Oil Drilling and Production in a Coastal Environment. Rice University Studies 65, pp. 537-545
ABSTRACT:
Trawlings were made for fish in the vicinity of a drilling rig and production platform, and at a control site in Timbalier Bay and off Grand Isle, Louisiana, to determine whether or not oil activities have had any significant effect on fish populations. Species diversity was highest at the control site and lowest at the drilling site in Timbalier Bay; however, biomass was highest at the drilling site and lowest at the production platform. At the offshore area the drilling site had the highest species diversity and the production site had the lowest. The highest biomass was measured at the control site and the lowest at the production site. Earlier studies of fish populations predating oil activities were similar to these findings, indicating that oil production has not had an adverse effect on fish populations.

-2030-
AUTHOR(S): PERRY, H.M.
YEAR: 1972
TITLE: Notes on the Life History of the Blue Crab, Callinectes sapidus (Rathbun), in Mississippi Sound and Adjacent Waters
PUB: J. Miss. Acad. Sci. 18:63
ABSTRACT:
Research on the biology of the blue crab, Callinectes sapidus (Rathbun), was begun in Mississippi in July, 1970. Seasonal and areal distribution and relative abundance of larval, postlarval, juvenile and adult blue crabs were reported with associated hydrological factors. Blue crabs (868 females, 155 males) tagged and released in Lake Borgne and in Mississippi Sound east of Point St. Joe in November, 1971, migrated to Mississippi Sound in the vicinity of Cat Island to overwinter. To date, 63 males and 218 females have been returned giving a return rate of 27.5%. Migration of males paralleled that of females.

-2031-
AUTHOR(S): PERRY, H.M.
YEAR: 1975
TITLE: Notes on the Life History of the Blue Crab, Callinectes sapidus (Rathbun), in Mississippi Sound and Adjacent Waters
PUB: Government Reports Announcements 75(4):23

ABSTRACT:
Research on the biology of the blue crab, Callinectes sapidus (Rathbun), was begun in Mississippi in July, 1970. Seasonal and areal distribution and relative abundance of larval, postlarval, juvenile, and adult blue crabs were reported with associated hydrological factors.

-2032-
AUTHOR(S): PERRY, H.M.
YEAR: 1975
TITLE: The Blue Crab Fishery in Mississippi
PUB: Gulf Research Reports 5(1):39-57
ABSTRACT:
Analysis of 670 trawl, seine, and marsh net samples collected from July 1971 through June 1973 provided data on the distribution and abundance of blue crabs in Mississippi Sound. Highest average catches were associated with salinities between 5.0 and 15.0 ppt (parts per thousand) and temperatures between 20.0 and 25.0 degrees C. Young crabs congregated in dredged navigational channels and in the marshes that fringe the bays and coastline. Maximum numbers were captured over soft mud bottoms. Peak numbers of zoeae occurred in the summer and fall. Megaolopae were collected in all months. Early crab stages appeared throughout the year. Width-frequency distributions suggested rapid growth. Crabs tagged and released in Lake Borgne, LA. during the fall of 1971 moved into Mississippi Sound in the vicinity of Cat Island to overwinter. Recoveries of crabs released in the St. Louis Bay, Biloxi Bay, and Pascagoula River estuarine systems indicated little movement between estuaries during the spring and summer. Identified parasites included a new microphallid trematode. Commercial landings of blue crabs averaged 1,712,000 pounds for the 20-year period 1953-1972. Catch per unit of effort (pounds/pot day) was low during the spring and fall, peaking in the summer. Rises in the catch per unit of effort closely followed the migration of female crabs into Mississippi Sound.

-2033-
AUTHOR(S): PERRY, H.M. AND K.C. STUCK
YEAR: 1982
TITLE: Fisheries Monitoring and Assessment Project Report, Blue Crab Section (Completion Report PL 88-309, Project 2-296-R)
PUB: Gulf Coast Research Laboratory, Ocean Springs, MS, pp. 1-31
ABSTRACT:
The paper presents results on blue crab studies of larval, juvenile, and adult crabs. Information is presented on areal, seasonal, and vertical distribution as well as distribution by temperature and salinity for juveniles and adults. Discussion of parasites and tagging programs is also presented.

-2034-
AUTHOR(S): PERRY, W.G.
YEAR: 1976
TITLE: Standing Crops of Fishes of an Estuarine Area in Southwest Louisiana
PUB: In: Proc. Annu. Conf. Southeast. Assoc. Game Fish Comm., 30, pp. 71-81
ABSTRACT:
Standing crop of estuarine fisheries, as determined by extensive rotenone sampling, ranged from 17.6 to 1,605 kg/ha; overall average was 393.8. The most abundant species in numbers were gulf menhaden, Brevoortia patronus (54.6%), anchovies, Anchoa sp. (10.7%), and striped mullet, Mugil cephalus (6.6%). Of the 8,322 kg of fish collected during this study, red drum, Sciaenops ocellatus, represented 32.2%, followed by menhaden (16%) and striped

mullet (11.5%). First day rotenone samples were not sufficient for quantitating species abundance. Rotenone collections indicated that trawls were highly selective (P<.01).

-2035-
AUTHOR(S): PERRY, W.G.
YEAR: 1978
TITLE: Distribution of Fish in the Rockefeller-Grand Lake Tidal Bayou Complex, Southwest Louisiana
PUB: Proceedings of the Louisiana Academy of Science XLI:101-114
ABSTRACT:
Trawl samples were collected twice a month in a continuous canal system connecting the Gulf of Mexico with the freshwater Grand Lake. Specimen from this chenier plain marsh zone represented 2 classes, 14 orders, 27 families, 43 genera, and 50 species. Of the total number of individuals examined, 39% were from the brackish marsh type, 20% from the intermediate type, and 41% from the fresh type. Minimum-maximum salinity data were tabulated for each species, and seasonal frequency of occurrence was determined for the most numerous.

-2036-
AUTHOR(S): PERSCHBACHER, P.W., K.J. SULAK AND F.J. SCHWARTZ
YEAR: 1979
TITLE: Invasion of the Atlantic by Peprilus burti (Pisces: Stromataeidae) and Possible Implications
PUB: Copeia 3:538-541
ABSTRACT:
Recent invasion of the Atlantic by the Gulf butterfish, Peprilus burti, is reported. During the spring and early summer of 1977 several hundred specimens were collected in the Cape Fear River estuary of North Carolina and in adjacent Atlantic coastal waters. Approximately equal numbers of the resident Atlantic butterfish, P. triacanthus, were captured. Previous records of P. burti in the Atlantic are considered. The appearance of large numbers of P. burti in the Atlantic in 1977 followed a period of unusually cold weather in the northeastern Gulf of Mexico. It is noted that North Carolina collections made in late June through October 1977 contained a small number of butterfish with characters intermediate between P. burti and P. triacanthus).

-2037-
AUTHOR(S): PETERMAN, R.M.
YEAR: 1981
TITLE: Form of Random Variation in Salmon Oncorhynchus spp. Smolt to Adult Relations and Its Influence on Production Estimates
PUB: Can. J. Fish. Aquat. Sci. 38(9):1113-1119
ABSTRACT:
Estimates of the production of adult salmon can be biased by assuming an incorrect form of random noise term in the descriptive model. Many authors of theoretical studies of stock-recruitment relations assume multiplicative, log-normal distributions of random noise; other workers assume additive, normally distributed terms. Marine survival data for 3 spp. of salmon (Oncorhynchus keta, O. kisutch, and sockeye salmon) are used to determine which type of random variation term is most appropriate for salmon populations models. A multiplicative, log-normal distribution is probably most consistent with the data. The random processes described by this type of noise term cause higher absolute variation in total adult returns as abundance of seaward migrants increases. This phenomenon creates difficulties in evaluating the

success of artificial enhancement programs and it should be taken into account during planning of such programs and during subsequent evaluations of their success.

-2038-
AUTHOR(S): PETERMAN, R.M.
YEAR: 1982
TITLE: Model of Salmon Age Structure and Its Use in Preseason Forecasting and Studies of Marine Survival
PUB: Can. J. Fish. Aquat. Sci. 39(11):1444-1452
ABSTRACT:

A method is derived to determine whether ocean abundance of a salmon stock affects either the survival rate between particular ages or the proportion of the ocean population which migrates back to freshwater spawning areas. The approach, similar to Fredin's smolt indices method, uses data on brood-year contributions to adult returns in successive years. Survival rate and proportion maturing are independent of stock abundance after age 3, except in Naknek River (Canada) sockeye (Oncorhynchus nerka) data. In cases such as Babine Lake sockeye salmon, where nonlinearity has been identified previously in the relation between smolt abundance and total adult returns, this lack of density dependence in the older ages means that the mortality processes which cause that nonlinearity act early in smolt life. The relations between abundance of adult returns of age n in year t and returns of age n + 1 from the same brood class in year t + 1 are useful as preseason forecasting techniques. The method derived here, which uses logarithms of abundances, improves upon the existing forecasting method. Deviations from the relation between abundances of brood-year returns can in some cases be explained by smolt weight, which affects mean age at return.

-2039-
AUTHOR(S): PETERMAN, R.M.
YEAR: 1984
TITLE: Density-Dependent Growth in Early Ocean Life of Sockeye Salmon (Oncorhynchus nerka)
PUB: Can. J. Fish. Aquat. Sci. 41(12):1825-1829
ABSTRACT:

Significant decreases in adult body size and marine growth rate occur in seven British Columbia and Bristol Bay, Alaska, sockeye salmon (O. nerka) stocks when large numbers of sockeye are present in the Gulf of Alaska. These density-dependent effects arise mainly during early ocean life and are probably due to competition for food. The total sockeye abundance in the Gulf of Alaska is at least as important as within-stock abundance in determining final adult body size. British Columbia sockeye show a 10-22% decrease in adult body weight at high abundance of conspecifics. Thus, future evaluations of management strategies cannot simply focus on individual stocks, but must take a broader perspective which includes other sockeye populations.

-2040-
AUTHOR(S): PETERMAN, R.M.
YEAR: 1984
TITLE: Effects of Gulf of Alaska Sockeye Salmon (Oncorhynchus nerka) Abundance on Survival, Body Size, Growth Rate and Age at Maturity of British Columbia andBristol Bay, Alaska Sockeye Populations
PUB: Can. Tech. Rep. Fish. Aquat. Sci., No. 1302

ABSTRACT:

Data on marine survival and growth rates, adult body sizes, and mean age at return are examined for six British Columbia and ten Bristol Bay, Alaska, sockeye salmon (O. nerka) stocks to determine if these variables reflect changes in the total abundance of sockeye salmon rearing in the Gulf of Alaska.

-2041-
AUTHOR(S): PETERMAN, R.M. AND F.Y.C. WONG
YEAR: 1984
TITLE: Cross Correlations Between Reconstructed Ocean Abundances of Bristol Bay, Alaska, USA and British-Columbia, Canada Sockeye Salmon Oncorhynchus-nerka
PUB: Can. J. Fish. Aquat. Sci. 41(12):1814-1824
ABSTRACT:

Anecdotal reports of a tendency for British Columbia sockeye salmon (O. nerka) to be low when Bristol Bay, Alaska, returns are high prompted a reconstruction of minimum abundances of sockeye resident in the Gulf of Alaska, each year from the early 1950s to mid-1970s. This backwards reconstruction, using Fry's virtual population analysis, was done by using catch, escapement, and age structure data for each area in British Columbia and Bristol Bay. Use of more sophisticated backwards reconstruction methods was precluded by lack of age-specific annual survival rates by stock. Ocean abundances of British Columbia and Bristol Bay sockeye show significant autocorrelations at periods consistent with the cyclic dominant patterns of their largest stocks. Cross correlations at lag 0, between ocean abundances of various ages of fish from these two regions, show one case of a significant inverse relation in abundances. In addition, there are significant cross correlations between British Columbia and Bristol Bay ocean abundances at various time lags, showing that cycles in their abundances are out of synchrony. This lack of synchrony persisted longer than would be expected from cyclic dominance patterns and age at maturity of British Columbia and Bristol Bay sockeye. Several alternative explanations of this asynchrony are discussed.

-2042-
AUTHOR(S): PETERMAN, R.M. AND M.J. BRADFORD
YEAR: 1987
TITLE: Wind Speed and Mortality Rate of a Marine Fish, the Northern Anchovy (Engraulis mordax)
PUB: Science (Wash.) 235(4786, Jan):354-355
ABSTRACT:

Large variability in recruitment of marine fishes creates challenging management problems. In northern anchovy (Engraulis mordax), there is a significant linear relation between larval mortality rate and the frequency of calm, low wind speed periods during the spawning season, possibly because calm winds permit maintenance of concentrated patches of larval food. Neither cannibalism on larvae nor offshore transport contributed significantly to interannual variation in early larval mortality. These results are consistent with the hypothesis that wind-driven turbulent mixing affects variability in survival of young fish larvae. However, abundance of recruits does not necessarily reflect abundance of larvae surviving through this early stage.

-2043-
AUTHOR(S): PETERMAN, R.M. AND R.D. ROUTLEDGE
YEAR: 1983
TITLE: Experimental Management of Oregon Coho Salmon (Oncorhynchus kisutch) Designing for Yield of Information
PUB: Can. J. Fish. Aquat. Sci. 40(8):1212-1223
ABSTRACT:

Large-scale experimental manipulation of juvenile salmon (Oncorhynchus spp.) abundance can provide a test of the hypothesis of linearity in the smolt-to-adult abundance relation. However, not all manipulations will be equally informative owing to large variability in marine survival. The authors use Monte Carlo simulation and an analytical approximation to calculate for Oregon coho salmon (O. kisutch), the statistical power of the test involving different controlled smolt abundances and durations of experiments. One recently proposed experimental release of 48 million smolts for each of 3 yr has a relatively low power and, as a consequence, is unlikely to show clearly whether the smolt-to-adult relationship is linear. The number of smolts required for a powerful test of the hypothesis of linearity is closer to the 88 million suggested in another proposal.

-2044-
AUTHOR(S): PETERSON, C.H.
YEAR: 1977
TITLE: Competitive Organization of the Soft Bottom Macrobenthic Communities of Southern California, U.S.A. Lagoons
PUB: Mar. Biol.(BERL) 43(4):343-360
ABSTRACT:

The sandy-bottom macrobenthic community of Mugu Lagoon, a relatively pristine southern California (U.S.A.) marine lagoon, demonstrated nearly constant community composition over 37 months of observation, relatively little temporal variability in the population densities of the most abundant species over 37 months, and a pattern of depth stratification in which very little vertical overlap existed among the six most abundant species. The only two spp. whose vertical distributions overlapped broadly showed horizontal spatial segregation, each abundant in different areas within the sand habitat. These community characteristics imply the importance of biological factors in structuring the sand benthos. The relatively large volume required for living space by these macrofauna suggests that competition for space may be the biological factor most important in determining the observed temporal and spatial abundance patterns. The muddy-sand community and the mud community of Mugu Lagoon also revealed similar patterns of stratification: new abundant species replaced species at the same sedimentary level while not greatly affecting species populations at other nonoverlapping levels. In the sand community of Tijuana Slough, two of the abundant species of Mugu Lagoon's sand community were nearly absent as an apparent result of human over exploitation. Probably in response, densities of species living at the sedimentary levels normally occupied by the missing species were much higher than would be predicted if competition for space were unimportant. In field experiments, removal of the deposit feeder Callianassa californiensis resulted in high recruitment of Sanguinolaria nuttallii, whereas control areas showed no S. nutallii recruitment. Experiments also suggest that negative intraspecific interactions between Cryptoma californica individuals may explain the observed rapid emigration from areas of artificial high density. Perhaps the relatively great environmental predictability of southern California lagoons has competitive interactions to play a significant role in determining the temporal and spatial abundance patterns of the soft-bottom macrobenthos.

(Protothaca staminea, Dendraster excentricus, and Tagelus californicus were also discussed.)

-2045-
AUTHOR(S): PETERSON, M.L., C.S. CLAY, AND S.B. BRANDT
YEAR: 1976
TITLE: Acoustic Estimates of Fish Density and Scattering Function
PUB: J. Acoust. Soc. Amer. 60(3):618-622
ABSTRACT:

The amplitude of a sonar echo from a fish depends upon the species and size of the fish, acoustic wavelength, aspect, position of the fish in the sonar beam, range, and backscattering cross section. We simplify the problem to a single species and size of fish, vertically downward echo sounding, single aspect, and nonoverlapping echoes. After removal of attenuation due to range and absorption, two random functions remain. The position of the fish in the sonar beam is random and the scattering cross section for each trial is random. We assume that the fish have a uniform density (number/m to the 3rd power) and calculate the probability density function (PDF) for insonification and reception. We assume that the PDF of the envelope of the echo (excluding the variability of insonification and reception) has a Rayleigh PDF. Assuming two PDF's are independent, we calculate the PDF of the echo envelopes w (e). w (e) depends upon the beamwidth of the sonar and the mean backscattering cross section. The theoretical PDF has the same shape as the measured PDF of echoes from alewife in Lake Michigan. We use the fit of the PDF's to estimate the backscattering cross section and fish density. This calibrates the echo-integration processing system. A profile of the density of alewife in Lake Michigan is shown.

-2046-
AUTHOR(S): PETERSON, W.T.
YEAR: 1973
TITLE: Upwelling Indices and Annual Catches of Dungeness Crab, Cancer magister, Along the West Coast of the United States
PUB: Fish. Bull. 71(3): 902-910
ABSTRACT:

The relationship between upwelling and crab catches off the coast of northern California, Oregon and Washington was described. Scatter diagrams of upwelling versus crab catch were prepared for lag times of 1/2 to 4 1/2 years for Washington and Oregon, and 1/2 to 3 1/2 years for northern California. The results of statistical tests indicate that crab catch and upwelling are related. It appears that summers of strong upwelling generally produce a good crab catch 1 1/2 years later along the coasts of northern California and Oregon. Summers of strong upwelling along the coast of Washington always produce a good crab catch the following year. Conversely, weak upwelling results in poor crab catches.

-2047-
AUTHOR(S): PEZZACK, D.S.
YEAR: 1987
TITLE: Lobster (Homarus americanus) Stock Structure in the Gulf of Maine
PUB: Ices, Copenhagen (Denmark), 17 pp.
ABSTRACT:

Lobsters stock structure within the Gulf of Maine is examined by a review of the available published and certain unpublished data on adult and larval lobster distribution; electrophoretic, morphometric, parasite, and tagging studies; and long-term landing trends. The information presented shows

evidence that several stocks may exist within the Gulf of Maine, but clear definition of stock boundaries is not possible at this time.

-2048-
AUTHOR(S): PFMC
YEAR: 1978
TITLE: Northern Anchovy Fishery Management Plan
PUB: Fed. Reg. 43(141)Book 2:31655-31879
ABSTRACT:

An amendment of the original Anchovy Fishery Management Plan implemented in 1978 for the central subpopulation of northern anchovy. The need for an amendment was due to the use of a new, more cost-effective and accurate technique used to estimate anchovy spawning biomass. This new technique utilizes anchovy egg production as a better measure of spawn production, and relates spawn production directly to spawner abundance by measurement of anchovy reproduction. Information collected with this new technique indicates that reproductive output of anchovy is greater than previously assumed. The revised Fishery Management Plan reviews the biological, ecological, social, and economic aspects of the anchovy and establishes a revised optimum yield (OY) formula. U.S. OY is calculated each year based on an annual estimate of stock abundance.

-2049-
AUTHOR(S): PFMC
YEAR: 1979
TITLE: Supplement to the Final Environmental Impact Statement/Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Wash., Oregon and California Commencing in 1978
PUB: Pac. Fish. Mmgt. Council, Portland, OR, 115 pp.
ABSTRACT:

Supplemental Environmental Impact Statement for Amendments to the Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon, and California Commencing in 1978.

-2050-
AUTHOR(S): PFMC
YEAR: 1979
TITLE: Draft Fishery Management Plan for the Dungeness Crab Fishery off Washington, Oregon and California
PUB: Pac. Fish. Manage. Counc., Portland, OR, 93 pp.
ABSTRACT:

A management plan for the dungeness crab fishery off the West Coast was proposed. The goals of the plan included ways to minimize physical and economic losses due to wasteful fishing practices, reduce social and economic impacts of management, and develop practices applicable to all state jurisdictions. The biology of dungeness crabs, Cancer magister, was also considered. Factors such as distribution, movement, stocks, prey, predators, growth, molting, sexual maturity, reproduction, larval distributions, and nursery areas were reported. The physical habitat utilized by the crabs was also considered. Salinities of 11-32 ppt, temperatures between 3.3 degrees C and 18.3 degrees C, and sandy-mud bottoms were suitable conditions for the crab populations. A description of the fishery, including vessels, gear, and user groups, was presented. Landings of crab, over the coastal range, varied from 7.8 million pounds (1974) to 53.5 million pounds (1977). Landings reflect cyclic patterns with lows every 9 to 10 years and highs every 13 to 17 years. Maximum sustainable yields of approximately 7.4 to 8.6 million pounds

have been proposed for each state. The management plan proposed to meet these criteria included limits on commercial and sport catches, seasons, presensor gear regulations, sex limits, escape ports in pots, and pot destruct devices.

-2051-
AUTHOR(S): PFMC
YEAR: 1980
TITLE: Draft Fishery Management Plan and Environmental Impact Statement for the Pink Shrimp Fishery off Washington, Oregon and California
PUB: Pac. Fish. Manage. Counc., Portland, OR, 191 pp.
ABSTRACT:

This fishery management plan was developed for the pink shrimp (Pandalus jordani) fishery off the Washington-Oregon-California coast in compliance with the Fishery Conservation and Management Act of 1976. The primary goal of the plan is to encourage harvest of the OY which is defined as all the pink shrimp that can be taken during open seasons in permissible areas with legal shrimp trawls. The plan presents specific management objectives for the shrimp resource and proposes alternative management measures by which OY may be achieved. A particular need in the shrimp fishery is coastwide uniformity of regulations due to the mobility and widespread intermingling of vessels. This plan provides an opportunity for establishing coastwide uniform regulations and improving orderliness of the fishery.

-2052-
AUTHOR(S): PFMC
YEAR: 1982
TITLE: Perspective on Management of Ocean Chinook and Coho Salmon Fisheries Within the Fishery Conservation Zone off California, Oregon, and Washington
PUB: Pac. Fish. Manage. Counc., Portland, OR
ABSTRACT:

The Fishery Conservation and Management Act of 1976 marked the beginning of a new era in Pacific salmon management along the west coast of the United States. The act established U.S. Government jurisdiction over a FCZ extending from 3 to 200 nautical miles offshore. Eight regional councils were established to formulate fishery management plans for the FCZ. On the west coast, the North Pacific Fishery Management Council has jurisdiction of Alaska, the Pacific Fishery Management Council jurisdiction of California, Oregon, and Washington.

-2053-
AUTHOR(S): PFMC
YEAR: 1983
TITLE: Proposed Plan for Managing the 1983 Salmon Fisheries off the Coasts of California, Oregon and Washington
PUB: Pac. Fish. Manage. Counc., Portland, OR, pp. 1-I-1
ABSTRACT:

Current information on the abundance of the major stocks of chinook and coho salmon that are available to the ocean fisheries in 1983 indicates that (1) some stocks continue to be depressed to such an extent that ocean harvests must be regulated to assure adequate escapement to inside fisheries and spawning grounds, and (2) other stocks continue to be at or near optimum levels of abundance. The status of stocks is presented in detail in Chapter IV of the report accompanying the 1983 FMP amendment.

-2054-
AUTHOR(S): PFMC
YEAR: 1983
TITLE: Pacific Coast Groundfish Plan. Fishery Management Plan and Environmental Impact Statement for the California, Oregon and Washington Groundfish Fishery
PUB: Pac. Fish. Manage. Counc., Portland, OR, NOAA/NMFS Coop. Agree. 80-ABH-00003
ABSTRACT:

This project document encompasses a wide range of topics concerning a number of fisheries for many commercial and sport groundfish and wetfish. Topics include: management and regulation measures, past, present and future (including possible alternatives); past, present and future of the fisher is, including the foreign and joint venture aspects: description and status of the stocks, including Acceptable Biological Catch (ABC), Optimum Yield (OY), Maximum Sustainable Yield (MSY), and life history features; fishery harvesting, processing, economics, and fishing gear considerations; and research history. Major species included in this document are Lingcod (Ophiodon elongatus), Pacific cod (Gadus macrocephalus), Pacific whiting (Merluccius productus), Sablefish (Anoplopoma fimbria), Pacific ocean perch (Sebastes alutus), shortbelly rockfish (Sebastes jordani), widow rockfish (Sebastes entomelas), dover sole (Microstomus pacificus), English sole (Parophrys vetulus) and petrale sole (Eopsetta jordani).

-2055-
AUTHOR(S): PFMC
YEAR: 1984
TITLE: First Amendment and Implementing Regulations to the Pacific Coast Groundfish Management Plan Incorporating the Environment Assessment, the Regulatory Impact Review/Regulatory Flexibility Analysis
PUB: Pac. Fish. Manage. Counc., Portland, OR
ABSTRACT:

The first ammendment to the Pacific Groundfish Plan of 1983 revises various sections of the regulatory environment. Areas of amendment include: regulations on Pacific ocean perch, vessel identification, inclusion of additional species in the groundfish management unit, trip limits on sablefish, trawl rope requirements, and management of northern jack mackerel.

-2056-
AUTHOR(S): PFMC
YEAR: 1984
TITLE: Final Framework Amendment for Managing the Ocean Salmon Fisheries off the Coasts of Washington, Oregon, and California Commencing in 1985
PUB: Pac. Fish. Manage. Counc., Portland, OR, 149 pp.
ABSTRACT:

A framework amendment is proposed for the management of the salmon and steelhead fishery off the coasts of Washington, Oregon, and California. Species included are the coho salmon (Oncorhynchus kisutch), the chinook salmon (Oncorhynchus tshawytscha), the pink salmon, and the steelhead trout. This amendment includes measures that are fixed, such as the management objectives and goals, the procedures for evaluating optimal yield and total allowable level of foreign fishing, and the process for modifying the plan during pre-season and in-season times. There are also several measures which are flexible and are determined annually. These include calculation and allocation of allowable harvest, and controls on the harvest, such as subarea boundaries, minimum harvest lengths, recreational daily bag limits, fishing

gear restrictions, and seasons or quotas. Discussion is made on the possible range of environmental impacts of this plan, as well as social and economic impacts. Relationship of this framework amendment to existing regulations and laws is also discussed.

-2057-
AUTHOR(S): PFMC
YEAR: 1984
TITLE: A Review of the 1983 Ocean Salmon Fisheries and Status of Stocks and Management Goals for the 1984 Salmon Season off the Coasts of California, Oregon, and Washington
PUB: Pac. Fish. Manage. Counc., Portland, OR, pp. 1-V33
ABSTRACT:

The basic plan for managing the ocean salmon fisheries entitled "Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon, and California, Commencing in 1978," as amended in 1983, will continue in effect in 1984 unless further amended or otherwise modified. A Framework Plan Amendment to the 1978 Plan approved by the Council on January 12, 1984 will not be effective until August 18, 1984, and will not be implemented until 1985. No other amendment to the 1978 plan is scheduled in 1984. Guidelines and procedures contained in the Framework Plan Amendment will be considered in modifying the 1984 regulations. The ocean salmon fishing regulations for 1984, will be recommended by the Council at its April meeting and implemented by emergency action of the Secretary of Commerce. This report includes a review and assessment of the 1983 fisheries, the projected status of the salmon resources in 1984, and a presentation of the management goals for 1984.

-2058-
AUTHOR(S): PFMC
YEAR: 1985
TITLE: Status of the Pacific Coast Groundfish Fishery Through 1985 and Recommended Acceptable Biological Catches for 1986
PUB: Pac. Fish. Manage. Counc., Portland, OR, pp. 36 + appendices
ABSTRACT:

The purpose of this report is to summarize the development of the Pacific Coast Groundfish Fishery Management Plan and to describe the history of the fishery and its management since enactment of the Magnuson Fishery Conservation and Management Act. Included in this report is a description of landings, fishing patterns, estimates of the status of stocks, acceptable biological catches for 1983-85 (and those proposed for 1986), and economic status of the commercial groundfish fishery in 1984.

-2059-
AUTHOR(S): PHILLIPS, J.B.
YEAR: 1939
TITLE: The Market Crab of California and Its Close Relatives
PUB: Calif. Dep. Fish. Game Fish. Bull. 25(1):18-29
ABSTRACT:

A general description of the market crab, Cancer magister, and four related species: C. gracilis, C. antennarius, C. productus, C. anthonyi is included. Each species is described in terms of distinquishing characteristics, color, size, and distribution. There is also a brief discussion of molting of crabs and distinction between male and female crabs.

-2060-
AUTHOR(S): PHILLIPS, J.B.
YEAR: 1957
TITLE: A Review of the Rockfishes of California (Family Scorpaenidae)
PUB: Calif. Dep. Fish. Game Fish. Bull. 104, 158 pp.
ABSTRACT:

The rockfish and scorpion fish of California (family scorpaenidae) were discussed. A taxonomic key to the 49 species of Sebastodes, 2 species of Sebastolobus, and 1 species of Scorpaena was presented. The commercial importance of the species was considered. Rockfish landings have increased from 1-2 million pounds in 1900 to over 13 million pounds annually. A peak catch of 60 million pounds was recorded in 1945. Party boat records indicated an increase in fish caught from 9% in 1947 to 55% by 1955. Variations in fin ray counts, color, and body proportion were noted between juveniles and adults of the same species. The range, depth, body color, and meristics as well as common names of each species were presented. A typical specimen included fish with color abnormalities, meristic abnormalities, and at least 3 hybrid species.

-2061-
AUTHOR(S): PHILLIPS, J.B.
YEAR: 1964
TITLE: Life History Studies on Ten Species of Rockfish (Genus Sebastes)
PUB: Calif. Dep. Fish. Game Fish. Bull. 126, 70 pp.
ABSTRACT:

Assessment of the major life history parameters (age, weight/length relationships, age of maturation, fecundity, spawning periodicity, feeding habits, and distribution) of the 10 most commercially important rockfishes of California is included. A short description of the importance of each species to the commercial catch and the current fishery regulations is given. Species-specific accounts of the major life history parameters are given for Sebastes entomelas, S. goodei, S. miniatus, and S. paucispinis among others. Weight/length relationships were based on combined sexes and did not correct for state of maturity or stomach fullness. Scales and otoliths were used to determine fish age. Age/length curves were fitted to the exponential equation and were tested for agreement with 1-year-old individuals collected from the field. Lengths of 1-year olds collected from the field correspond closely with back-calculated lengths from the age/length equations for S. paucispinis and S. goodei. Growth rates indicate that males grow slightly slower than females. Age/length data were fitted to the von Bertalanffy growth equation. Spawning of larvae occurs during the winter (mid-November to mid-March) for most species. In general, the largest individuals of a species ripen and spawn earlier than smaller conspecifics. Adult S. entomelas, S. goodei, S. miniatus, and S. paucispinis feed on macroplankton and small fishes.

-2062-
AUTHOR(S): PICQUELLE, S. AND R.P. HEWITT
YEAR: 1983
TITLE: Estimates of the Spawning Biomass of the Northern Anchovy for the 1983-84 California Fishing Season
PUB: NOAA/NMFS/SWFC, Admin. Rep. LJ-83-15
ABSTRACT:

The 1983 equivalent larval census estimate of the spawning biomass of the northern anchovy (Engraulis mordax) central subpopulation is 1,405,000 MT. This estimate is based on data gathered by an egg production survey conducted from February 4 to April 1, 1983. The abundance of larvae is projected from

the daily production of eggs and the subsequent mortality of eggs and larvae. This equivalent larval census estimate is the basis of the anchovy fishery OY for 1983-84.

-2063-
AUTHOR(S): PICQUELLE, S.J. AND R.P. HEWITT
YEAR: 1982
TITLE: The Northern Anchovy Spawning Biomass for the 1982-83 California Fishing Season
PUB: NOAA/NMFS, Southwest Fisheries Center Adm. Rep. LJ-82-16
ABSTRACT:
The 1982 equivalent larval census estimate of the spawning biomass of the northern anchovy (Engraulis mordax) central subpopulation is 1,866,000 MT (2,060,000 short tons). This estimate is based on data gathered by an egg production survey conducted from January 18 to March 9, 1982. The abundance of larvae is projected from the daily production of eggs and the subsequent mortality of eggs and larvae. This equivalent larval census estimate will be the basis of the anchovy fishery OY for 1982-83. The egg production method estimate of anchovy spawning biomass is 378,000 MT (417,000 short tons). This is based on a production of 12.30 x 10 to the 12th power eggs/day and a population (males and females) fecundity of 3.253 x 10 to the 7th power eggs/day/MT. The standard error of the egg production method estimate is 97,200 MT, for a coefficient of variation of 25.7%.

In 1982 the central subpopulation of northern anchovy was geographically distributed in the inshore portion of the Southern California Bight, from the Santa Barbara Channel Islands to northern Baja California. A smaller group was detected between Monterey and San Francisco Bays.

-2064-
AUTHOR(S): PIERCE, D.E.
YEAR: 1976
TITLE: Winter Flounder Estuarine Year-Class Abundance, Mortality, and Recruitment
PUB: Trans. Am. Fish. Soc. 105(6):647-657
ABSTRACT:
Mark-recovery methodology, accounting for mortality, enabled annual estimates of estuarine winter flounder (Pseudopleuronectes americanus) abundance at summer's end. Recruitment from the estuarine system to an inshore-offshore otter trawl fishery occurred incompletely (73%) over three age groups (II-IV). The release of tagged pre-recruits in two consecutive years and subsequent return data, adjusted for non-reporting of tag recoveries, yielded the following 1970 post-recruit, instantaneous mortality parameters: total = 0.3570, fishing = 0.2445, natural = 0.1125. A comparison of total recruitment from southeastern Massachusetts flounder groups, derived from a population estimate and instantaneous total mortality rate, with recruitment from the Waquoit Bay-Eel Pond system indicated that the latter constituted less than one% of the total required to maintain equilibrium catch.

-2065-
AUTHOR(S): PIERCE, D.E. AND A.B. HOWE
YEAR: 1977
TITLE: A Further Study on Winter Flounder Group Identification off Massachusetts
PUB: Trans. Am. Fish. Soc. 106(2):131-139

ABSTRACT:
Dorsal and anal fin ray number variation was studied in 5,322 young-of-the-year winter flounder, Pseudopleuronectes americanus (Walbaum), collected from the Cape Cod region during 1969-71. Data were analyzed by Duncan's multiple range tests, analysis of variance, and t-tests. Flounder from separate estuaries did not constitute individual groups. The existence of a north-of-Cape-Cod group and a south-of-Cape-Cod group was confirmed; a Martha's Vineyard group was identified.

-2066-
AUTHOR(S): PIETRAFESA, L.J. AND G.S. JANOWITZ
YEAR: 1985
TITLE: Physical Oceanographic Processes Affecting Larval Transport Around and Through North Carolina Inlets
PUB: North Carolina State Univ., 46 pp.
ABSTRACT:
Atlantic spot, flounder, croaker and menhaden all spawn in shelf waters off North Carolina during late fall to early winter. The juveniles use estuaries such as Pamlico Sound and the Cape Fear River as nurseries during their first winter and spring. Previous studies of recruitment into the estuaries through barrier island inlets or estuarine mouths assume that the pre- and post-metamorphosed larvae enter the estuaries at the bottom of the water column and move upstream thereafter. The mechanisms were presumed tidal. The Pamlico Sound has several inlets, Oregon, Hatteras, and Ocracroke, through which larvae can enter not only during flood stages of the tide but also in the presence of favorable oceanic to estuary sea level pressure gradients. The Cape Fear River has a strong semi-diurnal tidal flow, both flood and ebb, and also responds vigorously to one-sided divergences and convergences at its mouth. Flow, looking out of the mouth, is in at the left and out on the right. The conclusions are that, in addition to flooding tides, non-local forcing at the estuary mouths can affect transport of larval fish through the estuary mouths, throughout the entire water column.

-2067-
AUTHOR(S): PIQUELLE, S.J. AND R. HEWITT
YEAR: 1983
TITLE: The Northern Anchovy Spawning Biomass for the 1982-1983 Season
PUB: CalCOFI Rep. 23:16-28
ABSTRACT:
An egg production method of calculating biomass of the northern anchovy, Engraulis mordax, is used for the first time. An equivalent larval census estimate is compared by measuring larval mortality and projecting the number of larvae resulting from the measured egg production.

-2068-
AUTHOR(S): PIQUELLE, S.J. AND R.P. HEWITT
YEAR: 1984
TITLE: The Spawning Biomass of the Northern Anchovy
PUB: CalCOFI Rep. 25:16-27
ABSTRACT:
A larval and egg census of northern anchovy, Engraulis mordax, was used to estimate spawning biomass. The larval census estimate is the basis for calculating the California anchovy fishery optimum yield for 1983-84. Anchovy eggs and larvae, from 850 stations, were collected using a 25 cm diameter net of 150 micron mesh and a 15m2 midwater trawl with a 2 mm mesh liner. The egg production and larval abundance method produced spawning biomass estimates

that differed greatly. The egg production method incorporates variability in the proportionality constant between larval abundance and spawning biomass. The egg production method, therefore, seems to be a more accurate and efficient estimate of anchovy biomass than the larval census method.

-2069-
AUTHOR(S): POLA N. ET AL.
YEAR: 1984
TITLE: Numerical Simulation of the Effect of Interannual Temperature Fluctuations on Fish Distributions in the Eastern Bering Sea
PUB: NOAA/NMFS/NWAFC, Seattle, WA. NOAA Tech. memo. NMFS/NWAFC S7, 60 pp.
ABSTRACT:

The effects of extreme interannual temperature fluctuations (i.e., a very cold or warm year) on the Bering Sea ecosystem were examined using the Dynamical Numerical Marine Ecosystem Simulation (DYNUMES) model, originally developed at the Northwest and Alaska Fisheries Center (NWAFC) by Dr. Taivo Laevastu. The model was run using long-term monthly mean temperature fields to establish mean monthly temperature-induced migration patterns. Changes in these patterns caused by extreme temperatures were simulated by replacing the mean input temperature fields with temperature fields representative of, first, an extremely cold year, and, second, an extremely warm year.

-2070-
AUTHOR(S): POLA, N.B.
YEAR: 1985
TITLE: Numerical Simulation of Fish Migrations in the Eastern Bering Sea
PUB: Ecol. Model 29(1-4):327-351
ABSTRACT:

Fish migrations in the eastern Bering Sea are simulated by DYNUMES, a multispecies, biomass-based numerical ecosystem simulation model with a spatial resolution of 63.5 km. Migrations are simulated by redistributing the biomass over the grid. The model is initialized to reproduce mean ecosystem processes. Computed monthly temperatures representative of a cold year (1976) and a warm year (1981) are then input to the model. Spatial and temporal changes among the 'mean,' cold and warm-year simulations are evident in the spring migration patterns. Simulated onshore migrations of walleye pollock and of yellowfin and rock sole (a combined species group in the model) began 2 months later in the cold year than in the mean. Summer distribution patterns were established during the warm year one month earlier than in the mean. Groundfish survey data for yellowfin sole and pollock from 1976 and 1981 show qualitative agreement with model results.

-2071-
AUTHOR(S): POLGAR, T.T.
YEAR: 1981
TITLE: Larval Retention: Transport and Behavior, or Differential Mortality?
PUB: Estuaries 4(3):276-277
ABSTRACT:

Apparent retention of eggs and larvae in estuaries can be attributed to both biotic and abiotic mechanisms, and each of these could be further classified according to active and passive modes of action. The evolution of striped bass ichthyoplankton patterns in the Potomac Estuary seems to be controlled by passive transport, differential mortality in space and time, and in the last semiplanktonic stage, by shoaling behavior. The net result of the actions of these mechanisms is the apparent superposition of all early stage distributions within a limited segment of the estuary, in the

oligohaline-tidal fresh region. Mathematical modeling of these processes and other supporting data confirm that the described combination of mechanisms offers a plausible explanation of striped bass larval retention in the estuary.

-2072-
AUTHOR(S): POLLACK, S.
YEAR: 1986
TITLE: Northeast Fishermen Look for Better Times Ahead
PUB: Natl. Fishermen [YEARB], 66(13):6-8
ABSTRACT:
Details are given for nine of the American East Coast fisheries in 1985: groundfish, lobster, scallops, surfclams, swordfish squid and butterfish, striped bass, herring, and tuna.

-2073-
AUTHOR(S): POMMERANZ, T. AND H. G. MOSER
YEAR: 1987
TITLE: Data Report on the Vertical Distribution of the Eggs and Larvae of Northern Anchovy, Engraulis mordax, at Two Stations in the Southern California Bight, March-April 1980
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Southwest Fisheries Center, NOAA Tech. Mem. NOAA-TM-NMFS-SWFC-75, 140 pp.
ABSTRACT:
Knowledge of the vertical distribution of eggs and larvae of the northern anchovy, Engraulis mordax, is needed for conducting research cruises designed to estimate the spawning biomass of that species. Oblique and vertical plankton net tows employed in various estimation methods must encompass the entire extent of anchovy egg and larvae. Past studies have not used the more advanced multiple opening and closing net systems that serially sample discrete depth strata and associated environmental parameters. In view of this we conducted a cruise during March-April 1980 using the MESSHAI system as the primary sampler. This report presents a detailed listing of data collected on that cruise.

-2074-
AUTHOR(S): POOLE, J.C.
YEAR: 1966
TITLE: A Review of Research Concerning Summer Flounder and Needs for Further Study
PUB: N.Y. Fish Game J. 13:226-231
ABSTRACT:
Current knowledge of the summer flounder and its fishery consist of catch data length-weight relationships and findings from a few studies of life history. Some of this information is useful in describing the fishery, but to a great extent the data provide little that is necessary for evaluating the fishery's effects upon the resource. There is need for: (1) racial studies, initially limited to meristics; (2) a study of larvae and postlarvae by ocean sampling from Nantucket to Cape Hatteras to delineate the early nursery grounds; and (3) a cooperative study of the migratory patterns of immature summer flounder with exploratory efforts confined initially to Pamlico Sound and other appropriate areas of North Carolina.

-2075-
AUTHOR(S): POOLE, R. AND D. GOTSHALL
YEAR: 1965
TITLE: Regulations and the Market Crab Fishery
PUB: Calif. Dep. Fish. Game, Outdoor Calif. 26(9):6-7
ABSTRACT:

The purpose of this article is to report on the regulations of the market crab (Cancer magister). Statewide crab landings fluctuate seasonally and reached an all-time high of 19 million lbs in the 1956-57 season, followed by a record low of 2 million lbs in 1963-64. Due to recent low landings from 1960-65, the present regulations need to be examined critically. Based on current knowledge of the maturity, growth, mating activity, and age of the market crab, the 6.25 inch size limit appears to be adequate protection for the resource. Only male crabs are harvested. Only a few males are needed to fertilize a large number of females because of their polygenous behavior and a long mating season (March to July). Since few females attain widths exceeding 6.25 inches and 98% of the mature female crabs examined had been fertilized, it appears that the current size regulation is adequate protection for the resource even though nearly all legal-sized males are taken. Preliminary tagging results indicate that crabs may migrate out of Humboldt Bay into ocean waters as they attain legal size and north or south of the Bay, depending on the direction of the inshore current.

-2076-
AUTHOR(S): PORTER, H.J.
YEAR: 1971
TITLE: The North Carolina Scallop Fishery--A Bonanza to Shell Collectors
PUB: North Carolina Shell Club Bulletin 6:24-25
ABSTRACT:

The Atlantic Deep-Sea Scallop (Placopecten magellanicus Gmelin), fishery off North Carolina occurs north of Cape Hatteras in waters over 150 ft depth. The fishery, fished mainly by boats out of the Norfolk area, was small-yearly production for North Carolina in 1968 to 1970 = 0 to 92,000 lbs. Shell material from this fishery should be of interest to collectors, when available, since it contains examples of the more northern shells rarely found on North Carolina beaches. Mrs. Lucy Piper (Gloucester, North Carolina) has several large "Striate Cup-and Saucer" shells which she collected from a deep-sea scallop fishing trawler out of Atlantic, North Carolina.

-2077-
AUTHOR(S): PORTER, H.J.
YEAR: 1973
TITLE: North Carolina Scallop Fishery, 1972-1973
PUB: Am. Malacol. Bull. pp. 48
ABSTRACT:

This talk was illustrated by a silent 16 mm motion picture documenting the fishery. Location, description, and investigative efforts of the 1972-1973 fishery were covered. Scenes showing scallops being caught, types of gear used, fauna associated with scallops, unloading of scallop catch, and pictures of scallop processing by automatic scallop shucking machinery were included. Research and development of film was supported by Grant #456 of the North Carolina Board of Science and Technology.

-2078-
AUTHOR(S): POSGAY, J.A.
YEAR: 1968
TITLE: Trends in the Atlantic Sea Scallop Fishery
PUB: Comm. Fish. Rev. 30:24-26
ABSTRACT:
Great changes have occurred in the Atlantic sea scallop fishery during the past 10 years. New boats for this fishery have been built in Canada; the U.S. fleet has declined. At first, landings went to unprecedented high levels but lately have declined. Prices dropped in the face of abundance, recovered, then rose dramatically when abundance declined moderately. This article explains the changes.

-2079-
AUTHOR(S): POSGAY, J.A.
YEAR: 1979
TITLE: Population Assessment of the Georges Bank Sea Scallop Stocks
PUB: In: Thomas, H.J., ed. Population Assessments of Shellfish Stocks, Rapp. P.-V. Reun. CIEM. Vol. 175, pp. 109-113
ABSTRACT:
This paper discusses the resource (Placopecten magellanicus), the fishery, the scallop's life history, and the methods used to derive estimates of growth, mortality, abundance, and yield.

-2080-
AUTHOR(S): POSGAY, J.A.
YEAR: 1981
TITLE: Grid versus Random Sampling for Ichthyoplankton
PUB: NAFO Sci. Coun. Studies 43(4):31-33
ABSTRACT:
The results of a two-ship ichthyoplankton survey on Georges Bank, one ship sampling systematically on a grid design and the other on a stratified random design, are used to demonstrate that there is no statistically significant difference in the catches of fish eggs and larvae within strata.

-2081-
AUTHOR(S): POSGAY, J.A.
YEAR: 1981
TITLE: Movement of Tagged Scallops of Georges Bank
PUB: Mar. Fish. Rev. 43(4):19-25
ABSTRACT:
The reported locations of recapture of tagged sea scallops show little evidence of any widespread movement. Eighty-five percent of the reported recoveries were less than 10 miles from the points of release. The direction of movement was generally along the axis of the strongest tidal current.

-2082-
AUTHOR(S): POSGAY, J.A.
YEAR: 1982
TITLE: Sea Scallop, Placopecten magellanicus
PUB: In: Fish Distribution MESA New York Bight Atlas, Monograph 15. New York Sea Grant Institute, Albany, New York, pp. 130-133
ABSTRACT:
The Middle Atlantic Bight is a complex ecosystem characterized by rapid latitudinal changes in water temperatures and associated fauna. Subtropical and boreal fish fauna overlap in the region from Cape Hatteras to Georges

Bank, resulting in a highly diverse fish community with large seasonal fluctuations in distributions. The general ecology of Sea Scallop, Pacopecten magellanicus, species, fish, and shellfish in the Middle Atlantic Bight is summarized in terms of 1) distribution and seasonal movements, 2) population size and fisheries, 3) reproduction-growth-lifespan, 4) feeding interrelationships, and 5) environmental sensitivity to pollutants and natural environmental factors.

-2083-
AUTHOR(S): POWELL, A.B.
YEAR: 1974
TITLE: Biology of the Summer Flounder, Paralichthys dentatus, in Pamlico Sound and Adjacent Waters, with Comments on P. lethostigma and P. albigutta
PUB: M.S. Thesis, Univ. of North Carolina, Chapel Hill, 145 pp.
ABSTRACT:
The biology of P. dentatus, P. lethostigma, and, to a lesser extent, P. albigutta was studied in Pamlico Sound and adjacent waters from June 1971 through July 1972.

-2084-
AUTHOR(S): POWELL, A.B. AND F.J. SCHWARTZ
YEAR: 1977
TITLE: Distribution of Paralichthid Flounders (Bothidae: Paralichthys) in North Carolina Estuaries
PUB: Chesapeake Sci. 18(4):334-339
ABSTRACT:
Summer flounder, P. dentatus, and southern flounder, P. lethostigma, extensively use Pamlico Sound and adjacent estuaries as nursery areas. Young gulf flounder, P. albigutta, are rarely found. Flounders remain in the estuaries for the first 18-20 months of their life before moving into ocean waters. Benthic substrate and salinity are the two most important factors governing distribution. Southern flounder are most abundant in areas of low salinity and clayey silt or organic rich mud bottoms. Summer flounder are most abundant in areas of moderate to high salinities and sandy bottom.

-2085-
AUTHOR(S): POWELL, A.B., D.E. HOSS, W.F. HETTLER, D.S. PETERS, L. SIMONEAUX AND S. WAGNER
YEAR: 1987
TITLE: Abundance and Distribution of Ichthyoplankton in Florida Bay and Adjacent Waters
PUB: NMFS, U.S. Dept. of Commerce, NOAA, Southeast Fisheries Center, Beaufort Lab. SFRC-87/01, 45 pp.
ABSTRACT:
An ichthyoplankton survey was carried on in Florida Bay and adjacent waters that focused on the abundance and distribution of larvae of four target species--red drum (Sciaenops ocellata), snook (Centropomus undecimalis), gray snapper (Lutjanus griseus), and spotted seatrout (Cynoscion nebulosus). Twenty sampling stations were established--eight to document larval entry into Florida Bay and adjacent estuarine waters, and 12 within Florida Bay and adjacent estuarine waters--to provide insight into larval fish distribution and movement. Although our research focused on the four target speices, we were able to gain an insight into the distribution and abundance of non-gamefish within Florida Bay and adjacent waters. One of the most striking patterns was the dominance by and ubiquitous distribution of gobiid larvae.

-2086-
AUTHOR(S): POWELL, D.
YEAR: 1975
TITLE: Age, Growth, and Reproduction in Florida Stocks of Spanish Mackerel, Scomberomorus maculatus
PUB: Fla. Mar. Res. Pub. No. 5.22
ABSTRACT:
During the period January 1968 through December 1969, Spanish mackerel were sampled from commercial and sport landings throughout Florida. Age and growth were determined by examination and mathematical analysis of otoliths. Reproduction was evaluated upon the basis of microscopic examination of ovarian sections.

-2087-
AUTHOR(S): POWELL, D., L.M. DWINELL AND S.W. DWINELL
YEAR: 1972
TITLE: An Annotated Listing of the Fish Reference Collection at the Florida Department of Natural Resources Marine Research Laboratory
PUB: Marine Research Laboratory, Florida Department of Natural Resources, Special Scientific Report No. 36, 179 pp.
ABSTRACT:
This document is a catalog of the fish reference collection at the Marine Research Laboratory of the Florida Department of Natural Resources. Information is presented on length data and, where possible, specific capture locations.

-2088-
AUTHOR(S): POWELL, D.E.
YEAR: 1950
TITLE: Observations on the Commercial Fishing Potentialities in the Offshore Waters of North Carolina (January-February 1950)
PUB: Commer. Fish. Rev. 12(7):1-7
ABSTRACT:
Catches during the entire operation were disappointing from the commercial viewpoint; however, the information gained concerning the trawlability of the bottom is of much value in determining the possibilities of expanding the trawl fishery in these waters. In a total of 162 tows, only 4 bad snags were encountered. Thus it can be seen that a large percentage of the bottom is free of trawling hazards and could be fished effectively if fish were found to move into the area at other seasons. The high-water temperatures encountered may be connected with the fact that the month of January was extraordinarily warm in North Carolina, being the second warmest in January in 79 years in that State. It is possible, on fishing this area in an ordinary year when colder temperatures prevail, that different results from those recorded here would be obtained.

-2089-
AUTHOR(S): POWELL, D.E. AND A.E. PETERSON
YEAR: 1957
TITLE: Experimental Fishing to Determine Distribution of Salmon in the Northern Pacific Ocean, 1955
PUB: U.S. Fish and Wildl. Ser. Spec. Sci. Rep. Fish. No. 205, Washington, DC, 30 pp.
ABSTRACT:
Distribution of salmon on the high seas in the North Pacific Ocean was investigated by the U.S. Fish and Wildlife Service during the summer and early

fall of 1955. Three vessels conducted extensive gill-net operations over a 3-1/2 month period in the Gulf of Alaska and in the offshore waters south of the Aleutian Islands and the Alaska Peninsula, with a limited amount of fishing off the coasts of Oregon, Washington, and British Columbia. Results showed that the several species of North American salmon and the steelhead trout were widely distributed in the open ocean at that time of year and could be sampled readily with surface gill nets. Salmon were caught at all stations occupied from off northern Vancouver Island across the Gulf of Alaska as far west as Unalaska Island. Catches farther west and in more southerly waters revealed an apparent southern limit for high-seas salmon at about 47 degrees N. latitude in the area of major operation. South of this line in the warmer waters albacore replaced salmon in the gill-net catches. Length measurements of all salmon were taken aboard the vessels and are presented graphically according to species and by mesh size.

-2090-
AUTHOR(S): POWELL, G.C.
YEAR: 1969
TITLE: Fishing Mortality and Movements of Adult Male King Crabs (Paralithodes camtschatica Tilesius) Released Seaward from Kodiak Island, Alaska
PUB: Trans. Am. Fish. Soc. 93(3):295-300
ABSTRACT:

In October 1960, 800 large male king crabs were tagged and released in two groups 12 miles off the coast of Kodiak Island in ocean waters 100 fathoms deep. Adult male crabs were abundant in this area as well as in adjacent areas. No evidence of separate stocks was obtained. Two hundred sixty-three of these tagged crabs were recaptured by American fishermen during the 218 days of fishing which occurred after tagging and prior to the molt season. Harvest of tagged animals was 33% excluding tag loss. Adult male king crabs were available for commercial harvest in state waters during winter and spring and available in international waters during summer and fall. Most of the tagged crabs were recaptured from state waters. All of those captured after January came from the bays, indicating that shoreward movements occur before this time. Travel towards shore and away from shore is more predominant than travel along the coast.

-2091-
AUTHOR(S): POWER, E.A.
YEAR: 1961
TITLE: Fisheries of the United States, 1960
PUB: U.S. Dept. of the Interior, Fish and Wildlife Service, Bureau of Commercial Fisheries, 59 pp.
ABSTRACT:

The yield from the United States commercial fisheries in 1960 was 4.9 billion pounds--the nation's third largest. Only in 1956, when a record catch of 5.3 billion pounds was taken, and in 1959 was the annual harvest greater. A sharp decline in the landings of menhaden, Alaska herring, Pacific sardines, and miscellaneous species used in the manufacture of industrial products resulted in the reduced volume of the catch. Increases occurred in catches of Pacific salmon, jack mackerel, Maine herring, crabs, and yellowfin tuna.

-2092-
AUTHOR(S): POWER, E.A.
YEAR: 1963
TITLE: Fisheries of the United States, 1962
PUB: U.S. Dept. of the Interior, Fish and Wildlife Service, Bureau of Commercial Fisheries, 62 pp.
ABSTRACT:
The total catch of 5,240 million pounds was slightly above that of the previous year and the nation's second largest. The $381 million paid to fishermen was the highest in history although the average price per pound of 7.3 cent was only a little better than in 1961 and below the average price in some previous years. There were substantial gains in the landings of flounders in New England, sea herring at Maine ports, Alaska salmon and king crabs, and shrimp in the South Atlantic and Gulf States. Menhaden were again taken in large volume and accounted for nearly 43% of the total catch of all species.

-2093-
AUTHOR(S): POWER, E.A.
YEAR: 1964
TITLE: Fisheries of the United States, 1963
PUB: U.S. Dept. of the Interior, Fish and Wildlife Service, Bureau of Commercial Fisheries, 64 pp.
ABSTRACT:
The catch of both edible and nonedible items declined; the pack of canned fish dropped; stocks of frozen shellfish increased sharply; serious marketing problems arose as a result of the inadvertent sale of contaminated fish; and, for the first time, imports provided over half the U.S. supply of fishery products. The catch of 4,750 million pounds was 11% less than the record 5,534 million pounds taken in 1962. Fishermen received $378 million for the catch--5% less than the record $369 million received in 1962.

-2094-
AUTHOR(S): POWER, E.A.
YEAR: 1965
TITLE: Fisheries of the United States, 1964
PUB: U.S. Dept. of the Interior, Fish and Wildlife Service, Bureau of Commercial Fisheries, 71 pp.
ABSTRACT:
U.S. fishermen caught 4,523 million pounds in 1964 worth $390 million. The volume was caused by sharp declines in landings of menhaden and Atlantic herring, and reduced catches of Pacific halibut and mackerel, tuna, shrimp, and Atlantic ocean perch. The high value of the 1964 landings resulted from a larger catch of high-priced Pacific salmon, blue crabs from the Atlantic and Gulf waters, and Alaska king crabs, together with increased average prices for tuna, shrimp, and sea scallop meats.

-2095-
AUTHOR(S): POWER, J.H.
YEAR: 1983
TITLE: Larval Anchovy (Engraulis mordax) Drift in the California Current: Results of a Simulation Model
PUB: NOAA/NMFS/SWFC, Admin. Rep. LJ-83-23
ABSTRACT:
To evaluate the extent of drift of northern anchovy, Engraulis mordax, larvae, a simulation model was developed. A graphical representation of

results is presented for the California Current. A manuscript with a related discussion is available from the La Jolla Laboratory of the Southeast Fisheries Center. The model was based upon a finite-difference approximation to the two-dimensional form of the advection-diffusion equation, with no mortality or input of eggs and larvae after the initiation of 30 days. Larvae were permitted to be advected out of the modeled region and into the Santa Barbara channel south of Point Conception, while transport across islands was not permitted. Geostrophic currents, Ekman currents, and final currents were computed. The effects of enhanced upwelling was evaluated. The overall 30-day larval distributions were summarized.

-2096-
AUTHOR(S): POWER, J.H.
YEAR: 1986
TITLE: A Model of the Drift of Northern Anchovy Engraulis mordax Larvae in the California Current Pacific Ocean
PUB: U.S. Natl. Mar. Fish. Serv. Fish. Bull. 84(3):585-604
ABSTRACT:
The drift of northern anchovy, Engraulis mordax, larvae in the California Current to unfavorable offshore areas may be an important factor contributing to larval mortality, and hence it may affect recruitment and subsequent adult population size.

-2097-
AUTHOR(S): POWERS, J. (ED.)
YEAR: 1983
TITLE: Report of the Southeast Fisheries Center Stock Assessment Workshop, Aug. 3-6, 1982
PUB: NMFS, Southeast Fisheries Center, Miami, FL. SEFC-127, 234 pp.
ABSTRACT:
Contents: Species group reports; (billfish, swordfish and sharks, groundfish and coastal pelagics, marine mammals and turtles, menhaden and coastal herrings, reef fish and reef resources, shrimp); general research recommendations; literature cited; appendices.

-2098-
AUTHOR(S): POWLES, H.
YEAR: 1978
TITLE: Larval Distributions and Recruitment Hypothesis for Snappers and Groupers of the South Atlantic Bight
PUB: Proc. Annual Conf. S.E. Assoc. Fish and Wildl. Agencies 31:362-371
ABSTRACT:
Present taxonomic status permits discussion of larvae of vermilion snapper (Rhomboplites aurorubens), other snappers combined (Lutjanidae), and all groupers combined (Serranidae, subfamily epinephelinae). Larvae of these groups together comprise less than 1% of the total larval fish catch from neuston and bongo samplers in shelf waters of the South Atlantic Bight. Larvae of groups and snappers are most abundant in spring and summer, respectively. Larvae are distributed in outer shelf and upper slope waters, where current is northerly. Northerly current may predominate in affecting larval drift (in which case populations may primarily be recruited from the Caribbean or Gulf of Mexico), or a significant proportion of larvae spawned in the Bight may be retained by currents throughout development to settling.

-2099-
AUTHOR(S): POWLES, H. AND B.W. STENDER
YEAR: 1976
TITLE: Observations on Composition, Seasonality and Distribution of Ichthyoplankton from MARMAP Cruises in the South Atlantic Bight in 1973
PUB: South Carolina Wildlf. Mar. Resour. Dep. Cent., Tech. Rep. Ser. No. 11, 47 pp.
ABSTRACT:

A wide variety of young fishes was sampled in 1973; sixty familes were identified from bongo catches, 67 from neuston collections. Thirteen orders were represented in each case. The numbers of families taken were undoubtedly higher than this; eels were not identified to family and certain of the mesopelagic groups may not have been identified. The variety of fish families reflects the diversity of environments (the mesopelagic, epipelagic, slope, shelf, neritic, coastal, and estuarine) inhabited by fishes whose larvae and juveniles were sampled. The variety of the catch also reflects the diversity of the shelf and coastal fish faunas of the tropical and warm temperate western North Atlantic. Both tropical and warm temperature assemblages are represented in our collections, the tropical through drift of young fishes into the South Atlantic Bight in the Florida Current, and the warm temperature as the faunal assemblages of the South Atlantic Bight Shelf. It has been noted that no sampling method produces such a taxonomically and ecologically diverse assemblage of fishes as ichthyoplankton sampling.

-2100-
AUTHOR(S): POWLES, H. AND B.W. STENDER
YEAR: 1978
TITLE: Taxonomic Data on the Early Life History Stages of Sciaenidae of the South Atlantic Bight of the U.S.
PUB: South Carolina Wildl. Mar. Resour. Cent. Tech. Rep. No. 31, 64 pp.
ABSTRACT:

The sciaenids are abundant fishes of coastal waters of the Bight and are important components of sport fisheries and catches incidental to shrimp trawling.

-2101-
AUTHOR(S): POWLES, H., F. AUGER AND G.J. FITZGERALD
YEAR: 1984
TITLE: Nearshore Ichthyoplankton of a North Temperate Estuary
PUB: Can. J. Fish. Aquat. Sci. 41(11):1653-1663
ABSTRACT:

Composition of ichthyoplankton in the nearshore zone (0-6 km from shore) of the St. Lawrence Estuary showed important differences from that farther offshore. In particular, larvae of herring Clupea harengus), winter flounder (Pseudopleuronectes americanus), and smooth flounder (Liopsetta putnami) made up a greater proportion of the ichthyoplankton than in published surveys farther offshore. Peak catches of larval herring were 1-2 orders of magnitude higher than in offshore waters. Winter flounder and smooth flounder larvae were significantly more abundant less than or equal to 500 m from shore than 1-6 km offshore; significant abundance gradients were not found for other species. Nearshore areas have received considerably less effort than offshore areas in earlier studies, and we suggest that more intensive studies in the

nearshore zone, at least for those species mentioned, would be of importance for elucidating early life history processes and for estimating spawning biomass based on ichthyoplankton surveys.

-2102-
AUTHOR(S): POWLES, H., R. LASKER AND K. SHERMAN (EDS.)
YEAR: 1981
TITLE: Distribution and Movements of Neustonic Young of Estuarine Dependent (Mugil spp., Pomatomus saltatrix) and Estuarine Independent (Coryphaena spp.) Fishes Off the Southeastern United States
PUB: In: The Early Life History of Fish: Recent Studies, Rapp. P.-V. Reun. CIEM. Vol. 178, pp. 207-209
ABSTRACT:
M. cephalus (striped mullet), M. curema (white mullet), and Pomatomus saltatirx (bluefish) spawn in continental shelf waters off the southeastern US; juveniles enter estuaries of the region and pass the first summer's growth period there. The purpose of this study was to elucidate mechanisms of transport of young stages to the estuaries through an examination of distribution and abundance of larvae in continental shelf and upper slope waters. Results were compared with those on larvae of Coryphaena hippurus (dolphin) and Coryphaena equisetis (pompano dolphin), which also spawn in shelf and upper slope waters but which remain in the pelagic habitat throughout their life cycle.

-2103-
AUTHOR(S): PRATT, D.C. AND E.D. JEWELL
YEAR: 1973
TITLE: The 1971 Lake Washington Sockeye Salmon Tagging Study
PUB: NOAA/NMFS, Washington, D.C., Project No. AFC-56, 34 pp.
ABSTRACT:
During June and July of 1971, 3,709 sockeye salmon (Oncorhynchus nerka) were tagged in the area from Discovery Bay to Seattle, Washington. Sport, commercial, and Indian fisheries returned 1,120 tags, while spawning migration observations at a weir and counting tower on the Cedar River, and spawning ground surveys provided sufficient information to estimate the timing and destination of an additional 1,486 tagged sockeye.

-2104-
AUTHOR(S): PRICE, RICHARD L.
YEAR: 1981
TITLE: Georges Bank: An Annotated Bibliography of Atlases, and Map Series
PUB: NOAA, Woods Hole Oceanographic Institution, 75 pp.
ABSTRACT:
The bibliography reviews inventory-like studies of the Georges Bank region and presents information on the scope of the work, topics treated, geographic area of concern, and audience. The primary purpose was to evaluate the nature and type of maps used in the works reviewed so the notations include the number of maps, their formats and scales, cartographic quality, and base map content.

-2105-
AUTHOR(S): PRICE, W.W. AND R.A. SCHLUETER
YEAR: 1985
TITLE: Fishes of the Littoral Zone of McKay Bay Tampa Bay System Florida
PUB: Fla. Sci. 48(2):83-96

ABSTRACT:

Fishes in the littoral zone of McKay Bay, Florida, were sampled by seine from May 1977 to August 1978. Weekly collections were made in May and June 1979, following heavy rains. A total of 23,740 individuals representing 15 families and 31 spp. was collected. Ten species (Menidia peninsulae, Mugil cephalus, Fundulus similis, Anchoa mitchilli, Leiostomus xanthurus, Harengula jaguana, Lagodon rhomboides, Cyprinodon variegatus, Fundulus grandis, and Pogonias cromis) comprised 97.7% of the catch. Individuals were more numerous from late November to early June than in the remaining months. Species richness was greatest in late spring and summer and least in winter. The most abundant species were either permanent bay residents or juvenile migratory forms that used McKay Bay as a nursery area from winter through mid-summer. Growth rates of young-of-the-year migratory forms are presented. Reduced salinities in May to June 1979 apparently caused the exodus of juveniles migratory forms and allowed an increase in abundance of permanent residents.

-2106-
AUTHOR(S): PRISTAS, P.J. AND L. TRENT
YEAR: 1978
TITLE: Seasonal Abundance Size and Sex Ratio of Fishes Caught with Gill Nets in St. Andrew Bay, Florida
PUB: Bull. Mar. Sci. 28(3):581-589
ABSTRACT:

Sampling with monofilament gill nets was conducted in a Florida (U.S.A.) bay for 72 consecutive hours every 2 wk from January 10th to December 27th 1973. The total catch of 11,230 fish consisted of 70 spp. and one hybrid. Fishes of 10 families comprised over 97% of the total catch. Pelagic fishes comprised 46% of the total catch. The 10 most abundant species were: gulf menhaden, Brevoortia patronus; spot, Leiostomus xanthurus; sea catfish, Arius felis; pinfish, Lagodon rhomboides; blue runner, Caranx crysos; pigfish, Orthopristic chrysoptera; Atlantic croaker, Micropogon undulatus; bluefish, Pomatomus saltatrix: Spanish mackerel Scomberomorus maculatus; and yellowfin menhaden, B. smithi. Periods of abundance for these 10 spp. were: gulf menhaden, spot, and pigfish in fall, winter, and spring; sea catfish and bluefish in spring and summer; pinfish in spring and fall; Atlantic croaker in fall; and yellowfin menhaden in spring. Most specimens were adults. Females generally outnumbered males. Species composition of, and inferences of, seasonal abundance from catches by gill net, trawl, and beach seine were compared.

-2107-
AUTHOR(S): PROVENZANO, A.J., J.M. MCCONAUGHA AND D.F. JOHNSON
YEAR: 1983
TITLE: Significance of the Neuston Layer in the Dispersal of Larvae of the Blue Crab Callinectes sapidus (Rathbun)
PUB: J. Shellfish Res. 3(1):99
ABSTRACT:

The distribution of larval blue crabs (C. sapidus) in the water column affects their transport out of Chesapeake Bay and during the larval period. The patterns of vertical distribution are not similar to those of other crab species in the region. First stage larvae are found predominantly in the neuston layer during the hatching season in the mouth of Chesapeake Bay and are carried seaward by the ebb tides. Later developmental stages, including the megalopae, are also found predominantly in the nueston or upper 1 m, with very few being caught in intermediate layers or near bottom. Up to 99% of

stage I larvae in the bay mouth and more than 70% of all Callinectes larvae of all stages even offshore were found above 1 m.

-2108-
AUTHOR(S): PROVENZANO, A.J., JR., J.R. MCCONAUGHA, K.B. PHILIPS, D.F. JOHNSON AND J. CLARK
YEAR: 1983
TITLE: Vertical Distribution of First Stage Larvae of the Blue Crab, Callinectes sapidus, at the Mouth of Chesapeake Bay
PUB: Estuarine Coastal Shelf Sci. 16(5):489-499
ABSTRACT:
The vertical distribution of stage 1 blue crab larvae, near the mouth of Chesapeake Bay, was examined over four diurnal cycles. Each of two stations was occupied for 30 hours twice during the summer of 1979. On each of the four cruises, peak larval abundance occurred after a nighttime high slack tide, suggesting a synchronized hatch of blue crab larvae. 90-99% of all larvae collected were taken in the neuston layer. The apparent timing of the hatches to coincide with the beginning of an ebb tide and the concentration of larvae in the neuston layer strongly suggest seaward transport of these early-stage larvae and the probability of offshore development.

-2109-
AUTHOR(S): PRUTER, A.T.
YEAR: 1973
TITLE: Development and Present Status of Bottomfish Resources in the Eastern Bering Sea
PUB: J. Fish. Res. Board Can. 30(12, Part 2):2373-2385
ABSTRACT:
Fisheries for bottomfish in the Bering Sea are largely a post-Second World War development, with landings having increased from 13,000 metric tons in 1954 to an estimated 2 million metric tons in 1971. Most of the harvest is off Alaska in the southeastern sector of the Bering Sea, where conditions are most favorable for development of resources and fisheries. In 1970 and 1971, Japan accounted for approximately 84% and the U.S.S.R. 15% of the combined harvest by all nations. South Korea, the U.S., and Canada took the remaining 1% of the harvest. Initial target of the fisheries of Japan and U.S.S.R. was yellowfin sole. Yields of yellowfin sole were not sustained and Japan shifted attention to Alaska pollock. Production of Alaska pollock in 1970 from the North Pacific (about half is from the Bering Sea) was tied with Atlantic cod for second place in worldwide landings of a single species. Analysis of condition of resources is handicapped by unavailability of adequate statistics for earlier years of the fishery. Even for those participants who provided detailed statistics, information is usually lacking on quantities of fish discarded, and changes in fishing gear and fishing tactics that need to be corrected for in assessing the condition of stocks. There is no institutional mechanism for Bering Sea or the North Pacific that makes it mandatory for all nations to provide common and comprehensive statistics on their fisheries and to undertake joint management.

-2110-
AUTHOR(S): PRYTHERCH, H.
YEAR: 1983
TITLE: A Descriptive Survey of the Bottom Longline Fishery in the Gulf of Mexico
PUB: NOAA/NMFS, SEFC-122, 39 pp.

ABSTRACT:
This study describes the following: survey methodology; descri ption of the fishery; description of longline fishing operations; dockside interviews; observer trips; price structure by species; marketing the catch; the influence of fish size on price.

-2111-
AUTHOR(S): PRYTHERCH, H.F.
YEAR: 1980
TITLE: A Directory of Fishery Data Collection Activities Conducted by the Statistical Surveys Division in the Southeast Region of the United States
PUB: NOAA/NMFS, SEFC-16, 98 pp.
ABSTRACT:
This report is part of an effort to describe and evaluate the present data collection systems now operating within the SEFC of the NMFS in order (1) to facilitate the flow of information in a more timely and continuous manner, (2) to identify and eliminate unnecessary duplication, (3) to determine those components of the collection and analysis process which may more easily and accurately be accomplished by computers, and (4) to recommend for implementation those procedures which seem likely to contribute to a better data collection system.

-2112-
AUTHOR(S): PULLEN, E.J.
YEAR: 1962
TITLE: A Study of the Fishes of Upper Galveston Bay
PUB: Texas Game and Fish Commission Marine Lab. Proj. No. M-2-R-3. Job No. A-2
ABSTRACT:
Forage fish and juvenile game fish samples were taken regularly with standard trawls and seines, while trammel nets, gill nets, beach seines, and rod and reel were used extensively to sample adult game fish. Hydrographic and climatological data were collected in conjunction with each sample to correlate these factors with the seasonal abundance, occurrence, and distribution of the collected vertebrates.

-2113-
AUTHOR(S): PULLEN, E.J.
YEAR: 1963
TITLE: A Study of the Juvenile Shrimp Populations, Penaeus aztecus and Penaeus setiferus, of Galveston Bay
PUB: Marine Fish Proj. Rep. 1962. Texas Game and Fish Commission, Region V. Rockport, Texas Proj. No. MS-R-4. Job No. 3
ABSTRACT:
One hundred and twenty-three samples were collected producing 3,085 white shrimp and 3,703 brown shrimp. Juvenile brown shrimp entered the bay in three waves in April, July, and August. Young whites entered in three waves in July, August, and September. The brown shrimp was the more abundant species. Samples produced about one-third as many brown and white shrimp as those of 1961 and about one-tenth as many as those of 1960. Temperatures followed the normal seasonal trend, except for the freeze in January and a 6 degree centigrade decline in March. The reduced amount of rainfall and river flow this year resulted in the higher bay salinities than in 1960-61.

-2114-
AUTHOR(S): PULLEN, E.J.
YEAR: 1963
TITLE: Population Studies of the Blue Crabs of the Galveston Bay System
PUB: Texas Game and Fish Commission Marine Lab. Proj. No. MC-R-1. Job. No. 2
ABSTRACT:

Trawls, seines, and trammel nets were used to sample the Galveston Bay crab populations. The data collected were used in determining the seasonal abundance of the crabs as compared to previous years sampling. Blue crab populations in 1962 appeared to be larger than in 1961. The female population lagged behind the male in abundance all months in 1962 except April, October, and December. The movement of adult crabs appeared to be governed by their search for food, reproductive cycle, and seasonal temperatures. Juveniles remained in the bay all seasons, moving toward the primary bay as they grew. Growth rate of the juvenile crabs was 0.4 millimeters per day.

-2115-
AUTHOR(S): PULLEN, E.J.
YEAR: 1963
TITLE: A Study of the Bay and Gulf Populations of Shrimp: Penaeus aztecus, Penaeus setiferus, and Penaeus duorarum
PUB: Marine Fish Proj. Rep. 1962. Texas Game and Fish Commission, Region V. Rockport, Texas Proj. No. MS-R-4. Job. No. 1
ABSTRACT:

During the 1962 study 894 shrimp samples were collected on the Texas Coast from Galveston to the Lower Laguna Madre. These samples produced 42,745 brown shrimp and 18,072 white shrimp.

-2116-
AUTHOR(S): PULLEN, E.J. AND W.L. TRENT
YEAR: 1969
TITLE: White Shrimp Emigration in Relation to Size, Sex, Temperature and Salinity
PUB: FAO Fish. Rep. 3:1001-1019
ABSTRACT:

This study was conducted on juvenile and subadult white shrimp, Penaeus setiferus (Linnaeus), emigrating from Galveston Bay, Texas, to the Gulf of Mexico. Surface midwater, and bottom tows were made with a 3-m otter trawl on ebbing tides from 1 August 1966 to 27 January 1967. Sampling was usually conducted during the day. Five peaks of emigration occurred from 19 October through 25 December, coinciding with water temperatures between 19 degreee and 8 degree C in the tidal pass. The catch per unit of effort increased significantly from the surface to the bottom of the water column. Sharp drops in water temperature appeared to stimulate shrimp emigration. The mean lengths of shrimp caught were similar between water depths and sexes on a given sampling date, but decreased with progress of the season and decreasing temperature; there was no obvious relation between length and salinity. Of 2,964 white shrimp caught in the tidal pass, 55.1% were females, but the sex ratio was not significantly different from 1:1.

-2117-
AUTHOR(S): PURVIS, C.E. AND E.G. MCCOY
YEAR: 1972
TITLE: Overwintering Pink Shrimp, Penaeus duorarum, in Core and Pamlico Sounds, North Carolina
PUB: North Carolina DNRCD. DMF. Moorehead City, NC, 29 pp.

ABSTRACT:

The ojective sought by the shrimp studies project is to obtain population dynamics information for pink shrimp in the Pamlico-Core Sound areas leading to management resulting in optimum sustained yield of the resource. Pink shrimp (Penaeus duorarum) were marked with biological stains and fluorescent pigments and released in the Pamlico and Core Sound areas. A total of 9,510 pink shrimp was released from September to November: 4,774 in Core Sound and 4,736 in Pamlico Sound. Of these, 947 (20%) were returned from Core Sound and 4,736 in Pamlico Sound. Throughout the experiment the modes of length-frequency distribution curves remained constant at 85-95 mm total length for Core Sound and 534 (11%) from total length in Pamlico Sound. This consistency is apparently caused by constant recruitment of juvenile shrimp into the mark-release area, a continuing fishery effort on the larger individuals within the population, no significant growth, and no migration. The results from these mark-recapture experiments strongly indicate that migration of pink shrimp from Pamlico Sound to the ocean, from Pamlico Sound to Core Sound, and from Core to the ocean does not occur in the fall to any appreciable degree. Mass migration, as well as significant growth, is brought to a halt by cooler water temperatures in the fall. Migration and growth resume in the spring when stimulated by rising water temperatures. Total mortality (Z=F+X= fishing plus natural mortality) estimates reveal that the mean total reductions per week for all experiments was 27.0% for the fall of 1970 and 29.5% for spring 1971 overwintering survivors. These data indicate that the total weekly loss of harvestable pink shrimp in estuarine areas during the fall remains relatively constant from the time the early arrivals reach acceptable commercial size until they are caused to hibernate in the substrate by low water temperatures.

-2118-
AUTHOR(S): PURVIS, C.E. AND E.G. MCCOY
YEAR: 1974
TITLE: Population Dynamics of Brown Shrimp in Pamlico Sound
PUB: N.C. Dep. Nat. Econ. Resour., Div. Commer. Sports Fish., Spec. Sci. Rep. 25
ABSTRACT:

The objective of this study was to obtain population dynamics information necessary to formulate management policies for optimum sustained yields of brown shrimp in Pamlico Sound. The data indicate that the greater portion of mortality was attributed to natural causes. Yield curves indicated maximum biomass occurred at a size much smaller than suggested for maximum economic yield.

-2119-
AUTHOR(S): QUAST, J.C.
YEAR: 1968
TITLE: Estimates of the Populations and the Standing Crop of Fishes
PUB: Calif. Dep. Fish Game Fish Bull. 139:57-59
ABSTRACT:

The standing crop of fishes associated with kelp forecasts off San Diego, California, and northern Baja California, Mexico, was estimated with two methods: (1) visual censuses of underwater belt transects and (2) treatment with rotenone of a 0.55 acre area enclosed by 0.75 inch mesh wall net. Estimated densities of P. clathratus from a La Jolla kelp forest averaged around 1.2 fish per 100 m transect which was calculated to be 20.0 per acre. P. clathratus density estimates were examined with respect to kelp abundance and local fishing pressure. Presence or absence of giant kelp, Macrocystis

pyrifera, had little effect on P. clathratus densities when fishing pressure was light or absent. Kelp abundance was positively related to P. clathratus densities in areas of moderate fishing pressure. M. pyrifera is not necessary for the maintenance of dense P. clathratus populations composed of large fish. However, indirect evidence suggests that P. clathratus prefer stands of M. pyrifera to sites where M. pyrifera is absent.

-2120-
AUTHOR(S): QUAST, J.C.
YEAR: 1968
TITLE: Fish Fauna of the Rocky Inshore Zone
PUB: In: North, W.J. and C.L. Hubbs, eds. Utilization of Kelp-Bed Resources in Southern California. Calif. Dep. Fish Game Fish Bull. 139:35-55
ABSTRACT:
Describes the species composition of fishes associated with Macrocystis pyrifera, kelp beds, and the geographic and bathymetric ranges of these species. P. clathratus was the most commonly encountered fish species observed during surveys of kelp forests in the San Diego area.

-2121-
AUTHOR(S): QUAST, J.C.
YEAR: 1974
TITLE: Density Distribution of Juvenile Arctic Cod, Boreogadus saida, in the Easternn Chukchi Sea in the Fall of 1970
PUB: U.S. Natl. Mar. Ser. Fish. Bull. 72(4):1094-1105
ABSTRACT:
The arctic cod, Boreogadus saida (Lepechin), is a key element in the ecosystem of the Arctic Ocean. Juveniles, principally young-of-the-year, were taken by Isaacs-Kidd midwater trawl at night during September and October 1970 in the Eastern Chukchi Sea. The average concentration was about 28 per 1,000 m (SUP-3), and the average biomass was about 0.70 metric ton per square kilometer of ocean surface. In 20 stations (representing about 30 to 10 (SUP-3) km (SUP-2), or 8,714 square nautical miles, the number of juvenile cod (N) per standard haul (about 8.223 per cubic meter of water filtered per haul) increased with depth in meters (D) at about the same rate (log (SUB-10) N-0.0669D). Yet the depth at which equivalent concentration occurred varied over a range of 38 m between stations. The zone of increased concentration with depth, called a density structure, appears to be the nighttime relict of graded negatively phototactinic response to sunlight by the juvenile cod during preceding daylight. Apparently the structure was vertically displaced afterward by wind-induced upwelling and downwelling. The juvenile cod may have originated in the north-western Bering Sea, of arctic Siberia, or within the Chukchi Sea, and probably had recycled in the Chukchi Sea prior to capture.

-2122-
AUTHOR(S): QUEIROLO, L.E.
YEAR: 1988
TITLE: Measuring the Economic Implications of Prohibited Species By-Catch Mortality, Including Loss of Reproductive Potential, in Nonselective Multispecies Commercial Fisheries
PUB: NOAA/NMFS, Dept. of Commerce, Northwest and Alaska Fisheries Center, Seattle, WA, 97 pp.
ABSTRACT:
The objective of this analysis is the development of a methodological approach that would permit a more complete evaluation of the physical and

economic consequences of prohibited species by catch losses, such as occur in the harvest of groundfish.

-2123-
AUTHOR(S): QUEIROLO, L.E., R.K. KINOSHITA AND J.E. SMOKER
YEAR: 1988
TITLE: Status Report on the North Pacific Groundfish Industry, 1986
PUB: NOAA/NMFS, Dept. of Commerce, Northwest and Alaska Fisheries Center, Seattle, WA, 24 pp.
ABSTRACT:
The report presents the catch, ex-vessel value, products, and markets for North Pacific groundfish. The U.S. groundfish fleet in the North Pacific in 1986 is summarized by type of fishery, gear utilized, size, and ex-vessel value. The trends in consumption and imports of groundfish products are reviewed, and the recently developed surimi market is discussed.

-2124-
AUTHOR(S): QUINN, I.P.
YEAR: 1985
TITLE: Homing and the Evolution of Sockeye Salmon (Oncorhynchus nerka). Presented at Symposium on Migration, Port Aransas, TX, 30 Oct-2 Nov 1983
PUB: In: Rankin, M.A., D.Checkdey, J. Cullen, C. Kitting, P. Thomas, eds.). Migration: Mechanisms & Adaptive Significane. Mar. Sci. Inst., Univ. of Texasat Austin, Port Aransas, TX. Contrib. Mar. Sci. 68:353-36
ABSTRACT:
This paper (1) reviews evidence for homing in sockeye salmon (O. nerka), (2) examines the extent to which populations of these species are specialized for their river-lake systems, (3) proposes three factors that may influence the occurrence of straying in salmon populations and species, and (4) discusses the importance of straying in establishing the current distribution of salmon following the Wisconsin glacial period, roughly 10,000 years ago.

-2125-
AUTHOR(S): QUIRILLO, L.F.
YEAR: 1985
TITLE: Status of California Dover Sole Stocks
PUB: In: Pac. Fish. Manage. Counc., Status of the Pacific Groundfish Fishery through 1985 and Recommended Acceptable Biological Catches for 1986, pp. 7-1 to7-4
ABSTRACT:
Estimates of Dover sole landed in the Eureka, Monterey, and Pt. Conception areas of California are stated for 1972-1985. Most Dover sole production comes from the Eureka and Monterey areas, but the Pt. Conception area is increasing the most rapidly (3-fold increase in landings in 1984). The 1985 Dover sole harvest in California is projected to exceed 10,000 metric tons, possibly resulting in the highest catch on record.

-2126-
AUTHOR(S): R.G. FECHHELM, J.S. BAKER, W.B. GRIFFITHS AND D.R. SCHMIDT
YEAR: 1989
TITLE: Localized Movement Patterns of Least Cisco (Coregonus sardinella) and Arctic Cisco (C. autumnalis) in the Vicinity of a Solid-Fill Causeway
PUB: D.W. Norton (ed.). In: Research Advances on Anadromous Fish in Arctic Alaska and Canada. Fairbanks, AK: Institute of Arctic Biology, Biological Papers of the Univ. of Alaska No. 24, pp. 75-106

ABSTRACT:

This paper assesses the short-term movements and distribution of two species of ciscoes (Coregonus autumnalis and C. sardinella) in relation to a solid-fill causeway (West Dock) based upon results of studies conducted in Prudhoe Bay from 1981 through 1985. When winds blow from the east, West Dock modifies nearshore hydrographic and circulation regimes to such an extent that the eastward dispersals of ciscoes are delayed or blocked. Under the reserved situation (westerly winds confronting westward-dispersing ciscoes), the effects of West Dock are less clear-cut. Local conditions largely determine whether one of these man-constructed intrusions may seriously affect a delicate, fragile environment, or may be insignificant quirks to populations that have survived millennia of such adversities.

-2127-
AUTHOR(S): RABIN, D.J. AND R.A. BARNHART
YEAR: 1986
TITLE: Population Characteristics of Pacific Herring, Clupea harengus pallasi, in Humboldt Bay, California
PUB: Calif. Fish Game 72(1):4-16
ABSTRACT:

Population characteristics of Pacific herring, Clupea harengus pallasi, were determined for spawning stocks in Humboldt Bay. Fecundity was estimated to be 220 + or - 35 eggs per gram. Biomass of herring was estimated to be 372 tons (237mt) in 1974-75 and 232 tons (210mt) in 1975-76. Spawning occurred from early December to early March both years, primarily in north Humboldt Bay. Two- and three-year-old herring accounted for about 46% and 57% by number respectively for the 1974-75 and 75-76 spawning stocks.

-2128-
AUTHOR(S): RADCLIFFE, L.
YEAR: 1914
TITLE: The Offshore Fishing Grounds of North Carolina
PUB: U.S. Bur. Fish. Econ. Circ., No. 8, 6 pp.
ABSTRACT:

The offshore fishing for sea basses of North Carolina possesses certain features which should recommend it to many fishermen. It can be conducted in the wintertime, out of the regular fishing season, at a time when market supply of this fish is limited and therefore when the species will bring the highest market price. It is believed that it will be to the advantage of the fishermen to abandon the fishery during the spring and summer seasons when the prices of these fish are lowest. It is believed that a more exhaustive survey, especially in the region off Frying Pan Shoals and to eastward, may disclose still other grounds, extending the scope of the industry.

-2129-
AUTHOR(S): RADCLIFFE, L.
YEAR: 1921
TITLE: Fishery Industries of the United States: Report of the Division of Statistics and Methods of the Fisheries for 1920
PUB: U.S. Dept. of Commerce. Bureau of Fisheries, Document Number 908, pp. 58-59
ABSTRACT:

The statistics of the fisheries contained in this report apply to the commercial coast fisheries of North Carolina, South Carolina, Georgia, and the eastern coast of Florida for the calendar year 1918. The report contains a general discussion of the statistics for the U.S. South Atlantic Coast. In

addition, a detailed discussion is included concerning the commercial fishery of North Carolina. This discussion includes statistics dealing with the fisheries by county, the persons engaged, investment and products of the fishery, yield per vessel, yield of shore fisheries, and the yield by apparatus.

-2130-
AUTHOR(S): RADOVICH, J. AND A.D. MACCALL
YEAR: 1979
TITLE: A Management Model for the Central Stock of the Northern Anchovy, Engraulis mordax
PUB: CalCOFI Rep. 20:83-88
ABSTRACT:

Maximum potential yield of the northern anchovy, Engraulis mordax, is estimated at 60% of the mean fishable biomass, with potential yields in 1951-1972 ranging from 1.5 to 2.4 million tons. If low population abundance in 1951 were due to poor year-classes from environmental variability, then high levels could be temporary and fishing not sustainable. The logistic growth curve is used as a more reliable estimate of sustainable yield based on observed dynamics. Due to violated assumptions, this model must be viewed as an empirical description of population growth. Several years of observations may be needed to get a true population response to fishing pressure. Advantages of this curve over others include: it is based on observed rather than assumed growth, it does not rely on fishery catch and effort data, and it yields a more cautious estimate of maximum sustainable yield. This management model is aimed at maintaining optimum spawning biomass, resulting in a more variable fishery but with a much lessened risk of fishery collapse.

-2131-
AUTHOR(S): RALSTON, S., R.M. GOODING AND G.M. LUDWIG
YEAR: 1986
TITLE: An Ecological Survey and Comparison of Bottom Fish Resources Assessments (Submersible Versus Handline Fishing) at Johnston Atoll
PUB: Fish. Bull. 84(1):141-156
ABSTRACT:

The deep slope (100-355 m) environment at Johnston Atoll in the central Pacific was surveyed with a submersible and the standing crop of commercially important bottom fishes (i.e., lutjanids, serranids, and carangids) was estimated by visual quadrat censuring. Results are compared with an assessment made by hook-and-line fishing. Overall, 69 species of fish were recorded from the submersible and 10 from fishing. Well over half of the sighting by the submersible were new locality records. Bottom fish abundance estimates (fish/hectare and fish-linehour) varied by site but agreed broadly with one another. Together they are used to estimate catchability (0.0215 hectare/line-hour), which is shown to vary through the day. Bottom fish were contagiously dispersed along both vertical and horizontal dimensions, with increased numbers of the snapper, Pristipomoides filamentousus, in upcurrent localities. On a finger scale this species and Etelis coruscans were aggregated near underwater promontories and headlands, but at different depths.

-2132-
AUTHOR(S): RAMSEY, P.R. AND J.M. WAKEMAN
YEAR: 1987
TITLE: Population Structure of Sciaenops ocellatus and Cynoscion nebulosus (Pisces: Sciaenidae): Biochemical Variation, Genetic Subdivision and Dispersal
PUB: Copeia, No. 3, pp. 682-695
ABSTRACT:

Genetic variation was examined in red drum and spotted seatrout sciaenid marine fishes that differ in life-history components such as age and size at maturity, longevity, and migratory behavior. Survey of 22 enzymes and seven structural proteins (40 loci) revealed that measures of genetic variability and F-statistics were comparable to those for other sciaenids. As suggested from life-history components and supported by allelic dispersion, regional differentiation, and autocorrelation analysis, the less mobile and more rapidly maturing species, spotted seatrout, displays isolation-by-distance. Less divergence of red drum in bays is contrary to expectation based on relative inshore abundance of the two species.

-2133-
AUTHOR(S): RANEY, E.C.
YEAR: 1952
TITLE: The Life History of the Striped Bass, Roccus saxatilis (Walbaum)
PUB: Bull. Bingham Oceanogr. Collect. Yale Univ. 14:5-177
ABSTRACT:

The striped bass, Roccus saxatilis, is important to both commercial and sporting interests on the Atlantic and Pacific coasts of North America. This study reviews the literature dealing with its biology, notes the research projects now underway, and makes recommendations for future research.

Keys give characteristics by which this fish may be separated from its relatives; there are also references to published descriptions and illustrations of the eggs, larvae, postlarvae, young, yearling, and adults. Racial studies indicate that the soft dorsal rays, anal rays, and pectoral rays give some promise as a means of separating different populations. A study of the growth rates, as revealed by the scales during the first 2 years, indicates the possibility of identifying various stocks.

-2134-
AUTHOR(S): RATHJEN, W.F.
YEAR: 1959
TITLE: Trawling for Gulf Snapper--A Summary of FWS Research
PUB: Fishboat 4(5):31
ABSTRACT:

A 2-year research program, now nearing completion, is the first test of trawling as a means of taking Gulf snapper. Report on area coverage--the first phase of the study--is encouraging. The compilation of data on the second phase of the work--production fishing--may show that use of the trawl is commercially more productive than the traditional hook and hand-line method.

-2135-
AUTHOR(S): RATHJEN, W.F.
YEAR: 1959
TITLE: Experimental Trawling for Red Snapper
PUB: Proc. 11th Annu. Sess. Gulf Caribb. Fish. Inst. pp. 128-132

ABSTRACT:

The commercial fishery for red snapper in the Gulf of Mexico is carried on almost exclusively by hand-line operations. In many instances during recent years, the fishery has taken advantage of electronic devices such as loran and depth-recording equipment. The use of mechanical reels is now widespread in the red snapper fishery. The basic approach to the production of red snapper, however, has remained essentially the same during the past century, in that the hook and line method of fishing accounts for practically all of the present catch.

-2136-
AUTHOR(S): REAGAN, R.E.
YEAR: 1985
TITLE: Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Gulf of Mexico)--Red Drum
PUB: National Coastal Ecosystems Team, Slidell, LA, and Army Engineer Waterways Experiment Station, Vicksburg, MS, 28 pp.
ABSTRACT:

Species profiles are literature summaries of the taxonomy, morphology, distribution, life history, and environmental requirements of coastal aquatic species. They are prepared to assist in environmental impact assessment. The red drum (Sciaenops ocellatus) is an estuarine-dependent species. It spends its entire life in estuaries or nearshore coastal waters of the Gulf of Mexico. Commercial landings in Louisiana (1971-81) ranged from 723,700 to 2,212,500 lb. Texas closed commercial fishing in 1979. In most Gulf States, the sport catch usually exceeds commercial landings. There are few data on population dynamics of the species. Larval and juvenile red drum eat primarily invertebrates; adults feed on fish, shrimp, and crabs.

-2137-
AUTHOR(S): RECKSIEK, C.W. AND H.W. FREY
YEAR: 1978
TITLE: Background of Market Squid Research Program, Basic Life History, and the California Fishery
PUB: Fish. Bull. 169:7-10
ABSTRACT:

This section briefly introduces the research project composition and span of the study conducted on the market squid. The basic biology, life history, and a brief description of the market squid fishery are also discussed.

-2138-
AUTHOR(S): RECKSIEK, C.W. AND H.W. FREY (EDS.)
YEAR: 1978
TITLE: Biological, Oceanographic and Acoustic Aspects of the Market Squid, Loligo opalescens
PUB: Fish. Bull. 169, 185 pp.
ABSTRACT:

The market squid, Loligo opalescens, was the subject of a 3-year study of its life history. Histological work on spermatogenesis and oogenesis showed the market squid spawns only once in its life between 1 and 2 years of age. Several animals were aged, utilizing statolith rings. The results showed a period of fast growth during the first year and slower growth the second year. The major prey item of the squid (determined by gut content analysis) were euphausids. Other crustaceans, cephalopods, and fish were a minor constituent of the squid's diet. Predators included 19 species of fish, many birds, and at least 9 species of marine mammals, suggesting the squid represents an

important trophic link between zooplankton and larger marine organisms. Several aspects of the squid's dietary behavior patterns were recognized by acoustic tracings. Correlations between hydrographic and catch data showed a tendency for good catches to follow warm water trends, while poor catches were associated with cool water trends. Several methods were utilized to determine if subpopulations existed and the results suggest at least two (northern and southern) stocks of Loligo opalescens are present.

-2139-
AUTHOR(S): RECKSIER, C.W. AND J. KASHIWADA
YEAR: 1979
TITLE: Distribution of Larval Squid, Loligo opalescens, in Various Nearshore Locations
PUB: Moss Landing Mar. Lab., Rep. CCOFI. 20:31-34
ABSTRACT:

Three distinct sampling efforts employing different plankton-collecting gears aimed at collecting California market squid, Loligo opalescens, in nearshore waters from San Diego to Monterey Bay are described. Larval L. opalescens occurrence in the hauls was low and patchy, corroborating the experience of past workers. Over the Monterey spawning grounds, the use of a specifically designed bottom-fishing plankton net was found to be more generally effective than the other gears.

-2140-
AUTHOR(S): REED, W.J.
YEAR: 1986
TITLE: Analyzing Catch-effort Data Allowing for Randomness in the Catching Process
PUB: Can. J. Fish. Aquat. Sci. 43(1)174-186
ABSTRACT:

For many fisheries the only reliable data is from a (bivariate) time series of catches and efforts. Most existing methods of analyzing such data implicitly assume that the main source of randomness is in the dynamics of the population, while ignoring randomness in the catching process. The assumption of a deterministic catch production function (usually of the Schaefer form $C = qEX$) must be contrary to the experience of almost everyone who has ever gone fishing. In this paper a stochastic catch model coupled with a deterministic dynamic model is used in the analysis of catch-effort data and shown to give very plausible results. Estimates (with confidence intervals) of catchability, maximum sustainable yield, and other dynamic model parameters are obtained numerically by the method of maximum likelihood. The incorporation of stochastic dynamics with the stochastic catch model is difficult.

-2141-
AUTHOR(S): REES, G.H.
YEAR: 1963
TITLE: Edible Crabs of the United States
PUB: Fish Wildl. Serv., Bur. Comm. Fish, Fish. Leaf. 550. 18 pp.
ABSTRACT:

The biology and natural history of crabs (Arthropoda, Crustacea, Decapoda, Brachyura, and Anomura) as well as growth and molting, reproduction, development, and regeneration of lost limbs are discussed. The commercially important species from the Atlantic Coast, Pacific Coast, and Hawaii were described. In 1961, the Atlantic fishery produced 155,458,000 pounds of crab valued at $8,427,000; blue crab accounted for 98% of the landings. The

Pacific Coast fishery produced 32,699,000 pounds of Dungeness crab ($4,977,000), 43 million pounds of king crab ($3.9 million), and only 7,000 pounds of Tanner crab ($1,000).

-2142-
AUTHOR(S): REEVES, J.
YEAR: 1987
TITLE: Incidental Crab Catches Associated with Rock Sole in Bristol Bay
PUB: NOAA/NMFS, Dept. of Commerce, Northwest and Alaska Fisheries Center, 17 pp.
ABSTRACT:
This potential development of a domestic fishery targeting on rock sole in the Bering Sea has raised questions concerning the nature of incidental crab catches which might occur. No data are available regarding discards from such a fishery. The intent of this report is to assemble current information on the location of the rock sole resource, and on crab bycatches experienced by foreign and joint-venture operations in major rock sole habitat, as a way of providing some background for the study of such questions.

-2143-
AUTHOR(S): REEVES, J.E.
YEAR: 1982
TITLE: Data Requirements for Tanner Crab Management, as Suggested by the Bristol Bay King Crab Management Model
PUB: Proceedings of the International Symposium on the Genus Chionoecetes, May 3-6, 1982. Lowell Wakefield Symposia Series, pp. 697-716
ABSTRACT:
This report describes a model for management of the Bristol Bay red king crab (Paralithodes camtschatica) stock and its application. The model has been jointly adopted by the Alaska Board of Fisheries and the North Pacific Fishery Management Council as part of the Fisheries Management Plan for Bering Sea and Aleutian Islands king crab stocks (NPFMC 1982). In presenting this model, emphasis is placed on its use for identifying high-priority research areas for biological management. The model deals with establishing quotas, exploitation rates, and minimum size limits for male crabs on an annual basis, the effect of male removal on reproductive success, and the abundance of harvestable stock.

-2144-
AUTHOR(S): REEVES, J.E. AND R. MARASCO
YEAR: 1980
TITLE: An Evaluation of Alternative Management Options for the Southeastern Bering Sea King Crab Fishery
PUB: Northwest and Alaska Fisheries Center, Seattle, WA, 85 pp.
ABSTRACT:
Management options of: (1) relaxed quotas, (2) lowered size limits, and (3) extended seasons are compared with multiple age group management currently employed to reduce dependency on a stock dominated by new recruits. The management options are compared to actual management policy by modeling the major features of the southeastern Bering Sea fishery for the 1970-79 period, and then altering the model to reflect the new management options. For management option one, relaxed quotas, economic analysis of catch and effort indicate that annual returns to the fleet were maximized when effort was increased moderately to double the historical level. However, if price goes down with the size of crabs in the catch, the gain is reduced. For management option two, lowered size limits, a 5.25-inch minimum size limit produced

higher annual returns to the fleet than either a 6-inch limit or the limit actually in force, 6.5 inches. Gains under the lowest size limit were further increased when effort was doubled. Gains were rapidly reduced, however, if price was related to size of crab in the catch. Management option three, the extended season, produced higher annual returns than the actual policy, especially if late season effort is doubled rather than some lesser increase. Gains increased slightly when price was related to size.

-2145-
AUTHOR(S): REID, G.K., JR.
YEAR: 1955
TITLE: A Summer Study of the Biology and Ecology of East Bay, Texas, Part II. The Fish Fauna of East Bay, the Gulf Beach, and Summary
PUB: Tex. J. Sci. 7(4):430-453
ABSTRACT:

Faunal collections were made with otter trawls, seines, a trammel net and other gear. A total of 26,851 fish specimens were caught in the bay. Of these, 19,055 fishes were taken in the otter trawl, 7,425 in the seines, and 371 by means of a trammel net. Fifty species of cartilaginous and bony fishes were recorded for East Bay. These species represent 46 genera and 30 families. Anchovies (Anchoa mitchilli diaphana and A. hepsetus), spot (Leiostomus xanthurus), croaker (Micropogonias undulatus), and menhaden (Brevoortia patronus) were the most conspicuous fishes during the period of investigation. Within the bay, there were indications of distributional patterns wherein some species were found more abundantly in certain areas. The great numbers of young Micropogonias undulatus, Leiostomus xanthurus, and Brevoortia patronus pointed to the role of the bay as a nursery ground. Predation on the young fishes was severe, especially on Brevoortia patronus. Food was apparently abundant; zooplankton, shrimp, and a pelecypod, Macoma mitchelli, were taken by many species. Only a few species showed evidence of active breeding during the summer. Collections in the Gulf caught 4,540 specimens of fishes representing 25 species. Five species taken in the Gulf were not caught in the bay. Of the species common to both areas, size differences and variations in relative abundance were observed.

-2146-
AUTHOR(S): REID, R.N., A.B. FRAME AND A.F. DRAXLER
YEAR: 1979
TITLE: Environmental Baselines in Long Island Sound, 1972-73
PUB: NOAA/NMFS, Seattle, WA, NOAA Tech. Rep. 35 pp.
ABSTRACT:

Quasi-synoptic surveys of water column temperature, salinity, nutrients and dissolved oxygen, sediment grain sizes and organic content, and benthic macrofauna were conducted throughout Long Island Sound in July-August 1972, and in April and September 1973. Temperatures were fairly uniform both vertically and horizontally except for some vertical stratification in July-August 1972. Salinities increased gradually from east to west, while depth-related differences were minor. Concentrations of all nutrients measured indicated that inputs at the western end dominated nutrient distributions for the Sound. Dissolved oxygen decreased from east to west and with increasing water temperature. Bottom dissolved oxygen values below 2 mg/l were recorded at several stations in the western Sound in summer 1972. As a rule, sediments of deep waters in the central and western Sound consisted of silts and clays, whereas sands predominated along the Long Island shoreline and in the eastern basin. Sediment organic matter reached highest values (to 10%) in the westernmost Sound. Three assemblages of benthic macrofauna were

identified via cluster analyses of 1972 data: a bivalve-dominated (especially Mulinia lateralis) group in muddy, deepwater regions; a shallow sandy assemblage in which the bivalves Spisula solidissima, Tellina agilis, and Ensis directus predominated and a third assemblage with transition in both sediment characteristics and species composition, but with increased dominance by several polychaete species. The mud-bottom and transitional fauna underwent large decreases in numbers of species and individuals from 1972 to 1973.

-2147-
AUTHOR(S): REIERSEN, L.-O.
YEAR: 1982
TITLE: The Biology of Common Flatfishes, A Selected Bibliography
PUB: Rep. Forsknings program Hauforurens./Norw. Mar. Pollut. Res. Monit. Programme. 225 pp.
ABSTRACT:

The publication is an indexed bibliography of literature dealing with eight selected northern flatfish species; Limanda limanda, Paralichthys dentatus, Paralichthys lethostigma, Platichthys flesus, Platichthys stellatus, Pleuronectes platessa, Pseudopleuronectes americanus, and Solea solea. The objectives of the bibliography are to identify literature specifically dealing with different aspects of flatfish biology, and to provide a basic reference document for use in research related to flatfish biology. The bibliography includes publications from 1895 to 1980, with emphasis on research done during the last decades.

-2148-
AUTHOR(S): REILLY, P.N.
YEAR: 1983
TITLE: Dynamics of Dungeness Crab, Cancer magister, Larvae Off Central and Northern California U.S.A.
PUB: Calif. Dep. Fish Game Fish. Bull. 172:57-84
ABSTRACT:

The purpose of this study was to identify any life history stages that may be critical to the recruitment and survival of the adult populations of Dungeness crabs in the Gulf of the Farallons and San Francisco Bay. Cancer magister larvae were found from mid-December (Zoea I) until early March (megalopa). Spawning appears to be concentrated in October and early November with most of the larvae hatching by late January. Stage I larvae of C. magister were found to occur occasionally with Stage I larvae of C. productus and C. oregonensis, although in much greater numbers. Stage I zoea also evidenced diel vertical migration, being more abundant at the surface by night. Horizontal dispersal was noted during early zoel stages. As the stages progressed, they were found farther out from the Gulf of Farallons. The relative abundance of megalopae was directly related to the subsequent year class of juvenile crabs. The critical stage in the life history of Cancer magister to subsequent year class strength of juvenile crabs was found to be during zoel stages and early megalopal development. However, it was not possible to determine more precisely which early life stages are the most critical.

-2149-
AUTHOR(S): REINTJES, J.W.
YEAR: 1960
TITLE: Continuous Distribution of Menhaden Along the South Atlantic and Gulf Coasts of the United States
PUB: Proc. Gulf Caribb. Fish. Inst. 12:31-35
ABSTRACT:
The fishing grounds and the location of plants for processing menhaden are determined by the seasonal occurrence and abundance of the fish. Annual, seasonal, and geographical fluctuations in fish availability and abundance have troubled the menhaden industry from its beginning. This report discusses the nature and extent of the menhaden fishery of the Atlantic and Gulf Coasts of the United States and how these influence the management of this fishery.

-2150-
AUTHOR(S): REINTJES, J.W.
YEAR: 1970
TITLE: The Gulf Menhaden and Our Changing Estuaries
PUB: Proc. Gulf Caribb. Fish. Inst. 22: 87-90
ABSTRACT:
This is a brief review of the role of estuaries in the life cycle of Gulf menhaden, Brevoortia patronus. Surveys of 36 selected Gulf Coast estuaries give indexes of the relative abundance of juvenile menhaden.

-2151-
AUTHOR(S): REINTJES, J.W.
YEAR: 1979
TITLE: A Review of the Clupeoid and Carangid Fishery Resources in the Western Central Atlantic
PUB: Western Central Atlantic Fishery Commission (WECAFC). WECAFC Studies Number 6, 30 pp.
ABSTRACT:
Available information about the identity, biology, distribution, abundance, and fishery of clupeoids and carangids has been reviewed to formulate new opportunities for fishery development in the WECAFC project area. Although some species or species groups have been identified that could be harvested at a higher level than at present, the quality and amount of existing information prevents the calculation of any reliable estimates about their fishery potential. The absence of reliable quantitative estimates should not prevent reasonable fishery development efforts.

-2152-
AUTHOR(S): REINTJES, J.W. AND A.L. PACHECO
YEAR: 1966
TITLE: The Relation of Menhaden to Estuaries
PUB: In: A Symposium on Estuarine Fisheries., Am. Fish. Soc. Spec. Publ. 3, pp. 50-58
ABSTRACT:
Menhaden, genus Brevoortia, use estuaries along the Atlantic and Gulf coasts of the United States as nursery areas for more than half of their first year of life. The Atlantic menhaden, B. tyrannus, and Gulf menhaden, B. patronus, support the largest fishery in North America and reported observations mainly concern these species. Spawning occurs in the Atlantic Ocean and Gulf of Mexico. After hatching and early development, the larvae move into estuaries. The time spent in the ocean before entering the estuaries is not known. Larvae move into the tributaries near the upstream

limits of saline water. Water temperatures below 3o C deter entry into the estuaries, inhibit movements into the tributaries, and cause mass mortalities. Temperatures below 3oC killed larvae confined in the laboratory at salinities of 24‰ but effects varied somewhat with acclimation temperatures. Larvae and juvenile menhaden were collected in salinities of 1‰ or less along the Atlantic and Gulf coasts of the United States. Along the south Texas coast, juveniles survived salinities up to 60‰ but were killed by 80‰. Other physical, chemical, and biological factors affecting young menhaden are mentioned but supporting data are few. Literature citations include most of the publications on the estuarine phase of the menhaden's life history.

-2153-
AUTHOR(S): REITSEMA, L.A.
YEAR: 19
TITLE: Determine Seasonal Abundance, Distribution and Composition of Zooplankton
PUB: In: Jackson, W.B. and G.M. Faw, ed. Biological/Chemical Survey of Texoma and Capline Sector Salt Dome Brine Disposal Sites off Louisiana, 1978-79. NOAA/NMFS Dept. of Commerce, NMFS-SEFC-26, 133 pp.
ABSTRACT:
Five stations were sampled for zooplankton at each of two sites offshore Louisiana during four collection periods during 1978 and 1979. Each site is a proposed location for the offshore disposal of brine for the Strategic Petroleum Reserve Program. The purpose of this study was to characterize the sites in terms of the seasonal and spatial zooplankton and ichthyoplankton communities.

-2154-
AUTHOR(S): REITSEMA, L.A., B.J. GALLAWAY, G.S. LEWBEL AND W.B. JACKSON
YEAR: 1982
TITLE: Shrimp Population Studies. West Hackberry and Big Hill Brine Disposal Sites off Southwest Louisiana and Upper Texas Coasts, 1980-1982
PUB: Shrimp Spawning Site Survey, Vol. 4, NMFS, Galveston, TX, 100 pp.
ABSTRACT:
The abundance and spawning activity of white and brown shrimp (Penaeus setiferus and P. aztecus) were investigated from September 1980 through September 1981 in an area off the upper Texas and lower Louisiana coasts, including the West Hackberry brine disposal site and the proposed Big Hill brine disposal site.

-2155-
AUTHOR(S): RENFRO, W.C.
YEAR: 1964
TITLE: Life History Stages of Gulf of Mexico Brown Shrimp
PUB: U.S. Fish Wildl. Circ. 183:94-98
ABSTRACT:
With research on the biology and dynamics of all stages of shrimp expanding rapidly along the Gulf coast, there has arisen a need to standardize criteria used to classify shrimp according to their life history stage. The purpose of this report is to propose a set of standard terms for the life stages of the brown shrimp, Penaeus aztecus (Penaeidae), in the Gulf of Mexico. It was necessary to be quite arbitrary in defining some of these terms, which will be of value only when they are generally accepted and used. Total length (tip of rostrum to end of tail) was selected as the criterion for

separating stages more advanced than the postlarval. This is a common field measurement, and graphs and formulae are available for its conversion to carapace length or to weight.

-2156-
AUTHOR(S): RENFROE, W. AND H. BRUSHER
YEAR: 1982
TITLE: Seasonal Abundance, Size Distribution, and Spawning of Three Shrimps (Penaeus aztecus, P. setiferus, and P. duorarum) in the Northwestern Gulf of Mexico,1961-62
PUB: NOAA/NMFS, NOAA Tech. Memo. NMFS-SEFC-94
ABSTRACT:

A study of offshore commercial shrimp populations in Texas and Louisiana waters was conducted during 1961 and 1962. Seasonal abundance, distribution, and size composition are described for brown, white, and pink shrimp. Spawning seasons and areas, determined from histological examination of 9,424 ovarian slides, are delineated. Of particular interest is the observation that brown shrimp apparently spawn throughout the year at depths of 64m to 110m.

-2157-
AUTHOR(S): REYNOLDS, W.W. AND M.E. CASTERLIN
YEAR: 1979
TITLE: Behavioral Thermoregulation and Activity in Homarus americanus
PUB: Comp. Biochem. Physiol. 64A(1):25-38
ABSTRACT:

American lobsters thermoregulated precisely for 6 days in an electronic shuttlebox (mode 16 degree C; range 15-21 degree C), with no significant difference in mean preferred temperature between night (17.1 degree C.+-. 0.15 SE) and day (17.2 degree C .+-. 0.18 SE), although mean hourly activity was 1.3 times as great at night as during the day. The preferred temperature falls within a zone (15-20 degree C) in which activity decreases with increasing temperature, while activity generally increases with temperature over the range 10-30 degree C; this may have implications for the adaptive value, if not the mechanism, of thermoregulatory behavior. During the second 6 days, thermoregulatory precision declined markedly (range 10-29 degree C; modes at 14 degree C and 26 degree C), perhaps representing a shift from preference to avoidance behavior, while the nocturnal activity pattern remained stable; the frequency distribution of occupied temperature became nearly congruent with the temperature-activity relationship and complementary to the temperature distribution during the first 6 days.

-2158-
AUTHOR(S): REYNOLDS, W.W. AND M.E. CASTERLIN
YEAR: 1985
TITLE: Vagile Macrofauna and the Hydrographic Environment of the Saco River Estuary and Adjacent Waters of the Gulf of Maine
PUB: Hydrobiologia 128(3):207-216
ABSTRACT:

We studied the vagile epibenthic and nektonic macrofauna and hydrographic environments of the Saco River estuary and adjacent waters, including Biddeford Pool lagoon and Saco Bay (Gulf of Maine) [USA], over a 3-year period (1979-82). Twice as many species of vagile macrofauna were found in Saco Bay as in the estuarine environments, and none were found at the head of the estuary below the dam. Field distributions of various species and life stages agreed with their locomotor responses in the laboratory to physicochemical

gradients, supporting the view that habitat correlations are at least in part determined by active habitat preference and/or avoidance behavior of vagile species. We also examined the stomach contents of specimens of two common fish species to determine their local feeding habits. Yearling Pollachius virens fed primarily on Ammodytes americanus, while yearling Pseudopleuronectes americanus stomachs contained primarily small Echinarachinius parma.

-2159-
AUTHOR(S): REZAK, R., T.J. BRIGHT AND D.W. MCGRAIL
YEAR: 1983
TITLE: Reefs and Banks of the Northwestern Gulf of Mexico: Their Geological, Biological, and Physical Dynamics. Executive Summary
PUB: Mineral Management Service, Gulf of Mexico OCS Regional Office, Metairie, LA. TR-83-2-T; MMS-GM-PT-83-016, 42 pp.
ABSTRACT:
This report is a synthesis of data collected from reefs and banks on the Texas-Louisiana Outer Continental Shelf. The purpose of the studies was to geologically and biologically characterize the reefs and banks, provide information on which to base management decisions concerning regulations of oil and gas drilling production near them, and to monitor the environmental impact of oil and gas drilling at the Flower Garden Banks.

-2160-
AUTHOR(S): RICHARD, W.J., T. POTTHOFF, S. KELLEY, M.F. MCGOWAN, L. EJSYMONT, J.H. POWER AND R.M. OLVERA L.
YEAR: 1984
TITLE: Larval Distribution and Abundance of Engraulidae, Carangidae, Clupeidae, Lutjanidae, Serranidae, Coryphaenidae, Istiophoridae, Xiphiidae, and Scombridae in the Gulf of Mexico
PUB: U.S. DOE/NOAA/NMFS, NOAA Tech. Memo. NMFS-SEFC-144, 54 pp.
ABSTRACT:
A Gulf-wide ichthyoplankton survey under the Southeast Area Monitoring and Assessment Program (SEAMAP) was conducted in the spring and early summer of 1982 in the Gulf of Mexico. In this paper we present charts of selected taxa showing their distribution and abundance from bongo, ring net, and neuston net tows.

-2161-
AUTHOR(S): RICHARDS, C.E.
YEAR: 1967
TITLE: Age, Growth and Fecundity of the Cobia, Rachycentron canadum, from Chesapeake Bay and Adjacent Mid-Atlantic Waters
PUB: Trans. Amer. Fish. Soc. 96:343-350
ABSTRACT:
Age, growth, fecundity, and distribution of cobia, Rachycentron canadum, were studied. Data were collected primarily from lower Chesapeake Bay and adjacent mid-Atlantic waters. Age analysis by scale methods, growth estimates by use of Bertalannfy's equation, and observations of juvenile cobia indicate rapid growth. Ten age groups were represented in scale collections from 284 fish, 4.2-56.4 inches in fork length. Fecundity was evaluated as a function of body weight. The spawning season, late June through mid-August, was defined through observation of gonadal tissue. A disproportionate sex ratio for areas within Chesapeake Bay was noted, 74:26 and 28:72 males to females, for eastern and western shore areas respectively. A possible relation between

spawning and a high ratio of males to females was noted for eastern shore areas.

-2162-
AUTHOR(S): RICHARDS, R.A., J.S. COBB AND M.J. FOGARTY
YEAR: 1983
TITLE: Effects of Behavioral Interactions on the Catchability of American Lobster Homarus americanus and 2 Species of Cancer Crab
PUB: U.S. Natl. Mar. Fish. Serv. Fish. Bull. 81(1):51-60
ABSTRACT:

Intraspecific and interspecific behavioral interactions may affect the probability of capturing C. irroratus, C. borealis, and H. americanus in lobster traps. To test this hypothesis, the catch per unit of effort (CPUE) of each of these species in traps stocked with C. irroratus, C. borealis, or H. americanus was compared with that obtained from empty baited traps (controls). In traps stocked with lobsters, the catch of all 3 spp. was significantly reduced. Traps stocked with 8 lobsters caught significantly fewer crabs than traps containing 3 lobsters. The only effect of stocking traps with crabs was to increase the catch of C. borealis in traps stocked with 3 crabs of either species. Results of laboratory experiments comparing crab CPUE in control traps with crab CPUE in traps stocked with 8 lobsters concurred with the field results. When H. americanus was stocked in the holding section (parlor) of the trap, a greater proportion of the crab catch was found in the entrance section (kitchen). This behavioral response may facilitate escape of crabs from traps containing H. americanus. The distribution of the lobster catch was unaffected by stocking H. americanus or Cancer crabs in the parlor. Behavioral mechanisms underlying reductions in crab CPUE were investigated by laboratory observation of an active fishing trap. When H. americanus was stocked, C. borealis avoided entering traps. C. irroratus entered the kitchen of traps containing H. americanus, but the proportion entering the parlor was reduced. The escape rate of both crab species increased in traps stocked with H. americanus. The position underneath the entrace ton the parlor was preferred by all species. When both H. americanus and Cancer crabs were present in the trap, H. americanus occupied that position.

-2163-
AUTHOR(S): RICHARDS, S.W.
YEAR: 1963
TITLE: The Demersal Fish Population of Long Island Sound: III. Food of the Juveniles from a Mud Locality
PUB: Bull. Bingh. Oceanogr. Coll. 18: 32-101
ABSTRACT:

This study identified food of 33 juvenile demersal fish species (19-235 mm) collected at Station. I in Long Island Sound. This consisted of one hydroid, 38 polychaetes, 50 crustaceans, 11 mollusks, and 3 fish. The most important food items were a hydroid (unidentified), Neanthes succinea, Ampharete acutifrons, Pseudodiaptomus coronatus, Temora longicornis, Acartia spp., Balanus balanoides larvae, Neomysis americana, Leptocheirus pinguis, Ampelisca spp., Caprella spp., and Crago septemspinosus. More predators ate N. americana than any other prey, and with respect to both numbers and volume, this form outranked all the other food items. Greater numbers of epifauna were consumed on the whole than infaunal invertebrates. The greatest food diversity occurred in spring and fall, which were also the seasons when the greatest variety of predators occurred.

-2164-
AUTHOR(S): RICHARDS, S.W.
YEAR: 1982
TITLE: Aspects of the Biology of Ammodytes Americanus from the St. Lawrence River to Chesapeake Bay, 1972-75, Including a Comparison of the Long Island Sound Postlarvae with Ammodytes dubius
PUB: J. Northwest Atl. Fish. Sci. 3(2):93-104
ABSTRACT:

Juvenile and adult A. americanus ranging in length from 49 to 235 mm, were collected in 1972-75 between the St. Lawrence River and Chesapeake Bay. Those from inshore tended to be younger than those from offshore and the zero year-class by the end of the first year ranged in length from 80 to 115 mm. Weight increased isometrically, with variations between geographical areas and between seasons of the year. An interspecific cline in meristic index was evident between A. americanus and A. dubius and an inshore-offshore intraspecific cline occurred within the range of A. americanus. Postlarval A. americanus from Long Island Sound differed in pigmentation from A. dubius from the Scotian Shelf. A. americanus rapidly developed a solid line of stomach pigment, but preanal, supradorsal, and subdorsal melanophores, prominent in postlarval A. dubius, developed more slowly in A. americanus.

-2165-
AUTHOR(S): RICHARDS, S.W. AND A.W. KENDALL, JR.
YEAR: 1973
TITLE: Distribution of Sand Lance, Ammodytes Species, Larvae on the Continental Shelf from Cape Cod to Cape Hatteras from R.V. Dolphin Surveys in 1966
PUB: Fish. Bull., U.S. 71:371-386
ABSTRACT:

The abundance and distribution of sand lance larvae (Ammodytes spp.) collected during the R.V. Dolphin cruises are reported. Spatial and temporal distributions as well as diurnal migratory patterns are described. Spawning is reported to occur from late November to late March both offshore and inshore.

-2166-
AUTHOR(S): RICHARDS, S.W. AND G.A. RILEY
YEAR: 1967
TITLE: The Benthic Epifauna of Long Island Sound
PUB: Bull. Bingh. Oceanogr. Coll. 19:89-135
ABSTRACT:

A modified oyster dredge was used to obtain 48 collections from Station I (sand-shell substrate, 9m) and Station 3A (mud, 16-17m) in Long Island Sound during the period between June 1960 and June 1961. The standing crop of benthic invertebrates was determined and their productivity was estimated; the material was examined with particular emphasis on the species that were not only important fish food, but also had not been collected adequately by gear of the type used in previous surveys. The greater diversity of environment at station I resulted in a greater diversity of species there, particularly epifauna, than at station 3A. Of the total of 144 species, 127 occurred at station I, 76 at station 3A, and 59 were collected at both localities.

-2167-
AUTHOR(S): RICHARDS, W.J.
YEAR: 1984
TITLE: Kinds and Abundances of Fish Larvae in the Caribbean Sea and Adjacent Areas
PUB: NMFS, Washington, D.C., NOAA 84072314; 031374000, 65 pp.
ABSTRACT:
Fish larvae were studied from collections made in the western central Atlantic, principally the Caribbean Sea. Larvae were collected with bongo and neuston nets during two cruises of the FRV Oregon II in the summer of 1972 and winter of 1973. Eighty-eight families were represented in the neuston collections, for a total of 97 families represented overall. In the bongo tows, myctophid larvae were the most abundant and were represented in every collection. Gonostomatid larvae ranked second in abundance and occurred in all but two collections. The area is uniform in distribution and abundance of larvae, the exception being the northern coast of South America, an area of upwelling.

-2168-
AUTHOR(S): RICHARDSON, S.L.
YEAR: 1973
TITLE: Abundance and Distribution of Larval Fishes in Waters off Oregon, May-October 1969, with Special Emphasis on the Northern Anchovy, Engraulis mordax
PUB: NMFS, Fish. Bull. 71(3):697-711
ABSTRACT:
Three types of gear, bongos, meter net, and Isaacs-Kidd midwater trawl, are compared for their effectiveness in catching fish larvae. The collected samples were analyzed in terms of species composition, frequency of occurrence, abundance, and dominance of fish larvae. Species in the most important families are described in terms of distribution pattern. The results showed that the dominant species in all three gear types were the same: Engraulis mordax, stenobrachius leucopsarus, Tarletonbeania crenularis, and Sebastes spp. A comparison of shallow versus deep tows showed small anchovy larvae were concentrated near the surface while larvae of myctophids and scorpaenids were more common in deeper waters. The discussion of the distribution of the important species focused on inshore-offshore aspects as no north-south differences were evident except with E. mordax.

-2169-
AUTHOR(S): RICHARDSON, S.L.
YEAR: 1974
TITLE: Development of Young Bluefish (Pomatomus saltatrix) and Distribution of Eggs and Young in Virginian Coastal Waters
PUB: Transactions. Am. Fish. Soc. 103(3):477-497
ABSTRACT:
Cruises were made of Chesapeake Bight from December 1959 through April 1963 to determine species composition and distribution of fishes spawned on the Continental Shelf. Illustrations of young fish, herein provided, now complete figures from newly hatched larvae to juveniles. Verbal descriptions provide prominent features of young bluefish to aid in identification and osteological development and to compare similar-appearing larvae. Bluefish larvae can be distinguished from similar-appearing species (Peprilus triacanthus and Urophycis chuss) with which they were taken in Chesapeake Bight by myomere numbers and pigment patterns. Bluefish larvae closely resemble the larval scombrids, Scomber scombrus and S. japonicus, and larval

carangids. They may be separated by myomere numbers or relative lengths of the preopercular spine.

Continental Shelf waters off the Virginia-North Carolina coast are major spawning grounds of bluefish. Major spawning sites in the Chesapeake Bight were located over the outer half of the shelf between 55 km (30 nautical mi) and 148 km (80 nautical mi) offshore and where water temperatures were 22oC or greater and surface salinities were 31 0/00 or greater. Minimum temperature at the onset of spawning was 18oC and minimum salinity was 26.6 0/00. These data show that bluefish spawning commences in June, peaks in July, and continues into August. Peak spawning activity occurred in early evening near sundown (1900-2100 hr). Eggs are thought to be transported south and offshore by prevailing surface currents. Larval bluefish inhabit surface waters and greatest numbers were found near the edge of the Continental Shelf. Juvenile bluefish move inshore during their first growing season. Despite intensive sampling, none were captured in offshore waters. The authors speculate that with growth young bluefish move to depths above the thermocline. They also suspect that the most important single factor in determining the fate of every year class is the circulation of Continental Shelf waters.

-2170-
AUTHOR(S): RICHARDSON, S.L.
YEAR: 1981
TITLE: Spawning Biomass and Early Life of Northern Anchovy, Engraulis mordax, in the Northern Subpopulation off Oregon and Washington
PUB: U.S. Fish Wildl. Ser. Fish. Bull. 78(4):855-876
ABSTRACT:

A major spawning center for the northern subpopulation of northern anchovy, Engraulis mordax, is documented off the Oregon-Washington coast beyond the Continental Shelf, based on collections of planktonic eggs in July 1975 and July 1976. Spawning appears to be associated with waters of the Columbia River plume, which may provide favorable conditions in terms of stability and productivity for survival of first feeding northern anchovy larvae. Evidence of larval transport south away from the spawning center leads to questions about return mechanisms to explain the occurrence of juveniles in Oregon bays and rivers later in the season. Conditions related to spawning differ between the northern and central subpopulations. Off Oregon, spawning occurs from mid-June to mid-August, when current flow to the south is at a maximum, and day length is at or near maximum duration. Off California, peak spawning occurs from January through April when southward current flow is minimal, water temperatures are reaching minimal levels for the year, upwelling is minimal, and day length is at minimum duration. These factors are indicative of some degree of reproductive isolation as well as differing reproductive strategies between the two subpopulations.

-2171-
AUTHOR(S): RICHARDSON, S.L. AND W.G. PEARCY
YEAR: 1977
TITLE: Coastal and Oceanic Fish Larvae in an Area of Upwelling off Yaquina Bay, Oregon
PUB: U.S. Natl. Mar. Fish. Serv., Fish. Bull. 75(1):125-145
ABSTRACT:

A 1 1/2-yr survey of planktonic fish larvae collected from 2-111 km off the mid-Oregon coast [USA] in 1971-72 yielded 287 samples which contained 23,578 individuals in 90 taxonomic groups, 78 identified at the species level. Two distinct faunal assemblages were found: a coastal assemblage 2-28 km offshore and an offshore assemblage 37-111 km from shore. The coastal group

was dominated by Osmeridae, Parophrys vetulus, Isopsetta isolepis, and Microgadus proximus. The offshore group was dominated by Sebastes spp., Stenobrachius leucopsarus, Tarletonbeania crenularis, Lyopsetta exilis, and Engraulis mordax. Peak abundance in both assemblages occurred between February and July when > 90% of all larvae were taken. Larval distribution patterns in each assemblage were similar in 1971 and 1972, but larval abundance was greater in 1971 than 1972. Ninety-nine percent of the larvae in 53 taxa designated as coastal and 96% of the larvae in 31 taxa designated as offshore were taken 2-28 km or 37-111 km offshore, respectively. This separation of coastal and offshore larvae may be explained, in part, by adult spawning locations and current circulation patterns. The species of larvae present in the coastal assemblage were similar to those in Yaquina Bay, but dominant species were quite different. The coastal zone is an important spawning area for P. vetulus, which utilizes the Yaquina Bay estuary as a nursery during part of its early life.

-2172-
AUTHOR(S): RICHARDSON, SALLY L., J.L. LAROCHE AND M.D. RICHARDSON
YEAR: 1980
TITLE: Larval Fish Assemblages and Associations in the Northeast Pacific Ocean along the Oregon Coast, Winter-Spring 1972-1975
PUB: Estuarine Coastal Mar. Sci. 11:671-699
ABSTRACT:
Patterns of larval fish distributions found along the Oregon coast between the Columbia River and Cape Blanco during the winter-spring months of 1972 to 1975 are described. Coastal, transitional, and offshore fish assemblages are considered.

-2173-
AUTHOR(S): RICHMOND, E.A.
YEAR: 1968
TITLE: A Supplement to the Fauna and Flora of Horn Island, Mississippi
PUB: Gulf Res. Rep. 2(3):213-254
ABSTRACT:
Since the publication of "The Fauna and Flora of Horn Island, Mississippi" (Richmond 1962), a search for unrecorded species present on this island, or in the waters surrounding it, has been ongoing. The premise that all of the plants and animals living in a given area can never be located completely is naturally well founded. However, it seems advisable to continue the search for unlisted species of Horn Island.

-2174-
AUTHOR(S): RIGBY, P.W.
YEAR: 1984
TITLE: Alaska Domestic Groundfish Fishery for the Years 1970 through 1980 with a Review of Two Historic Fisheries-Pacific Cod (Gadus macrocephalus) and Sablefish (Anoplopoma fimbria)
PUB: AK Dept. Fish Game, Anchorage, AK. Tech. Data Rep. No. 108, 446 pp.
ABSTRACT:
Report briefly reviews domestic groundfish fisheries of Alaska and provides detailed catch statistics for years 1970-1980. The more historically significant fisheries for Pacific cod and sablefish are discussed in more detail and catch data for earliest years of these fisheries are provided. The report is the most detailed tabulation of Alaska's domestic groundfish fisheries available.

-2175-
AUTHOR(S): RILEY, F.
YEAR: 1971
TITLE: Fisheries of the United States, 1970
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Curr. Fish. Stat. No. 5600, Washington, DC. 79 pp.
ABSTRACT:
United States fishermen caught 4,884 million pounds of fish, shellfish, and other aquatic plants and animals that sold for $602 million--the highest dollar value in the history of our fisheries. The value of the catch was $83.4 million of 16 percent more than in 1969 and 36 percent above the 1964-68 average. The volume taken was 591 million pounds or 14 percent more than in 1969 and the largest catch taken since the all time record catch of 5.4 billon pounds in 1962. The 1970 catch was the seventh largest on record.

-2176-
AUTHOR(S): RINGO, R.D.
YEAR: 1964
TITLE: Dispersion and Growth of Young Brown Shrimp
PUB: U.S. Fish Wildl. Serv. Circ. 230:68-70
ABSTRACT:
Entry and dispersion of larval shrimp into Galveston Bay is discussed. Growth is examined in relation to water temperature based on laboratory studies.

-2177-
AUTHOR(S): RIVAS, L.R.
YEAR: 1970
TITLE: Snappers of the Western Atlantic
PUB: Commer. Fish. Rev. 32(1):41-44
ABSTRACT:
This paper is based on observations obtained during 18 years (1950-68) of exploratory fishing by the U.S. Fish and Wildlife Service and the BCF Exploratory Fishing and Gear Research Base at Pascagoula, Mississippi. The data may be readily retrieved by the Base's UNIVAC 9200 computer.

-2178-
AUTHOR(S): RIVAS, L.R.
YEAR: 1974
TITLE: Nature and Status of the Marine Sport Fishery in the Eastern Gulf of Mexico
PUB: In: Marine Environmental Implications of Offshore Drilling in the Eastern Gulf of Mexico, Conference/Workshop. Prep. by State Univ. System of Florida, Institute of Oceanography for BLM. 455 pp.
ABSTRACT:
In this report the marine sport fishery of the eastern Gulf of Mexico is considered as extending from the mouth of the Mississippi River eastward and southward to the Florida Keys. It is estimated that every year, in this region of the Gulf, 1,480,000 anglers catch 178,277,605 fish weighing 339,832,049 pounds. It is also estimated that the annual sum spent in marine sport fishing in the eastern Gulf amounts to $263,588,000.

-2179-
AUTHOR(S): RIVAS, L.R.
YEAR: 1980
TITLE: Synopsis of Knowledge on the Taxonomy, Biology, Distribution, and Fishery of the Gulf of Mexico Mullets (Pisces: Mugilidae)
PUB: In: Proceedings of a Workshop for Potential Fishery Resources of the Northern Gulf of Mexico. Rep. Mississippi-Alabama Sea Grant Consortium, pp. 34-53
ABSTRACT:

The mullet fishery is one of the most important among those conducted for coastal pelagic fishes along the entire Gulf coast. The Gulf of Mexico mullet fishery is based primarily on the black mullet (Mugil cephalus) and the silver mullet (Mugil curema). Four other species, however, occur in extreme southwestern Florida. It is well established that the black mullet is the most important Gulf species. The silver mullet is much less abundant, particularly along the northern Gulf coast. The other four species (M. liza, M. gaimardianus, M. trichodon, and M. gyrans) are confined to extreme south Florida and constitute a negligible factor in the Gulf fishery. These four species are common in the West Indies and southward. The six species of mullet discussed may be classified into two groups according to coloration and the presence or absence of scales on the second dorsal and the anal fins. Precise identification of the species involved is basic to stock definition and assessment which in turn are basic to the proper management of the fishery. Mullet are often classified as underutilized fish, but there are more available for commercial utilization than are currently marketed. The main reasons for this are the problem of consumer acceptance and the lack of ability to process mullet for food.

-2180-
AUTHOR(S): RIVAS, LUIS R.
YEAR: 1970
TITLE: The Red Grouper of the Gulf of Mexico
PUB: Commer. Fish. Rev. 32(10):24-30
ABSTRACT:

The red grouper (Epinephelus morio) is probably the most abundant and commercially important grouper in the Gulf of Mexico, according to Jarvis (1935: 3) and, Moe (1969: 2). This is supported by records of the BCF Exploratory Data Center, Pascagoula, Mississippi, during 1950-1970.

-2181-
AUTHOR(S): ROBERTS, K.J. AND M.E. SASS
YEAR: 1980
TITLE: Louisiana's Inshore Shrimp Fishery
PUB: LSU, Center Wetl. Resour. Sea Grant. Publ. 14 pp.
ABSTRACT:

Data for a description of the inshore fishery became available from a 1979 economic survey of commercial shrimpers. The brown shrimp (Penaeus aztecus) and white shrimp (P. setiferus) emigrating from Louisiana marshes are harvested by a succession of resource users. Two distinct inshore seasons of about 174 days total provide ample access to the shrimp. The percentage of the inshore shrimp catch in the 68 and smaller class increased during 1973-76 as compared to the 1963-72 period. The change in size distribution had its origin in the harvest of small white shrimp. A higher proportion of the inshore harvest in smaller size classes decreased the proportion of total shrimp value coming from inshore. The conventional concern is with the impact that inshore harvest of shrimp has on the offshore harvest and on total value.

The data indicate that the 1973-76 change appears to have impacted the inshore shrimper vis-a-vis the offshore trawler. Inshore shrimpers increased their catch of 68 count and smaller shrimp while the proportion of the catch in the 51-67 count decreased. A fishery historically dependent on small though marketable shrimp is evidently trending toward smaller shrimp. The higher proportion of inshore catch occurring in the 68 count and smaller class may result from environmental factors or reflect increased competition for shrimp.

-2182-
AUTHOR(S): ROCKWOOD, C.E. AND W.F. MAZEK
YEAR: 1977
TITLE: Seasonal Variations in Oyster Meat Yields in Apalachicola Bay, Florida
PUB: Bull. Mar. Sci. 27(2):346-347
ABSTRACT:

Seasonal patterns in the yield of oyster meat for Apalachicola Bay, Florida, are analyzed from previously unpublished statistics derived from commercial sources. The seasonal patterns are shown to be highly regular. Consistently, yields are lowest in the summer, increase through the fall and early winter, and usually peak in March.

-2183-
AUTHOR(S): RODIN, V.E. AND A.G. SLIZKIN
YEAR: 1977
TITLE: Changes in the Distribution and Abundance of Commercial Crabs from the Bristol Bay in 1965-1974
PUB: Biol. Morya Mar. Biol. No. 5, pp. 84-89
ABSTRACT:

As a result of long-term studies conducted in the Bay, it is stated that a decrease in the abundance and range shortening of the main concentrations of Paralithodes camtschatica led to the expansion of the range and to an increase in the abundance of ecologically related Chinoecetes bairdi (Rathbun) and C. opilio (Fabricius). The mixing of crab concentrations in the eastward-south-eastward direction during the investigated period was recorded. A high commercial mortality rate of P. camtschatica can be regarded as the main factor causing variations in the abundance ratio of crabs.

-2184-
AUTHOR(S): RODNICK, K. AND H.W. LI
YEAR: 1983
TITLE: Habitat Suitability Index Models: Littleneck Clam
PUB: Oregon Cooperative Fishery Research Unit, Corvallis. National Coastal Ecosystems Team, Slidell, LA. FWS/OBS 82/10.59, 23 pp.
ABSTRACT:

A review and synthesis of existing information were used to develop a habitat model for the littleneck clam (Protothaca staminea). The model is scaled to produce an index of habitat suitability between 0 (unsuitable habitat) and 1 (optimally suitable habitat) for estuarine and marine areas of the Pacific coast. Habitat suitability indices are designed for use with habitat evaluation procedures previously developed by the U.S. Fish and Wildlife Service.

-2185-
AUTHOR(S): ROE, R.B.
YEAR: 1976
TITLE: Distribution of Snappers and Groupers in the Gulf of Mexico and Caribbean Sea as Determined from Exploratory Fishing Data
PUB: NMFS, Report No. 17, pp. 129-164
ABSTRACT:

A review of 24 years of exploratory fishing and resource assessment activities in the Gulf of Mexico and Caribbean Sea provide an overview of the geographical and bathymetric distributions of 18 species of snappers (lutjanidae) and 14 species of groupers (Serranidae). Bottom temperature data are given, where available. Information is also provided on average size and size range where data permit. Lutjanus synagris, the lane snapper, shows the widest geographical range among all snapper species and Epinephelus morio, the red grouper, has the broadest distribution among groupers. Ten of the 33 species reviewed reach their maximum abundance on the Campeche Bank area of the southern Gulf of Mexico. The second major area of snapper/grouper abundance is the bank area off Honduras and Nicaragua in Central America. Recent trawl surveys in the north-central Gulf of Mexico show that large numbers of small Gulf red snapper, Lutjanus campechanus, occur throughout the year between 10 and 40 fathoms, despite the apparent reduction in numbers of commercially acceptable-sized snapper in the northern Gulf.

-2186-
AUTHOR(S): ROELOFS, E.W.
YEAR: 1953
TITLE: Distribution of Fishery Resources in Relation to Hydrographic Conditions in North Carolina Estuaries
PUB: Proc. Gulf Caribb. Fish. Inst., 5th Sess, pp. 141-145
ABSTRACT:

North Carolina has a unique shoreline. A sand bar, extending from the northern to the southern boundaries of the state--a distance of about 300 miles--separates the ocean from the largest system of sounds on the east coast of the United States, covering an area of between 2500 and 3000 square miles. These sounds differ widely in size, depth, and other hydrographic conditions and therefore vary with respect to fishery resources. The purpose of this paper is to describe the distribution of the state's fishery resources in relation to hydrographic conditions in the various sounds.

-2187-
AUTHOR(S): ROESSLER, M.A.
YEAR: 1965
TITLE: An Analysis of the Variability of Fish Populations Taken By Otter Trawl in Biscayne Bay, Florida
PUB: Trans. Am. Fish. Soc. 94:311-318
ABSTRACT:

Three bottom habitats in Biscayne Bay were sampled by 120 trawl samples taken during both day and night from April to August 1963. Daylight samples contained 1,391 fishes representing 41 species. Night samples contained 1,440 fishes and 49 species. The number of species per sample followed a Poisson distribution, the number of individuals per sample followed a negative binomial distribution, and the number of individuals per species followed Fisher's logarithmic series. The following generalizations apply to both number of species and number of individuals. More fishes were taken in the Thalassia area than in the Thalassia-sand area, which in turn had more than the mud-sand area. More were taken at night than during the day. Tidal

direction had no significant effect. Analysis of data on the sample variance for paired 2-minute samples showed that seven-to-eight replicates are needed to detect a difference of five species and 10 samples are needed to detect a 10% change in the number of individuals with 95% confidence.

-2188-
AUTHOR(S): ROGERS, B.J. AND D.E. ROGERS
YEAR: 1978
TITLE: Seasonal Composition and Food Web Relationships of Marine Organisms in the Nearshore Zone of Kodiak Island--Including Ichthyoplankton, Meroplankton (Shellfish), Zooplankton and Fish, Part B
PUB: Report on the Fish Component of the Study, NOAA/OCSEAP Quart. Rep., Oct.-Dec. 1:283-315
ABSTRACT:
Sampling was conducted during this quarter from October 31 until November 16 and a total of 1,706 stomachs were collected. From the initiation of sampling in April until the most recent cruise in November, a total of 13,021 stomachs were collected. By the end of December, 8,600 stomachs had been analyzed in the lab. Stomach content data from the first three cruise months, April through June, have been keypunched and data from April and May are included in this report.

-2189-
AUTHOR(S): ROGERS, B.J., ET AL.
YEAR: 1980
TITLE: Seasonal Composition and Food Web: Relationships of Marine Organisms in the Nearshore Zone of Kodiak Island...Including Ichthyoplankton, Zooplankton & Fish. A Rep. on Fish Component of the Study
PUB: Fish. Res. Inst., Univ. of WA, Final Rep to OCSEAP, October 1977-September 1980, pp. 548
ABSTRACT:
Five types of gear (beach seine, trammel net, try net, otter trawl, and townet) were used to sample the nearshore fish of the Kodiak Archipelago during April-August and November 1978, and March 1979. Over 14,000 stomachs were collected and analyzed from approximately 40 species of fish. Data were examined with respect to season, area, habitat, and predator length.
The feeding habits of selected species of fish with respect to time of day was studied: stomach fullness and relative state of digestion were variable, depending on species, size category, and season. The index of stomach fullness was high in the greenlings and cod, and medium in some gunnels, pricklebacks, and sole. Greenling seemed to feed more in the morning, rock sole more at midday, Pacific cod less at midday, and capelin more in the early morning.

-2190-
AUTHOR(S): ROGERS, B.J., M.E. WANGERIN, K.J. GARRISON AND D.E. ROGERS
YEAR: 1981
TITLE: Epipelagic Meroplankton, Juvenile Fish, and Forage Fish: Distribution and Relative Abundance in Coastal Waters Near Yakutat
PUB: Office of Marine Pollution Assessment, Environmental Assessment of the Alaskan Continental Shelf. Final Reports of Principal Investigators. Vol. 12,Biological Studies. pp. 603-708
ABSTRACT:
The shelf off Yakutat represents only a small portion of Alaska's Continental Shelf; however, it supports several fish and shellfish taxa of commercial and ecological importance. While adult distributions and

abundances for many taxa are known from commercial trawl catches, relatively little is known about epipelagic larval and egg stages of these taxa or about forage fish that also frequent the epipelagic zone. Pacific sand lance, sablefish, halibut, Pacific cod, and arrowtooth flounder spawn in the winter, whereas herring, capelin, walleye pollock, Pacific ocean perch, butter sole, starry flounder, razor clams, weathervane scallops, tanner crab, and Dungeness crab reproduce in the spring or summer. Juvenile salmon and adult forage fish will probably be most abundant in the spring and summer. Herring and capelin spawn in bays or on beaches and initially, their larvae will be inshore. Halibut, arrowtooth flounder, and sablefish spawn in deep water offshore. The other species of fish spawn at a variety of depths, hence their larvae will be widely dispersed. Salmon spawn in nearly every stream in the Yakutat area, but the most important spawning areas are the southeast shore of Yakutat Bay (pink salmon) and coastal rivers to the southeast of the bay.

-2191-
AUTHOR(S): ROGERS, D.E.
YEAR: 1978
TITLE: Determination and Description of Knowledge of the Distribution, Abundance, and Timing of Salmonids in the Gulf of Alaska and Bering Sea. A Supplement
PUB: NOAA/OMPA, Environmental Assessment of the Alaskan Continental Shelf. Vol. 1. Biological Studies, pp. 205-235
ABSTRACT:
The annual variation in abundance and seasonal timing of the migrations of adult and juvenile (smolt) salmon since 1951 in the nearshore waters of Bristol Bay is described. The number of juvenile or adult salmon that migrate through Bristol Bay in an average year is best measured by the median number because the annual numbers are not normally distributed. The medians and ranges in the annual numbers of salmon are given in tabular form. In most years there is either a large abundance of smolts or a large abundance of adults. Years in which there are very large numbers of sockeye salmon occur at 4- or 5-year intervals. Juvenile pink salmon are usually present only in odd-numbered years and adult pink salmon are usually present only in even-numbered years. The Naknek-Kvichak District produced 36% of the smolts and 54% of the adult salmon in Bristol Bay in an average year, whereas the Nushagak District produced 50% of the smolts but only 25% of the adults in Bristol Bay in an average year. Salmon are present in Bristol Bay from May through September; however, they are most abundant in June and July when there are usually millions of adults and hundreds of millions of smolts that are passing each other in their migrations to and from Bristol Bay.

-2192-
AUTHOR(S): ROGERS, D.E.
YEAR: 1980
TITLE: Density-Dependent Growth of Bristol Bay Sockeye Salmon. Symposium on Salmonid Ecosystems of the North Pacific Ocean Water Crest, OR
PUB: In: Proceedings of a Symposium on Salmonid Ecosystems of the North Pacific Ocean., Wash. Univ. College of Fisheries, Contrib. No. 531. pp. 267-283
ABSTRACT:
Data on the age and length of Bristol Bay sockeye gathered since 1957 by the Bureau of Commercial Fisheries, Fisheries Research Institute and Alaska Department of Fish and Game are used for the following purposes: (1) review evidence on density-dependent growth of juveniles in Bristol Bay lakes (2) analyze statistics on immature sockeye at sea with respect to annual

variations in size and abundance (3) calculate annual mean lengths and weights of adult sockeye in Bristol Bay and (4) evaluate density-dependent growth at sea.

-2193-
AUTHOR(S): ROGERS, D.E.
YEAR: 1984
TITLE: Trends in Abundance of Northeastern Pacific Stocks of Salmon
PUB: In: The Influence of Ocean Conditions on the Production at Salmonids in the North Pacific, Oregon St. Univ., ORESU-W-83-001, pp. 100-127
ABSTRACT:
Most of the large stocks of Pacific salmon had well-developed fisheries by the early 1900's. Catches increased to a peak in the late 1930's. Then there was a general decline in catches and probably abundances during the 1940's to early 1950's, and a low point was reached in the early 1970's. Since 1978 there have been historical record catches and abundances for most stocks in western and central Alaska and modest increases in southeastern Alaska. The main changes in salmon abundance were associated with major changes in temperatures, particularly during the winter months. The low point in the relative production of Bristol Bay sockeye salmon coincided with cold temperatures while the fish were at sea and the recent increase with warm temperatures while the fish were at sea. It is suggested that marine survival, especially during the final winter at sea, was affected by the large changes in temperature that altered the distribution of salmon and thus their vulnerability to predators.

-2194-
AUTHOR(S): ROGERS, S.G. AND M.J. VAN DEN ARVYLE
YEAR: 1983
TITLE: Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (South Atlantic)-Summer Flounder
PUB: U.S. Fish. Wildl. Serv., FWS/OBS-82/11.15., U.S. Army Corps of Engineers, TREL-82-4, 14 pp.
ABSTRACT:
Species profiles are literature summaries on the taxonomy, morphology, distribution, life history, and environmental requirements of coastal aquatic invertebrates and fishes. They are designed to assist with environmental impact assessments. The summer flounder, Paralichthys dentatus, is an important commercial and recreational fish along the Atlantic seaboard of the United States. Adult summer flounder are migratory and prey on other fishes and invertebrates. They spawn in offshore shelf waters during late fall, winter and early spring. Adults may live 10 years and generally are found in nearshore areas during late spring, summer, and early fall. The species may undergo diel movements to areas having submerged vegetation during daylight.

-2195-
AUTHOR(S): ROITHMAYR, C.M.
YEAR: 1964
TITLE: Life Histories of North-Central Gulf Bottomfishes
PUB: U.S. Dept. Interior Circular 230:49-55
ABSTRACT:
The industrial bottomfish fishery along the north-central Gulf coast is primarily supported by a single species, the Atlantic croaker, Micropogonias undulatus, the catch of which leads that of all others both in quantity and value. The 1962 figures show a record production of 28,600 tons having a value when landed of approximately $955,000. Research activity at the Bureau's

Biological Field Station in Pascagoula, Mississippi, has been largely restricted to this species. The immediate objectives of the work are to determine the age and size composition of the exploited stock, and to follow changes in relative abundance with respect to fluctuations in the commercial catch.

-2196-
AUTHOR(S): ROITHMAYR, C.M.
YEAR: 1965
TITLE: Industrial Bottomfish Fishery of the Northern Gulf of Mexico, 1959-63
PUB: U.S. FWS Special Science Report, Fisheries, No. 518, 23 pp.
ABSTRACT:

Distribution of fishing effort, composition of landings, harvesting operations, and processing methods are described for the industrial bottomfish fishery of the northern Gulf of Mexico. The more important fishing grounds are located between the Mississippi River Delta and the entrance to Mobile Bay. The Atlantic croaker contributed, on the average, 56% by weight to the total annual bottomfish landings during 1959-63. Analysis of annual production, catch per unit of effort, and total fishing effort indicated that the bottomfish population maintained itself at reasonably productive levels over the 5-year period. Recommendations concerning complete utilization of the bottomfish resource of the area are suggested.

-2197-
AUTHOR(S): ROITHMAYR, C.M.
YEAR: 1965
TITLE: Review of Industrial Bottomfish Fishery in Northern Gulf of Mexico, 1959-62
PUB: Commer. Fish. Rev. 27(1)
ABSTRACT:

The problem of unwanted fish caught in commercial harvests is not new to the United States fishing industry. An effort to find a solution resulted in a report published in 1907 by the U.S. Bureau of Fisheries. The only practical suggestion offered at that time was to develop the utilization of those species having no market. In 1952, the Gulf coast fishing industry attempted to solve the problem of marketing small bottomfish weighing less than 1 pound each and caught incidentally in shrimp trawls, by constructing a petfood plant at Pascagoula, Mississippi.

-2198-
AUTHOR(S): ROITHMAYR, C.M. AND R.S. WALLER
YEAR: 1963
TITLE: Seasonal Occurrence of Brevoortia patronus in the Northern Gulf of Mexico
PUB: Trans. Am. Fish. Soc. 92(3):301-302
ABSTRACT:

The menhaden purse-seine fishery in the northern Gulf of Mexico depends upon the seasonal appearance of fish schools at the surface and near the coast in spring. In autumn the schools disappear from near-shore waters and apparently move offshore. Efforts to determine the location of menhaden schools in winter have been generally unsuccessful. The southern coast of Florida and the eastern coast of Mexico have been suggested as likely places of winter occurrence (Reintjes and June, 1960). This report gives data on seasonal movements of menhaden in the northern Gulf of Mexico which suggest that the population does not move far offshore in winter.

-2199-
AUTHOR(S): RONHOLT, L.L.
YEAR: 1963
TITLE: Distribution and Relative Abundance of commercially Important Pandalid Shrimps in the Northeastern Pacific Ocean
PUB: U.S. Dept. of the Interior, Fish and Wildlife Service, Special Scientific Report-Fisheries No. 449.
ABSTRACT:
Data resulting from exploratory fishing on 18 cruises of the Bureau of Commercial Fisheries exploratory fishing vessel John N. Cobb from 1950-60 were analyzed to determine the average catch of shrimp per unit of effort and per 10-fathom depth interval in each of four areas: Oregon and Washington, Southeastern Alaska, central Alaska, and Alaska Peninsula. The five species of shrimp encountered were: Pandalus jordani, P. borealis, P. hypsinotus, P. platyceros, and Pandalopsis dispar. Gulf of Mexico shrimp trawls and West Coast beam trawls were the major gear used during the explorations.

-2200-
AUTHOR(S): RONHOLT, L.L.
YEAR: 1988
TITLE: U.S. Research Surveys Conducted in the Northeastern Pacific Ocean during 1987 and Planned Surveys for 1988
PUB: In: Major, R.L. and T.K. Wilderbuer, eds. Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1987. NOAA/NMFS, Dept. of Commerce, NWAFC, Seattle, WA. p. 245.
ABSTRACT:
Survey operations were conducted by Resource Assessment and Conservation Engineering Division (RACE) scientists aboard the chartered research vessel Alaska. The north end of Kodiak Island to Unimak Pass was surveyed for six weeks for juvenile walleye pollock using hydroacoustics-midwater trawls. The Northwest and Alaska Fisheries Center's Auke Bay Laboratory (ABL) and RACE Division scientist conducted longline survey operations aboard the chartered vessel Prowler for sablefish. Survey procedures and results are presented in this report.

-2201-
AUTHOR(S): RONHOLT, L.L., F.R. SHAW AND T.K. WILDERBUER
YEAR: 1981
TITLE: Trawl Survey of Ground Fish Resources off the Aleutian Islands, July-August 1980
PUB: NOAA/NMFS, Seattle, WA, NOAA Tech. Memo.
ABSTRACT:
During the summer of 1980, the NMFS, in cooperation with the Japan Fisheries Agency, conducted a resource assessment survey of the groundfish resources of the Aleutian Islands area. The report includes information on the distribution, abundance, available biomass, and size composition of 19 commercially important groundfish and crab species. Walleye pollock was the dominant species in the survey area, with Pacific cod and Pacific ocean perch the second- and third-highest estimated available biomass.

-2202-
AUTHOR(S): RONHOLT, L.L., H.H. SHIPPEN AND E.S. BROWN
YEAR: 1976
TITLE: An Assessment of the Demersal Fish and Invertebrate Resources of the Northeastern Gulf of Alaska, Yakutat Bay to Cape Cleare, May-August 1975
PUB: NEGOA Ann. Rep. NOAA/NWAFC Proc. Rep., Mar. 1976, Seattle, Washington, 183 pp.

ABSTRACT:

This report includes the results of an otter trawl survey of demersal fish and invertebrate resources within a coastal area of the northeastern Gulf of Alaska between Cape Cleare (148 Degrees W. long.) and Yakutat Bay (140 Degrees W. long.). The survey area included the depths from near shore to 400 meters, and encompassed an area of 39,000 square kilometers of ocean bottom. The survey was conducted from April to July 1975 by the Northwest Fisheries Center, Seattle, as part of a contract with NOAA's Environmental Research Laboratory (ERL), which is responsible for providing the Bureau of Land Management (BLM) with research data and analysis necessary for determining the environmental impact of petroleum exploration and production in offshore waters of Alaska. A commercial fishing vessel, the 26 m. combination fishing boat North Pacific, was chartered for the survey. The nature of the survey area, methods and equipment employed, analytical procedures, and assumptions are discussed.

-2203-
AUTHOR(S): RONHOLT, LAEL L., HERBERT H. SHIPPEN AND ERIC S. BROWN
YEAR: 1978
TITLE: Demersal Fish and Shellfish Resources of the Gulf of Alaska from Cape Spencer to Unimak Pass, 1948-1976 (A Historical Review)
PUB: NOAA/NMFS, NWAFC, Seattle, WA., Vols. 1-4.
ABSTRACT:

Resource assessment surveys have been conducted in the Gulf of Alaska from 1961 to the present. The initial survey was conducted by the IPHC and BCF in 1961 and covered the entire Gulf of Alaska from Unimak Pass to Cape Spencer. The IPHC conducted additional surveys in 1961-1963. Although the IPHC surveys were primarily conducted to describe the distribution and availability of halibut, data were obtained on other associated demersal species. It was nearly 10 years until the next resource assessment cruise was conducted in the Gulf of Alaska. Under the NMFS, MARMAP program, pandalid shrimp resource assessment cruises were initiated in 1971 and were followed by demersal fish surveys in 1972. Both shrimp and demersal fish surveys are continuing yearly. In 1975 the first NMFS/OCSEAP/BLM-sponsored resource assessment survey was conducted in the Yakutat Bay to Cape Spencer portion of the Gulf of Alaska.

-2204-
AUTHOR(S): ROPER, C.F.E., M.J. SWEENEY AND C.E. NAUEN
YEAR: 1984
TITLE: Cephalopods of the World
PUB: FAO Fish. Synopsis 125(3):277
ABSTRACT:

This volume, the third in the FAO series of major groups of organisms that enter the marine fisheries, is an annotated and illustrated worldwide catalogue of the 173 cephalopod species of actual or potential fishery interest. Characterizations of each species include drawings, scientific and common names, information on habitats, biology, and fisheries. Distribution maps as well as a glossary of technical terms and measurements are also included.

-2205-
AUTHOR(S): ROPES, J.W. AND A.S. MERRILL
YEAR: 1976
TITLE: Historical Cruise Data on Surf Clams and Ocean Quahogs
PUB: U.S. Environ. Res. Lab., NOAA Data Rep., (No. MESA-17), 110 pp.

ABSTRACT:
Records of bottom sampling during cruises of the research vessels Albatross IV, Delaware I and II, and Undaunted are assembled in tables to show the occurrence of two bivalve molluscs, the surf clam, Spisula solidissima (Dillwyn), and the ocean quahog, Artica islandica (Linnaeus). The samples were taken from the continental shelf from Block Island, RI, to Cape Hatteras, NC, during the period 1965 to 1974. The data are a basis for describing the distribution and density of the two bivalves.

-2206-
AUTHOR(S): ROPES, J.W. AND S.A. MURAWSKI
YEAR: 1981
TITLE: Size and Age at Sexual Maturity of Ocean Quahogs, Arctica islandica L., from a Deep Oceanic Site
PUB: J. Shellfish. Res. 1(1):122
ABSTRACT:
Gonadal tissues and the corresponding shells of ocean quahogs Arctica islandica were collected during late July to early August 1978, from off Long Island, New York, for an examination of sexual development and growth line formation. The collection dates were before the known time of spawning for the species and when gonadal development was expected to be in a ripe stage. Most of the clams were of small size ($x = 39.2$ mm; standard deviation (SD) +- 8.13), ranging from 18.7 to 60.4 mm in shell length. A 5-year-old (41.0 mm) clam and three 6-year-old (47.9 mm) clams only had moderately developed gonads containing few sex cells. Gametogenesis indicative of the female sex was in older (5-year-old) clams than in males (3-year-old), suggesting a later attainment of sexual maturity of female clams. Gonadal tubule development, gametogenesis, and attainment of sexual maturity were variable with respect to size and age.

-2207-
AUTHOR(S): ROSE, C.S.
YEAR: 1983
TITLE: Flatfish
PUB: In: Stauffer, G., ed. Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1983. NOAA/NMFS, NWAFC, 11 pp.
ABSTRACT:
Condition of stocks of flatfishes (major species include arrowtooth flounder, flathead sole, rock sole, rex sole, and Dover sole) is assessed. Commercial landings are summarized by region and country.

-2208-
AUTHOR(S): ROSE, C.S.
YEAR: 1985
TITLE: Flatfish
PUB: In: Major, R.L., ed. Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1985, NOAA/NMFS, Dept. of Commerce, NWAFC, Seattle, WA. pp. 165-176.
ABSTRACT:
This report deals with all flatfishes inhabiting the Gulf of Alaska except Pacific halibut. The major species, which account for approximately 99% of the catch, are arrowtooth flounder, flathead sole, rock sole, rex sole, and Dover sole. The annual catches of Gulf of Alaska flatfish, 1978-83, are presented by nation and International North Pacific Fisheries Commission statistical area.

-2209-
AUTHOR(S): ROSE, C.S.
YEAR: 1986
TITLE: Flatfish
PUB: In: Major, R.L., ed. Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1985, NOAA/NMFS, Dept. of Commerce, NWAFC, Seattle, WA. pp. 235-252.
ABSTRACT:
This report deals with all flatfishes inhabiting the Gulf of Alaska except Pacific halibut. The major species, which account for approximately 99% of the catch, are arrowtooth flounder, flathead sole, rock sole, rex sole, and Dover sole. This report describes the catches taken in 1984 and presents information relevant to flat fish management.

-2210-
AUTHOR(S): ROSE, C.S.
YEAR: 1988
TITLE: Flatfish
PUB: In: Major, R.L. and T.K. Wlderbuer, ed. Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1985, NOAA/NMFS, Dept. of Commerce, NWAFC, Seattle, WA. pp. 221.
ABSTRACT:
This report deals with all flatfishes inhabiting the Gulf of Alaska except Pacific halibut. The major species, which account for approximately 99% of the catch, are arrowtooth flounder, flathead sole, rock sole, rex sole, and Dover sole. This report describes the catches taken from 1978 to 13 November 1987, and presents information on the status of these stocks and their potential yield.

-2211-
AUTHOR(S): ROSENBERG, D.H. (ED.)
YEAR: 1972
TITLE: A Review of the Oceanography and Renewable Resources of the Northern Gulf of Alaska
PUB: University of Alaska Institute of Marine Science, Fairbanks, AK. IMS Report R72-23; Sea Grant Report 73-3, 551 pp.
ABSTRACT:
A number of specialists were contacted to contribute sections to this comprehensive report on the oceanography and renewable resources of the Gulf of Alaska. It is hoped that this report provides in-depth coverage of all major subjects. It should be noted that sections containing fisheries data are, in general, based only on data through 1970. This was the extent of the published data available to the authors at the time of writing this report.

-2212-
AUTHOR(S): ROSENFELD, L., V. HAIST, V. HAIST AND D. CHALMERS
YEAR: 1987
TITLE: Distribution and Abundance of Pacific Herring off the West Coast of Vancouver Island, September 26-October 30, 1984
PUB: Can. Manuscr. Rep. Fish. Aquat. Sci., No. 1924, 29 pp.
ABSTRACT:
A midwater trawl survey was conducted during September 26-October 30, 1984 to determine the distribution and abundance of herring off the southwest coast of Vancouver Island. Age compositions, average length and weight, and Hjort maturities are summarized. Catch rates could not be used as an index of abundance.

-2213-
AUTHOR(S): ROSENTHAL, R., L. HALDORSON, L. FIELD, V. MORAN-O'CONNEL, M. LARIVIERE, J. UNDERWOOD, AND M. MURPHY
YEAR: 1983
TITLE: Inshore and Shallow Offshore Bottom Fish Resources in the Southeastern Gulf of Alaska (1981-1982)
PUB: Alaska Fish Game, 166 pp.
ABSTRACT:

An assessment of inshore and shallow offshore bottomfish stocks in southeast Alaskan waters was conducted during summer (1981) and winter (1982) by test fishing and scuba diving. Estimates of bottomfish abundance, density, and vertical distribution were made by scuba divers in the shallow sublittoral. Direct comparisons were made of two fishing methods (jigging versus longlining). Commercial catches were monitored. The history of the current Sitka fishery is described as well as the local oceanographic conditions. S. entomelas comprised 7.4% of the deepest (41-60 fm) depth zone sampled with jigging gear. It was also common in nearshore and shallow offshore waters in mixed schools with black, yellowtail, and dusky rockfish. S. entomelas consumed sand lance, larval pollock, and gelatinous zooplankton (salps and jellyfish). Unidentifiable fish remains and invertebrates such as hyperid amphipods, mysids, euphausids, and small octopus were common in the stomach samples of 27 specimens analyzed. S. entomelas is currently fished by trawling at night in mid-water and marketed as either red or Pacific snapper. There was a consistent depth-related structuring of population size, as rockfish species increased in size and percent maturity with depth. Most of the fish observed in the inshore zone were juveniles or sub-adults. Species composition also changed with depth. Density and biomass peaked in summer, followed by strong declines in oceanic waters. Schooling species dominated the vertical jig catch, whereas bottom-dwelling species dominated the longline catch.

-2214-
AUTHOR(S): ROSENTHAL, R.J.
YEAR: 1979
TITLE: Shallow Water Fish Communities in the Northeastern Gulf of Alaska: Habitat Evaluation, Temporal and Spatial Distribution, Relative Abundance and Trophic Interactions
PUB: NOAA/OMPA, Environment Assessment of the Alaskan Continental Shelf, Annual Reports 4:447-455
ABSTRACT:

The marine fishes are an important component of the inshore fauna of the northeastern Gulf of Alaska. Direct observations of fishes living in Hinchinbrook Entrance and Montague Strait were made during August-September 1978. The shallow water fish communities of this region are represented by at least 50 species which are typically found in the nearshore zone. Twenty-two percent (11/50) of the fishes identified to date were previously unreported in these waters, and as such represent northern range extensions in the eastern Pacific.

-2215-
AUTHOR(S): ROSENTHAL, R.J.
YEAR: 1983
TITLE: Shallow Water Fish Assemblages in the Northeastern Gulf of Alaska: Habitat Evaluation, Species Composition, Abundance, Spatial Distribution, and Trophic Interaction
PUB: In: NOAA, National Ocean Service, ed. Environmental Assessment of the Alaskan Continental Shelf. Final reports of principal investigators. Vol. 17. Biological Studies. MMS, Washington, D.C., pp. 451-540

ABSTRACT:

This report provides a detailed description and ecological analysis of nearshore fishes and their characteristic habitats in the northeastern Gulf of Alaska. Included are data on fish abundance, density, biomass, and patterns of habitat utilization. Important food web links and dietary trends among conspicuous species are also identified.

-2216-
AUTHOR(S): ROSENTHAL, R.J., L.J. FIELD AND D. MYER
YEAR: 1981
TITLE: Survey of Nearshore Bottomfish in the Outside Water of Southeastern Alaska
PUB: Alaska Dept. of Fish and Game, Juneau, Alaska, 85 pp
ABSTRACT:

Species composition of fishes inhabiting the nearshore shallow waters off southeastern Alaska is described. Species abundances were assessed by hook and line fishing and underwater visual observations. Spatial distributions (depth and position in the water column) and habitats of species collected and observed at various localities along the southeastern Alaskan Coast are described. Estimates of the relative and absolute abundances of various species and age and growth estimates of selected species are given. Sebastes entomelas was collected by hook and line but constituted very little of the total catch (1.4%).

-2217-
AUTHOR(S): ROSS, M.R. AND F.P. ALMEIDA
YEAR: 1986
TITLE: Density-Dependent Growth of Silver Hakes, Merluccius bilinearis
PUB: Trans. Am. Fish. Soc. 115(4):548-554
ABSTRACT:

The growth rate of the silver hake, Merluccius bilinearis, in the northern Georges Bank-Gulf of Maine stock appears to be highly density-dependent after fish reach the size at which they become piscivorous. The correlation between mean weight of age-2 through -5 fish and three estimates of relative stock density CPUE from commercial vessels, and virtual population analysis (VPA) of biomass and abundance) for the period 1962-1979 was analyzed by regression and Spearman rank correlation analyses. Mean weight at age was significantly and inversely correlated with estimates of stock density for all ages, although correlation coefficients were markedly lower for age-2 fish than for older age groups. The lower correlation for age-2 fish may be due to reduced feeding competition with the adult stock, because silver hakes feed almost entirely upon invertebrates until becoming piscivorous after reaching 20-30 cm fork lengths between ages 1 and 2. Mean weight of age-2 fish was not correlated with year-class abundance, suggesting that growth rate may be density-independent for pre-adult life stages of this stock. Correlation was highest for age-3 fish; 84 and 75% of the variation in mean weight was explained by variation in CPUE and VPA biomass estimates, respectively. Growth of older fish seemed to be density-dependent only during periods when stock density was high. Mean weight at age was not correlated with CPUE for age-3 fish when data from only periods of low stock density were considered but was significantly and inversely correlated when data from periods of high-stock density were considered. The frequency with which density-independent growth has been identified in natural populations is probably due to the confounding effect that environmental variability and biological interactions have upon growth, and the probable reduction in intraspecific competitive pressure associated with exploited fish stocks maintained at low levels of density.

-2218-
AUTHOR(S): ROSS, S.W.
YEAR: 1977
TITLE: A Checklist of Marine Fishes of Beaufort, NC
PUB: DUML, Reference Museum, Beaufort, North Carolina, 42 pp.
ABSTRACT:
This checklist is a compilation of fishes that have been identified to exist in both marine and estuarine environments of North Carolina. The list was compiled mainly from recent field notes and papers, although some early literature was consulted.

-2219-
AUTHOR(S): ROSS, S.W.
YEAR: ND
TITLE: Project Summary Concerning the Distribution and Composition of the North Carolina Reef Ichthyofauna
PUB: Unpub. North Carolina DRNCD, DMF, Morehead City, North Carolina
ABSTRACT:
The following text was taken from the Summary of Results of Reefs and Hardgrounds Workshop held at DUML, Beaufort, North Carolina on 23 and 24 September 1981. The reef ichthyofauna in North Carolina waters has been documented from inshore intertidal areas to depths of 188 m with the majority of the effort taking place between the intertidal and 55 m. Most sampling took place in Onslow Bay, which is the location of the majority of the live bottom habitat. Collections and observations have involved numerous techniques and gears, including SCUBA, trawls, submersible, photography, ichthyocides, and anesthetics. At each location sampled visually (SCUBA or submersible) all possible fish species were identified. Notes on relative abundance, behavior, and habitat associations were also made. At many of these sites collections were made to supplement the observations. In addition to the above qualitative data, more quantitative trawl data were collected at numerous locations. Information on reproduction of some reef fishes was assembled from trawl and SCUBA surveys. Although most surveys were conducted during summer and fall, some data were obtained during winter and spring on selected reefs.

Over all years and locations of the study, 265 fish species were identified on North Carolina hard substrates. Of these, 163 can be considered primary or secondary reef fishes. Over the whole depth range, the ichthyofauna was dominated by the families serranidae (28 species), priacanthidae (3), carangidae (16), pomadasyidae (4), sparidae (8), sciaenidae (5), pomatomidae (11), labridae (12), and gobiidae (10). Many tropical species were well established and formed permanent populations. The fact that the tropical component of the fauna was so well developed and contained resident species had been previously unknown or under estimated. Reef ichthyofauna shallower than 34 m was characterized by seasonal changes in biomass and species diversity displaying a maximum in the fall (September-October) and a minimum in the late winter (February-March). The more stable environment beyond 34 m contributed to the maximum species diversity which occurred between 31-92 m. Regardless of depth, areas with the highest profile generally contained greater numbers of species and individuals.

-2220-
AUTHOR(S): ROSS, S.W. AND R.O. PARKER, JR.
YEAR: 1980
TITLE: Distribution and Composition of the North Carolina Reef Ichthyofauna
PUB: A.S.B. Bull. 27(2):60

ABSTRACT:
Since 1975, SCUBA observations and collections by trap, anesthetic, ichthyocide, gill net, hook and line, and spear have been made on reefs from the intertidal to 33.5 m. These observations were supplemented by and compared to "live bottom" trawl samples (20-62 m) and submersible observations (27.5-253 m). Reef ichthyofauna shallower than 33.5 m was characterized by seasonal changes in biomass and species numbers. Maximum species diversity was observed on reefs with the highest profile in the depth range between 30.5 and 91.5 m, and the fauna in this depth range was dominated by tropical species. Many tropical species previously thought to be rare in this region were apparently abundant.

-2221-
AUTHOR(S): ROTHLISBERG, P.C.
YEAR: 1979
TITLE: Combined Effects of Temperature and Salinity on the Survival and Growth of the Larvae of Pandalus jordani (Decapoda, Pandalidae)
PUB: Mar. Biol. 54(2):125-134
ABSTRACT:
Survival and growth over an environmental range of temperature and salinities were examined in order to help assess the importance of these environmental factors in affecting the distribution, abundance, and survival of larvae and provide greater understanding of factors affecting fluctuations in adult P. jordani population sizes. Larvae were shown to have a wide tolerance to salinity, especially in the early stages, but a relatively narrow tolerance to temperature. The optimal temperatures for survival, 8 to 11 degree C, were also optimal for growth as reflected by maximal growth increments and body size. It is therefore felt that fluctuations in temperature as seen within and between successive larval seasons would have profound effects on larval survival, growth rates, and size at metamorphosis to the benthic juvenile phase.

-2222-
AUTHOR(S): ROTHLISBERG, P.C.
YEAR: 1980
TITLE: A Complete Larval Description of Pandalus jordani (Decapoda, Pandalidae) and Its Relation to Other Members of the Genus Pandalus
PUB: Crustaceana (Leiden) 38(1):19-48
ABSTRACT:
The larvae of P. jordani (Rathbun), 1902, including the 13 zoeal and 2 juvenile stages, are described. A distribution chart of Pandalus spp. is provided, including P. borealis (Kroeyer), 1838, P. danae (Stimpson), 1857, P. goniurus (Stimpson), 1860, P. gurneyi (Stimpson), 1871, P. hypsinotus (Brandt), 1851, P. jordani (Rathbun), 1902, P. kessleri (Czern), 1878, P. montagui (Leach), 1914, P. m. tridens (Rathbun), 1902, P. platyceros (Brandt), 1851, P. prensor (Stimpson), 1860, P. propinquus (Sars), 1869, and P. stenolepis (Rathbun), 1902.

-2223-
AUTHOR(S): ROTHLISBERG, P.C. AND C.B. MILLER
YEAR: 1983
TITLE: Factors Affecting the Distribution, Abundance, and Survival of Pandalus Jordani (Decapoda, Pandalidae) Larvae off the Oregon Coast, USA
PUB: U.S. Natl. Mar. Fish. Serv. Fish. Bull. 81(3):455-472
ABSTRACT:
The importance of larval survival to year class strength of the pink shrimp, Pandalus jordani, is evaluated and the effects of ocean dynamics

reported. In 1971, Zoea I was spread over the 60 nautical miles transect but concentrated inshore. The trend continued to Zoea V, but increasing numbers of stages II-V were evident further offshore. Most Zoea VI were outside 15 nautical miles and this trend persisted through Zoea XIII. In 1972, early stages were generally less dispersed seaward. Overall larval abundance was generally less dispersed seaward. Overall larval abundance varied between transects, averaging 250/1000 m3 but was as high as 1093/1000 m3. Offshore displacement and dispersion of larvae occurred by late April. March showed no consistent gradient of larval age, while by April transects were more uniform. The median rate of growth increased 2.4 stages from March to April. The rate of change of developmental stage frequency differed between the two years. Faster development corresponded to higher water temperatures. In 1971, only 26.9% survived to Zoea II, while in 1972 over 64% survived through stage III. The percent surviving to juveniles in 1972 was an order of magnitude higher than in 1971. Mean estimated instantaneous daily mortality rate was 0.0788 for larvae. Larval survival was poor in 1971 and slightly above average in 1972. An upwelling index accounted for 56.2% of variability in larval survival. There was no evidence of an inshore migration of females prior to hatching of eggs. Widespread distribution of early larval stages is due to mixed winds. There was a positive correlation of larval survival and upwelling, explained by optimal survival at temperatures of 11 degreee to 12 degree C, which are maintained by cold upwelling waters. The pink shrimp appears to have a reproductive strategy relying on a complex advection of late winter and spring. Larva have planktonic stages extending through the transition from northward-onshore to southward-offshore currents, encountering onshore retention in early stages and offshore displacement later, reaching suitable habitat for settling in deeper water.

-2224-
AUTHOR(S): ROTHLISBERG, P.C. AND W.G. PEARCY
YEAR: 1976
TITLE: An Epibenthic Sampler Used to Study the Ontogeny of Vertical Migration of Pandalus jordani (Decapoda, Carldea)
PUB: Fish. Bull. 74(4):944-997
ABSTRACT:

An epibenthic sampler was designed to sample larval and juvenile shrimp (Pandalus jordani) just off the bottom. Vertical migration of this species is also described. Larvae were distributed throughout the water column during the day being most abundant from 0-10 meters. Early juveniles were present in low numbers from 51 to 150 meters and found in high concentrations on the bottom during midday. At night larvae were still distributed throughout the water column; however, no larvae concentrations were found at the 0-10 meter range. During the day a trend of increasing age with depth was found, while at night it was not evident. Vertical migration of early stages was shown to occur nightly, a behavior starting late in the larval phase, before the juvenile molt and transition to bottom dwelling.

-2225-
AUTHOR(S): ROTHSCHILD, B.J.
YEAR: 1986
TITLE: Dynamics of Marine Fish Populations
PUB: Harvard University Press, Cambridge, MA, 277 pp.
ABSTRACT:

The topic of marine fish population dynamics is discussed in detail in the following eight chapters: 1) variability in fish stock abundance; 2) examples of fish stock variability from the historical record; 3) introduction to fishery-related population dynamics theory; 4) the context of the problem;

5) the recruitment stock paradox; 6) egg production; 7) the life and death of fish eggs and larvae; and 8) the population dynamics process.

-2226-
AUTHOR(S): ROTHSCHILD, B.J., P.W. JONES AND J.S. WILSON
YEAR: 1981
TITLE: Trends in Chesapeake Bay Fisheries
PUB: In: L.E. Cronin & B.W. Cain, ed. Improving Management of Chesapeake Bay. Trans. 46th North American Wildlife and Natural Resources Conference. Wildlife Management Institute, Washington, D.C. pp. 284-298
ABSTRACT:
Authors examined available (though often limited) data on landings, effort, and CPUE for 11 important Chesapeake Bay stocks of finfish and shellfish: striped bass, American shad, river herrings (alewife and blueback), Atlantic croaker, weakfish, spot, bluefish, Atlantic menhaden, oysters, blue crabs, and soft-shell clams.

-2227-
AUTHOR(S): ROUNSEFELL, G.A.
YEAR: 1930
TITLE: Contribution to the Biology of the Pacific Herring, Clupea pallasi, and the Condition of the Fishery in Alaska
PUB: Bull. U.S. Bur. Fish. 45:227-320
ABSTRACT:
The herring fishery of Alaska has undergone a tremendous development in recent years. Gaining an impetus during the World War, it has increased until during the 4 years from 1924 to 1927 an average of 160,000,000 pounds have been taken annually from the waters of Alaska. This ranks next to the take of salmon, the average annual catch of which during the same period was 358,000,000 pounds.

-2228-
AUTHOR(S): ROUNSEFELL, G.A. AND E.H. DAHLGREN
YEAR: 1932
TITLE: Fluctuations in the Supply of Herring (Clupea pallasi), in Prince William Sound, Alaska
PUB: Bull. U.S. Bur. Fish. 45:263-291
ABSTRACT:
The herring fishery of Prince William Sound has been marked by fluctuations in the abundance, size, and quality of fish. The effect on the industry has been widespread and harmful. Companies have lost large sums owing to temporary fluctuations in abundance or to changes in the proportions of large herring suitable for pickling. The stabilization of the yield of this fishery constitutes an important economic problem for solution.

-2229-
AUTHOR(S): ROYCE, W.F., L.S. SMITH, AND A.C. HARTT
YEAR: 1968
TITLE: Models of Oceanic Migrations of Pacific Salmon and Comments on Guidance Mechanisms
PUB: U.S. Fish Wildl. Ser., Fish. Bull. 66:441-462
ABSTRACT:
In this study, the authors examine the oceanic migration patterns of pink salmon and sockeye salmon stocks, and using this data, model the migration patterns, as well as make several observations about salmon migrations in general. The authors find that salmon in the ocean usually occur in the upper 10 m of the water column, though silver salmon (Oncorhynchyus kisutch) occur

at 10-20 m, and king salmon (O. tshawytscha) occur at 20-30 m. The authors indicate that salmon migrations are not random, but generally follow a circular migration pattern that corresponds closely with the oceanic gyre systems. The authors conclude that the salmon use oceanic currents as a migrational cue, discuss possible sensory mechanisms used, and speculate on secondary electroreceptor senses that detect the minute electrical field caused by the current.

-2230-
AUTHOR(S): ROYS, R.S.
YEAR: 1971
TITLE: Effect of Tectonic Deformation on Pink Salmon Runs in Prince William Sound
PUB: In: The Great Alaska Earthquake of 1964: Biology, National Academy of Sciences, Washinton, D.C., pp. 220-237
ABSTRACT:
Tectonic deformation associated with the Alaska earthquake of March 27, 1964, caused base-level changes in nearly all pink salmon (Oncorhynchus gorbuscha) streams in Prince William Sound. Of 233 primary producers, 138 were uplifted 3-31.5 ft, 43 subsided 2-6 ft, and 42 remained at essentially the same level (-1 to +2 ft). Streams reacted to a lowering of the base level (uplift) by cutting channels downward, and to the raising of the base level (subsidence) by depositing sediments. Before deformation, between 70 and 77% of the even-year pink salmon escapement and 35-57% Of the odd-year escapement spawned in intertidal reaches. After deformation, pink salmon spawners reacted to uplift by displacing downstream into newly created unstable reaches of streams and responded to subsidence by displacing upstream. Analysis of escapement and alevin data showed that as deformation increased, escapements, subsequent alevin densities, and, by inference, adult runs declined. A crude estimate of the economic loss to the salmon fishery of Prince William Sound for the 3 years 1966-1968 was $3,355,000 to the fishermen, $9,601,000 to the canneries, and $13,888,000 to the retailers.

-2231-
AUTHOR(S): ROZAS, L.P. AND C.T. HACKNEY
YEAR: 1984
TITLE: Use of Oligohaline Marshes by Fishes and Macrofaunal Crustaceans in North Carolina U.S.A.
PUB: Estuaries 7(3):213-224
ABSTRACT:
Fish and invertebrate macrofauna (nekton) inhabiting three low-salinity, intertidal rivulets were sampled biweekly from July 1981-June 1982. A total of 29 spp. of fish (24,335 individuals, 9.671 kg wet wt) representing 19 families and 4 spp. of invertebrates (6812 individuals, 4.708 kg wet wt) were collected. The most abundant species were spot (Leiostomus xanthurus), grass shrimp (Palaemonetes pugio), bay anchovy (Anchoa mitchilli), and Atlantic menhaden (Brevoortia tyrannus). Only a few large predacious fish (e.g., largemouth bass, Micropterus salmoides) were collected in the rivulets although largemouth bass and longnose gar (Lepisosteus osseus) were abundant in a nearby permanently flooded area. The number of species was greatest during the warmer months and lowest during the winter. There were three seasonal peaks of numerical abundance; spring peak attributed to the influx of juvenile spot, Atlantic menhaden, Atlantic croaker (Micropogonias undulatus), and southern flounder (Paralichthys lethostigma); summer peak due to grass shrimp; and fall peak to bay anchovy and grass shrimp. The occurrence of these species was not correlated with salinity in the study area. Average densities of spot and Atlantic menhaden in the oligohaline rivulets at the peak of juvenile recruitment were similar to the average densities of these

species reported for salt marshes. Oligohaline estuarine areas contain important nursery habitat for some euryhaline species.

-2232-
AUTHOR(S): RULIFSON, R.A.
YEAR: 1981
TITLE: Substrate Preferences of Juvenile Penaeid Shrimps in Estuarine Habitats
PUB: Contrib. Mar. Sci. 24(0):35-52
ABSTRACT:

Various substrates within a tidal creek were characterized, and three common types were selected to test the effects of shrimp size, population density, salinity, and temperature on choice of substrate by juvenile brown (Penaeus aztecus), white (P. setiferus), and pink (P. duorarum) shrimp. Substrates selected were sandy-mud (50-80%), silt-clay (3.8% organic content), sand (0% organics), and shell (35% shell) and fragments, 3.2% organics). Sandy-mud was selected most frequently by brown 73-156 mm TL [total length]) and white (87-168 mm TL) shrimp. Brown shrimp exhibited affinity for sandy-mud with increased size and increased salinities (21-30 per mill.). Smallest brown shrimp (2.3-8.9 g) exhibited decreased preference for sandy-mud at warmest test temperatures (27-30 degree C). Brown shrimp formed aggregations in 52% of the tests with densities ranging from 3.8 to 6.4 m-2, although average aggregation biomass rarely exceeded 70 g m-2. White shrimp exhibited increased affinity for sandy-mud at cool temperatures (23 degree C) and high salinities (26-29 per mill.), and formed aggregations of 3.8-6.4 shrimp m-2 in 50% of the tests. White shrimp size did not significantly influence substrate selection. Pink shrimp (64-112 mm TL) exhibited no substrate preference and formed no aggregations when tested at a density of 1.3 m-2, but 62% of the pink shrimp selected shell when tested in the presence of brown shrimp at a density of 5.1 m-2. Seasonal distributions of juvenile penaeid shrimp in estuarine habitats were hypothesized and supported by field data collected by other investigators. Predicting distributions of benthic organisms through sediment mapping techniques may aid in formulating habitat management policies.

-2233-
AUTHOR(S): RULIFSON, R.A.
YEAR: 1983
TITLE: Behavioral Aspects of Juvenile Penaeid Shrimps, Penaeus aztecus, and Penaeus duorarum, during Tidal Transport
PUB: Contrib. Mar. Sci. 26(0):55-64
ABSTRACT:

Behavioral patterns displayed by juvenile brown (P. aztecus) and pink (P. duorarum) shrimp during descent through a water column were determined in the laboratory by observing individual shrimp placed in a clear plexiglass tube containing brackish water 1 m deep. Behavior displayed during descent was used to create ethograms (behavioral maps) for each species. Rates of vertical descent were determined for shrimp treated by cold shock and for shrimp that received no treatment. Effects of body shape and density were determined by observing sinking rates of freshly killed shrimp. Juvenile brown and pink shrimp displayed a simple and predictable method of removing themselves from a water column in the laboratory, a method possibly similar to that used during tidal transport. Velocity of descent through the water column was controlled behaviorally by body posture, pleopod and leg activity, and approach to the substrate. Differences in rate of descent (9.5-27 cm s-1) were attributable to the position of the walking legs (either retracted or extended) during descent and use of pleopods for propulsion. Descent rates are slow relative to estuarine tidal currents; thus, shrimp may be transported

laterally for several hundred meters while they are settling to the bottom. The ability to exit from the water column may be an important aspect of penaeid shrimp ecology if estuarine sediments preferred by shrimp are patchy in abundance.

-2234-
AUTHOR(S): RUPLE, D.
YEAR: 1984
TITLE: Occurrence of Larval Fishes in the Surf Zone of the Northern Gulf of Mexico Barrier Island
PUB: Estuarine Coastal Shell Sci. 18:191-208
ABSTRACT:

Larval fishes were collected from the surf zone of Horn Island, Mississippi [U.S.A.] between March 1978-April 1979. A standardized total of 39,435 larvae were taken in 222 collections in the inner and outer surf zone regions, representing fish in 69 taxa. Considerably more larvae were collected in the outer surf zone (78.3%) than in the inner surf zone (21.7%). Eugraulids, Chloroscombrus chrysurus, and Symphurus spp. were the most abundant larvae taken from the outer surf zone; engraulids, Leiostomus xanthurus, Brevoortia patronus, and Trinectes maculatus were the numerically dominant larvae in the inner surf zone. Seasonal peaks in abundance occurred at the outer surf zone stations during May and June and at the inner surf zone stations during December. Larval densities were significantly greater in night collections than in day collections. The occurrence of early larvae, late larvae, and juveniles suggests that the surf zone habitat is important to several species of coastal marine fishes. Menticirrhus littoralis, Harengula jaguana, and Trachinotus carolinus appear to most readily utilize the surf zone as a nursery area.

-2235-
AUTHOR(S): SAFINA, C. AND J. BURGER
YEAR: 1985
TITLE: Common Tern Foraging: Seasonal Trends in Prey Fish Densities and Competition with Bluefish
PUB: Ecology 66(5):1457-1463
ABSTRACT:

The authors present a method for making direct quantitative measurements of population dynamics of fish species preyed upon by seabirds. They studied foraging behavior of common terns (Sterna hirundo) in relation to density of fish prey off Long Island, New York. Prey fish abundance was highest when terns were feeding young chicks and declined sharply later in the season, coincident with the arrival of large numbers of predatory bluefish (Pomatomus saltatrix). Mean depth of occurrence of prey fish was shallower after the arrival of bluefish. Number of feeding terns was inversely correlated with prey depth. Terns were strongly attracted to predatory fishes feeding near the surface. The authors suggest that in addition to concentrating prey fish near the surface, predatory fish may have been important as competitors.

-2236-
AUTHOR(S): SAILA, S.
YEAR: 1961
TITLE: A Study of Winter Flounder Movements
PUB: Limnol. Oceanog. 6:292-298
ABSTRACT:

Some aspects of the movements of the winter flounder, Pseudopleuronectes americanus, were studied by means of tag-recovery data. An analysis of the movements of tagged individuals away from the breeding area indicates some movement to the east of the release point but this may be due to unequal

fishing effort. An attempt is made to explain the return of winter flounder to the coast by means of random search postulating the presence of a reflecting barrier.

-2237-
AUTHOR(S): SAILA, S.B., H.A. WALKER, E. LORDA, J. KELLY AND M. PRAGER
YEAR: 1982
TITLE: Shrimp Populations Studies, West Hackberry and Big Hill Brine Disposal Sites off Southwest Louisiana and Upper Texas Coasts, 1980-1982. Vol. 1.
PUB: NMFS, SEFC, Galveston Laboratory, Rep. No. NOAA-83012602, Galveston, TX, 264 pp.
ABSTRACT:
The Strategic Petroleum Reserve Program involves the creation of crude oil storage capacity in salt caverns. As a by-product of solution mining techniques used to create this storage capacity, large quantities of brine are discharged into the Gulf of Mexico. Because of the size of the proposed discharges, there is concern that such disposal may adversely impact the shrimp fishery in the region. This report deals with the assessment of potential impacts of the discharge of brine at West Hackberry and Big Hill disposal sites on the brown and white shrimp fisheries in the southwest Louisiana and upper Texas coastal region.

-2238-
AUTHOR(S): SALOMAN, C. H.
YEAR: 1965
TITLE: Bait Shrimp (Penaeus duorarum) in Tampa Bay, Florida-Biology, Fishery Economics, and Changing Habitat
PUB: U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 520:1-16
ABSTRACT:
A bait shrimp survey was made in Tampa Bay, Florida, from October 4, 1961, through April 8, 1962. During this period, the fishery for pink shrimp, Penaeus duorarum, produced 6.2 million individuals, with a retail value of more than $155,000. Most of the shrimp were juveniles, taken from grass flats within Tampa Bay. Females outnumbered males by a narrow margin and were of larger average size than males. Shrimp taken from the two major shrimping areas of Tampa Bay had different sizes. The smallest specimens were caught toward the headwaters of the estuary, in water of relatively low salinity. An average of eight boats and 12 to 16 men operated the bait shrimp fishery. The catch per unit of effort varied between areas; about 184 more shrimp were retained per boat-hour in lower Tampa Bay than in Old Tampa Bay. Fishing effort and production of bait shrimp in Tampa Bay are declining, while the demand is steadily increasing. Dredge-and-fill operations have reduced the amount of available habitat for shrimp and other estuarine-dependent species measurably since 1940.

-2239-
AUTHOR(S): SALOMAN, C.H. AND W.A. FABLE, JR.
YEAR: 1981
TITLE: Length-frequency Distributions of Recreationally Caught Reef Fishes from Panama City, Florida in 1978 and 1979
PUB: NMFS, SEFC, Panama City, FL. NOAA Tech. Memo
ABSTRACT:
The NMFS Lab in Panama City, Florida has been engaged in life history research on recreationally and commercially important species of fishes from the Gulf of Mexico and southeast coast of the U.S. since 1977. A unique opportunity to sample fishes caught from charter and headboats was available by cooperating with the staff of Captain Anderson's fish house in Panama City.

During 1978 and 1979, numerous lengths were measured of reef species caught within 50 miles of Panama City and landed at the fish house. Gonads, stomachs, and aging structures for other aspects of the research were collected at the same time. All available individuals or a maximum of about 600 individuals of each species, were measured each month. The snappers, red porgy, and triggerfish, were sexed when possible and sexes are combined in monthly figures for this report. Histogram length intervals for larger species were based on 50 mm increments, while those for smaller species were based on 25 mm increments. The histograms are presented monthly for abundant species, and also combined into yearly and 2-year periods.

-2240-
AUTHOR(S): SAMEOTO, D.
YEAR: 1984
TITLE: Review of Current Information on Arctic Cod (Boreogadus saida) (Lepechin) and Bibliography
PUB: Bedford Inst. Oceanogra., J. Announcement: 8601, 72 pp.
ABSTRACT:
The arctic cod, Boreogadus saida (Lepechin), is one of the most important organisms in the food chain of the Canadian Arctic Seas. Because of this importance, concern has been expressed about the effect of an oil spill on the Arctic cod. This report summarizes the current state of knowledge on the biology and the distribution of the cod and is an effort to answer some of these concerns.

-2241-
AUTHOR(S): SAMEOTO, D.D. AND M.K. LEWIS
YEAR: 1980
TITLE: Vertical Distribution and Abundance of Zooplankton and Ichthyoplankton on North-Eastern Georges Bank, October 1978.
PUB: Can. Tech. Rep. Fish. Aquat. Sci. No. 974, 67 pp.
ABSTRACT:
Sampling at various depths with the BIONESS opening and closing net showed copepods to be concentrated in the top 20 m of water. The horizontal distribution of copepods, as indicated by numbers per m SUP-2 on the different stations, was much less variable than their horizontal distribution. An analysis of the length frequencies of the chaetognaths on each of the stations showed the population size distributions over the study area. Newly hatched Clupea harengus were collected on the eastern side of the study area. It was estimated from residual current data that the larvae were located about 3 to 4 days drift time from the spawning beds. The larvae were not abundant (a mean of 38 larvae/100 m SUP-2) and were located in the region with the highest concentration of large chaetognaths. It is suggested that the predominance of predatory chaetognaths may be an important factor in the low numbers of C. harengus larvae found.

-2242-
AUTHOR(S): SAMPLE, T.M. AND R.J. WOLOTIRA, JR.
YEAR: 1985
TITLE: Demersal Fish and Shellfish Resources of Norton Sound and Adjacent Waters during 1979
PUB: NWAFC Tech. Memo. F/NWC-89
ABSTRACT:
In July-August, 1979, the NMFS of the Northwest and Alaska Fisheries Center conducted a bottom trawl survey in the marine waters of Norton Sound. This report describes survey and analytical methods used and summarizes results in a series of tables and figures and in data appendices. Summarized in the Results Section are a list of species taken during the survey,

abundance estimates of major taxonomic groups of fish and invertebrates, and rankings of individual species of groundfish in terms of relative abundance. For principal species of groundfish, geographic distributions and size and age composition are illustrated and abundance estimates given. The Discussion Section compares results of the 1979 survey with information collected during a previous survey conducted in 1976. The appendices contain the detailed station and catch data and computer listings of abundance estimates and biological characteristics of the sampled populations of principal species of groundfish.

-2243-
AUTHOR(S): SAMPLE, T.M., K. WAKABAYASHI, R.G. BAKKALA, AND H. YAMAGUCHI
YEAR: 1985
TITLE: Report of 1981 Cooperative U.S.-Japan Bottom Trawl Survey of the Eastern Bering Sea Continental Shelf and Slope.
PUB: NOAA/NMFS, USDOC, NWAFC, Seattle, WA. NWAFC Tech. Memo. F/NWC-88
ABSTRACT:

In the summer and fall of 1981, the Northwest and Alaska Fisheries Center and the Far Seas Fisheries Research Laboratory of Japan conducted a comprehensive cooperative survey of groundfish and invertebrate resources of the eastern Bering Sea. One Japanese vessel sampled resources on the continental slope with a bottom trawls while two U.S. vessels sampled resources over a major portion of the continental shelf using bottom trawls. Results of the survey are presented in tables and figures, in large part without narrative description of findings.

For principal families and species of groundfish and invertebrates, distributions are illustrated and abundance estimates given. Additionally, size composition, and where available, age composition and growth characteristics are shown for individual species. Appendices to the report contain descriptions of trawl gear used during the survey and computer listings of individual station and catch data and data analyses. The discussion section, in addition to describing assumptions and limitations, compares abundance estimates from the U.S.-Japan cooperative survey conducted in 1979.

-2244-
AUTHOR(S): SAMPLE, TERRANCE M.
YEAR: 1984
TITLE: Groundfish Surveys Conducted by the Northwest and Alaska Fisheries Center in 1983
PUB: NOAA/NMFS, NWAFC, Seattle, WA. NWAFC. PR 84-08, 30 pp.
ABSTRACT:

The Northwest and Alaska Fisheries Center conducted 12 resource assessment surveys during 1983 in order to assess the current biological condition of important crab and groundfish species for management purposes and to conduct specific scientific studies. Descriptions of each survey including purpose, area, vessels used, timing, and sampling information are summarized by geographical area for the Bering Sea, Aleutian Islands region, Gulf of Alaska, and the west coast of Canada and the U.S. Results and findings from each survey are briefly summarized.

-2245-
AUTHOR(S): SANDERS, H.L.
YEAR: 1961
TITLE: Benthic Studies in Buzzards Bay. II. The Structure of the Soft Bottom Community
PUB: Limnol. Oceanogr. 6:138-153
ABSTRACT:

A series of 24 samples was taken at periodic intervals at a single locality in Buzzards Bay from February 1956 to January 1958. With the exception of 4 samples which departed markedly from the others in regard to sediment composition, very high indices of faunal affinity were obtained within the series. The silt-clay fraction of the sediment in the 20 samples with high faunal indices varied from 78-91%, and when the contained species were ranked by abundance, the commoner species achieved approximately the same rank from sample to sample. Thus, eight or nine species are a constant part of the biological environment of this association, and there is an approximately constant numerical proportionality among them. Seventy-nine species were obtained from the 20 samples of typical sediment composition. However, 11 species comprised almost 95% of the total fauna by number while the lamellibranch Nucula proxima (58.86%) and the polychaete Nephthys incisa (17.21%) were commonest. Ten species make up 95% of the total biomass. Thus the community, both numerically and by biomass, is characterized by pronounced dominance of few species. The niches of the nine most common species, Representing 93.5% of the community by number, were categorized by method of feeding, kind of food, and spatial distribution. Considering only these few factors, it was possible to demonstrate certain differences in niche preference. The relationship of animal numbers to animal weight revealed the expected pyramid of numbers with very few organisms in the largest weight categories and numerous individuals in the smaller weight groups. However, when the biomass within each weight category was determined, the expected inverted pyramid did not result. Numbers are considered more valid than biomass in quantitative benthic studies, since only 0.15% of the fauna constitute 55.17% of the entire weight. The presence or absence of a rare, randomly distributed large animal may alter the biomass of an individual sample by two orders of magnitude.

-2246-
AUTHOR(S): SANDIFER, P.A.
YEAR: 1973
TITLE: Distribution and Abundance of Decapod Crustacean Larvae in the York River Estuary and Adjacent Lower Chesapeake Bay, Virginia, 1968-1969
PUB: Chesapeake Sci. 14(4):235-257
ABSTRACT:

Surface and bottom plankton samples taken with a Clarke-Bumpus Quantitative Plankton Sampler at monthly intervals over a two-year period were examined for decapod crustacean larvae. These samples were taken at 12 stations over a distance of about 80 miles from fresh water in the Pamunkey River, through the meso- and polyhaline York River, to euhaline conditions at the mouth of Chesapeake Bay. Some additional samples were collected with paired BCF Bongo Samplers. Planktonic stages representing at least 37 species of decapods were identified. Larvae of Uca spp., Crangon septemspinosa, Hexapanopeus angustifrons, Neopanope sayi, and Rhithropanopeus harrisii were abundant in the plankton of the York River system and lower Chesapeake Bay, and larvae of a number of other species were common. Larvae of Eurypanopeus depressus, formerly one of the abundant xanthid crabs of the bay, were rarely found. This apparent decline in abundance of E. depressus may be associated with the recent introduction of the sacculinid parasite, Loxothylacus paopaei, into Chesapeake Bay. Callianassa spp. (other than C. atlantica), Lepidopa

cf., L. websteri, and Naushonia crangonoides were recorded from the bay for the first time.

-2247-
AUTHOR(S): SANO, S.
YEAR: 1966
TITLE: Salmon of the North Pacific Ocean-Part III., A Review of the Life History of North Pacific Salmon. 3. Chum. Salmon in the Far East
PUB: International North Pacific Fisheries Commission. Bull. No. 18, pp. 41-56
ABSTRACT:

Chum salmon, Oncorhynchus keta (Walbaum), originating in Far Eastern areas of Asia are distributed from the coast to approximately 144 Degrees W in the North Pacific (including waters north and south of the Aleutian Islands). Although their coastal distribution varies somewhat from year to year, particularly with respect to abundance of fish, chum salmon spawn in such rivers as the Lena, Iana, and Indigirka flowing into the Arctic Ocean (Soldatov and Lindberg, 1930) in the north and streams in the Nagasaki and Fukuoka Prefectures (approximately 33 Degrees N) of Kyushu in the south, although their numbers in these southernmost rivers are very small (personal communication from Dr. Hiita of the Hokkaido Salmon Hatchery and Mr. Kimura of Kyushu University). These chum salmon belong to two major groups: so-called summer chum salmon originating in Kamchatka, the Okhotsk coast and the Amur River, and autumn chum salmon originating in Japan, Sakhalin, the southern Kuril Islands, and the Amur River. This division is fairly well established. (Hirano, 1953; Yonemori and Kondo, 1961.) Peak runs occur in June, July, and August in northern areas, but the season of coastal migration becomes delayed as the area goes southward. Peak runs occur in July and August in Kamchatka; during July and August for summer chum salmon and September and October for autumn chum salmon in the Amur; in September and October in Hokkaido; and during October and November in Honshu.

-2248-
AUTHOR(S): SASAKI, S.
YEAR: 1966
TITLE: Distribution and Food Habits of King Salmon, Oncorhynchus tshawytscha, and Steelhead Rainbow Trout, Salmo gairdnerii, in the Sacremento-San Joaquin River System
PUB: In: Turnes, J.L. and D.W. Kelly, eds. Fishes of the delta. Calif. Dep. Fish Game, Fish Bull. 136. Ecological Studies of the Sacramento-San Joaquin Delta. Part 2, pp. 108-114
ABSTRACT:

Fifty adult and approximately 1,272 young salmon were collected in the Sacramento-San Joaquin River System. Most of the adults were collected during the fall run when they are migrating up the river to spawn. Adult salmon do not feed while they are migrating up the river to spawn. Adult salmon do not feed while they are in the Delta as indicated by empty stomachs for 46 of the 47 fish examined. Young salmon were collected during the journey downstream after hatching. Most of the young were caught with a midwater trawl, which indicates that young king salmon migrate downstream near the surface. Insects appeared to be the primary food of young salmon as evidenced by the presence of insects in 74% of the stomachs containing food.

-2249-
AUTHOR(S): SASAKI, T.
YEAR: 1984
TITLE: Development and Present Status of Japanese Trawl Fisheries in the Vicinity of Seamounts
PUB: In: Uchida, R.N., S. Hyaasi and G.W. Boehlert, eds. Environment and Resources of Seamounts in the North Pacific. Proceedings of a Workshop, Mar. 21-23, 1984, Shimizu, Japan. DOC, NOAA, NMFS, Tech. Rept. NMFS 43, pp. 21-30
ABSTRACT:
This report reviews the historical development and current status of the Japanese trawl fisheries in the central North Pacific Ocean, and presents a brief summary of the results of trawl surveys conducted by the Japanese over seamounts distributed in other parts of the world's ocean.

-2250-
AUTHOR(S): SAVILLE, A.
YEAR: 1980
TITLE: Population Models for the Northern Anchovy
PUB: In: The Assessment and Management of Pelagic Fish Stocks. Rapp. P.V. Reun. Cien., Vol. 177, pp. 292-306
ABSTRACT:
The California Cooperative Oceanic Fishery Investigations (CalCOFI) program has conducted rigorous egg and larval surveys since 1950, providing an independent source of population size estimates. The author hypothesizes the anchovy encountered a prolonged series of poor recruitments during the late 1940s and the subsequent CalCOFI records document the recovery to more normal levels of abundance.

-2251-
AUTHOR(S): SCARLETT, P.G.
YEAR: 1982
TITLE: Annotated Bibliography and Subject Index on the Summer Flounder, Paralichthys dentatus
PUB: NOAA/NMFS, Seattle, WA, NOAA, Tech. Rep, 15 pp.
ABSTRACT:
An annotated bibliography and subject index for 114 references are presented on the identity, distribution, life history, ecology, behavior, exploitation, and population dynamics of the summer flounder, Paralichthys dentatus. Brief annotations of the contents of each publication are given. The annotations are not intended to be value judgments, but are included to provide clearer descriptions of the contents of each publication than can be obtained from their titles. Where possible, the abstract of a publication was used as a guide to provide an annotation.

-2252-
AUTHOR(S): SCATTERGOOD, L. W., C.J. SINDERMANN AND R.E. SKUD
YEAR: 1959
TITLE: Spawning of North American Herring
PUB: Trans. Amer. Fish. Soc. 88(3):164-8
ABSTRACT:
The spawning of the North American herring on the Atlantic and Pacific coasts is compared. Spawning occurs somewhere on the North American continent during every month of the year. The spawning time progression on the Pacific coast is from mid-winter in the southern part of the range to early summer in the northern part. The Atlantic coast spawning has two peaks--spring and autumn; spring activities dominate in the northern part and autumn in the south. The range of spring spawning temperatures on both coasts is

comparable. While the major portion of spawning on the Atlantic coast takes place on rocky or gravel bottoms, the eggs of Pacific herring are most often attached to marine vegetation.

-2253-
AUTHOR(S): SCELZO M.A. AND A. VALENTINI
YEAR: 1976
TITLE: Occurrence of Geryon Quinquedens--New Record in Waters of the Southwest Atlantic Ocean
PUB: Physis Secc A Oceanos. Org. 33(87):557-567
ABSTRACT:
The occurrence of G. quinquedens Smith in waters of the SW Atlantic Ocean from 24-38 degree S is recorded at depths from 120-1200 m. The species is identified by the very broad and flattened dactyls and the distal spine on the upper margin in the merus of the ambulatory legs. No other of the distinguishing characters between G. quinquedens and G. affinis is constant in the populations of the surveyed area. This record represents a southern range extension of the species.

-2254-
AUTHOR(S): SCHAAF, W.E.
YEAR: 1975
TITLE: Status of the Gulf and Atlantic Menhaden Fisheries and Implications for Resource Management
PUB: Mar. Fish. Rev. 37(9):1-9
ABSTRACT:
The history and status of federal biological studies of Atlantic menhaden, Brevoortia tyrannus, and Gulf menhaden, B. patronus, are discussed in relation to fisheries management. The historical development of the two fisheries indicates 1) the dangers of overfishing, 2) the positive effects of reducing effort in an overexploited fishery, and 3) the potential benefits of limiting effort in a productive fishery. Several issues crucial to developing specific management plans are discussed according to biological principles. This leads to a concept of management that requires fishery models that can specify alternative plans. Implicit with this concept is a willingness to adopt minimal management that can be implemented soon and is flexible. Models of the two menhaden fisheries are presented to support implementation of initial catch quotas before limiting effort. Both fisheries offer a favorable opportunity for establishing a management plan for wise utilization of resources. The ideas presented here are to direct attention to the need for management and to serve as guides toward management alternatives.

-2255-
AUTHOR(S): SCHAAF, W.E., J.E. SYKES AND R.B. CHAPOTON
YEAR: 1975
TITLE: Forecasts of Atlantic and Gulf Menhaden Catches Based on the Historical Relation of Catch and Fishing Effort
PUB: Mar. Fish. Rev. 37(10):1-9
ABSTRACT:
Forecasts of the annual purse seine catches in 1973 and 1974 of the Atlantic menhaden, Brevoortia tyrannus, and Gulf menhaden, B. patronus, were made using multiple regression equations of catch and effort in the previous year. Anticipated coefficients for the equations were estimated from effort for the given year, 16 years of data for the Atlantic fishery, and 27 years for the Gulf. We applied this technique to all age classes combined. For the Atlantic fishery, the equation accounted for 85 percent of the variation in catches. The coefficient of determination for the Gulf fishery was 86%. Observed Atlantic catches deviated from the forecasts by 9% in 1973 and 22% in

1974. The errors for the Gulf were 2% in 1973 and 1% in 1974. When used to estimate historical catches, the equations were fairly accurate, but such empirical methods cannot substitute for an understanding of a causal mechanism determining population dynamics. Even though the average error may be quite small, the error for a specific year can be large.

-2256-
AUTHOR(S): SCHAEFERS, E.A.
YEAR: 1951
TITLE: The John N. Cobb's Shellfish Exploration in Certain Southeastern Alaskan Waters, Spring and Fall of 1950
PUB: Commer. Fish. Rev. 13(4):9-19
ABSTRACT:

The commercial shellfish potentialities in certain southeastern Alaskan waters were surveyed by the John N. Cobb, an exploratory fishing vessel of the U.S. Fish and Wildlife Service, in the spring and fall of 1950. Special emphasis was placed on shrimp and crab fisheries.

During the spring of 1950, a combined shakedown and shellfish survey cruise was made by the vessel. Because of the limited amount of time between the vessel's commissioning in February 1950 and the start of an extensive offshore exploration for albacore, this first survey was a short one. Actual exploratory work was carried on from March 24 to April 11 in the region near Ketchikan.

-2257-
AUTHOR(S): SCHAFFNER, F.C.
YEAR: 1986
TITLE: Trends in Elegant Tern, Sterna elegans, and Northern Anchovy, Engraulis mordax, Populations in California, U.S.A.
PUB: Dep. Biol., Univ. Miami, Condor 88(3):347-354
ABSTRACT:

Elegant Terns (Sterna elegans) at San Diego had high reproductive success in 1980 and 1981; 86% of incubated eggs hatched, and over 97% of hatched chicks fledged. Tern chicks were most frequently fed northern anchovy (Engraulis mordax). Age compositions of anchovy samples taken from the commercial fishery and of those fed to chicks overlapped extensively, suggesting potential for competition for anchovies between nesting Elegant Terns and the fishery. Elegant Tern production was strongly correlated with anchovy abundance for 1979 to 1983.

-2258-
AUTHOR(S): SCHELTEMA, R.S.
YEAR: 1986
TITLE: On Dispersal and Planktonic Larvae of Benthic Invertebrates: An Eclectic Overview and Summary of Problems
PUB: In: Proceedings of the Invertebrate Larval Biology Workshop held at Friday Harbor Marine Laboratory, University of Washington, 26-30 March 1985., Bull. Mar. Sci. 39(2):290-322
ABSTRACT:

The question of how the larvae of benthic marine invertebrates are dispersed can be addressed from a number of different perspectives and at a variety of spatial and temporal scales. In some instances dispersal is only a few centimeters or meters; in other instances, larvae may be transported thousands of kilometers across wide expanses of ocean. The time interval over which dispersal occurs may be a few minutes, a tidal cycle, many months, or even a year. The attempt here is to show how planktonic larvae are dispersed over various spatial and temporal scales and to consider the circumstances and possible consequences of such dispersal.

-2259-
AUTHOR(S): SCHINK, T.D., K.A. MCGRAW AND K.K. CHEW
YEAR: 1983
TITLE: Pacific Coast Clam Fisheries
PUB: Washington Sea Grant Program, College of Ocean and Fishery Sciences, U. of Washington. PR. PC A05/MF AOI, 79 pp.
ABSTRACT:
This study describes the following: pacific coast clam fisheries; species and harvesting methods; commercial razor clam fishery; recreational razor clam fishery; commercial bay clam fisheries in Puget Sound; recreational clam fisheries; industry problems and constraints.

-2260-
AUTHOR(S): SCHLOTTERBECK, R.E. AND D.W. CONNALLY
YEAR: 1982
TITLE: Vertical Stratification of the Nearshore Southern California Larval Fishes (Engraulis mordax, Genyonemus lineatus, and Seriphus politus)
PUB: Fish. Bull. 80(4):895-902
ABSTRACT:
Vertical stratification of larval northern anchovy, Engraulis mordax, was detemined using length-frequency distributions.

-2261-
AUTHOR(S): SCHLUETER, R.A. AND W.W. PRICE
YEAR: 1979
TITLE: Seasonal Abundance, Growth and Reproduction of Fishes Caught by Seining in McKay Bay, Tampa Bay System, FL
PUB: Presented at 43rd Annual Meeting of the Florida Academy of Sciences, Miami, FL, 22 Mar. 1979., Summary only
ABSTRACT:
Thirty species of fish (14,297 specimens) were caught by seining from May 1977 to August 1978 in 24 collecting trips. Large numbers of species and individuals were present from May through July. Lowest number of individuals was in late August and September. Lowest diversity was in January and February. These changes were apparently related to seasonal changes in water temperature and/or seasonal migrations. Seasonal growth can be demonstrated for Lagodon rhomboides, Leiostomus xanthurus, Mugil cephalus, and Pogonias cromis. Reproductive data are given for Fundulus similis, F. grandis, Cyprinodon variegatus and Menidia beryllina. These species have a protracted spawning season. Most spawning occurred in spring, early summer, and to a lesser degree in late fall.

-2262-
AUTHOR(S): SCHMIDT, R.R. AND J.E. WARME
YEAR: 1969
TITLE: Population Characteristics of Protothaca staminea from Mugu Lagoon, California
PUB: Veliger 12(2):193-199
ABSTRACT:
The purpose of this study is to compare age and size characteristics for a live population of Protothaca staminea from Mugu Lagoon with the same properties for the accumulating dead shells. Analysis of the dead shells provides information on mortality rate and effect of predatory gastropods on this species.

-2263-
AUTHOR(S): SCHMIDT, S.
YEAR: 1985
TITLE: Predicting Blue Crab Populations
PUB: Mar. Resour. Inf. Bull. Va. Inst. Mar. Sci. 17(1):5
ABSTRACT:
A performance curve plots the timing of a year's catch cumulatively. The pattern of harvest year to year is predictable. The shape of the performance curve is similar even if crab stock is low. The performance curve shows what proportion of a year's total harvest is caught by any date. For example, January and February catch data, available by the end of March, represent 20% of the year's catch. It may be possible to predict the year's total harvest by multiplying the first 2 months' catch by five. The Chesapeake Bay blue crab (Callinectes sapidus) does not need immediate management action. The performance curve for crabs was drawn as a model because good data existed for 100 years.

-2264-
AUTHOR(S): SCHMITT, W.L.
YEAR: 1919
TITLE: Early Stages of the Spiny Lobster Taken by the Boat "Albacore"
PUB: Calif. Fish Game 5(1):243
ABSTRACT:
A previously unknown larval stage of the California spiny lobster, Panulirus interruptus, is reported. On August 29, 1918, four phyllosome larvae of large size were taken by otter trawl in 75 fathoms of water. The larvae were an average of 1.0 inch in length. Later, 14 lots of large and intermediate sized phyllosomes and puerulus stages were also collected.

-2265-
AUTHOR(S): SCHMITT, W.L.
YEAR: 1921
TITLE: The Marine Decapod Crustacea of California
PUB: Univ. Calif. Publ. Zool. 23, 470 pp.
ABSTRACT:
This paper reports the results of a field study undertaken in San Francisco Bay, CA, from January 1912 to April 1913 in relation to the decapod Crustacea collected during that survey. The 47 species taken during this biological survey are fully discussed from the point of view of their distribution and habitat. A systematic discussion of the California representatives of the order Decapoda is presented as well as a diagrammatical explanation of terms and measurements.

-2266-
AUTHOR(S): SCHOENBAUM, T.J. AND P.E. MCDONALD
YEAR: 1977
TITLE: State Management of Fisheries
PUB: University of North Carolina Sea Grant Publication, Raleigh, NC UNC-SG-77-15, 36 pp.
ABSTRACT:
The study of the impact of new federal fishery laws on state marine fishery law, with special emphasis on North Carolina, draws the following principal conclusions: 1) extraterritorial state jurisdiction has been largely eliminated under the Fishery Conservation and Management Act of 1976. 2) states will be increasingly compelled to adopt fishery management rules that are satisfactory to federal authorities even with regard to their own territorial waters; 3) under recent decisions of the U.S. Supreme Court, laws presently in effect in North Carolina and other states which discriminate

against non-residents appear to be unconstitutional; 4) north Carolina should require sports and recreational fishermen to obtain licenses to use marine fisheries resources; 5) in order to ameliorate the present conflict between sports and commercial fishermen, North Carolina should consider raising the fees now required to obtain a commercial fishing license. This would have the effect of eliminating the economically-inefficient, occasional user of commercial fisheries resources; and 6) North Carolina should undertake to modernize its marine fisheries laws in order to correlate them with new Federal law. Among needed changes is a legal framework for better data collection regarding stocks and catch, economic and sociological research, and improved advisory and other species rendered to the state commercial fishermen.

-2267-
AUTHOR(S): SCHWARTZ, F.J.
YEAR: 1979
TITLE: An Ecological Study of Fishes and Invertebrate Macrofauna Utilizing the Cape Fear River Estuary, Carolina Beach Inlet, and Adjacent Atlantic Ocean: Annual Report for 1978
PUB: Carolina Power and Light Company, Raleigh, NC. Brunswick Steam Electrical Plant Cape Fear Studies, Vol. XV, 326 pp.
ABSTRACT:

A 6-year research program was initiated in February 1973, to determine the extent, effects, and interaction of the Brunswick Power Plant with the adjacent Cape Fear River area macrofauna. The objectives of this study included: (1). determine anadromous fishes, other fish, and invertebrate fauna in the lower Cape Fear estuary, Carolina Beach Inlet, and adjacent Atlantic Ocean; (2). determine migration routes, seasonal abundances, etc., through tagging studies; and (3). analyze gonad condition, food habits, age, and growth of selected species to determine plant effect. The state or well being of those organisms while in the Cape Fear area will be examined by analysis of food habits, age and growth, population density, community diversity, and their interaction with the environment.

-2268-
AUTHOR(S): SCHWARTZ, F.J.
YEAR: ND
TITLE: Fish and Marine Turtle Specimen Collection of the University of North Carolina at Chapel Hill
PUB: Unpub. Specimen Collection. UNC-CH, IMS, Morehead City, NC
ABSTRACT:

The fish and marine turtle collection, housed at the Institute of Marine Sciences (UNC-CH) in Morehead City, was started in February 1956. As of 1 October 1981, the collection housed a total of 301,176 specimens representing approximately 225 families. A majority of the specimens are marine, with most having been taken from the inshore and offshore waters of North Carolina and from the western Atlantic Ocean. Freshwater groups and scattered Pacific and Indian Ocean representatives are also present in the collection. Turtle specimens, which constitute a small portion of the overall collection, were collected primarily from the eastern U.S. Atlantic Coast.

The collection at the Institute also contains a fairly extensive file of fish, shark, and turtle x-radiographs. Initiated in 1971, the x-ray collection consists of several hundred x-radiographs taken from coastal (North Carolina, western Atlantic) specimens which exhibited physical anomalies. No type (i.e., holotype) or paratype specimens are currently housed in the collection. Under the curatorial guidance of Dr. Frank Schwartz, the collection is considered active, with donated and collected specimens being added on a continental basis.

-2269-
AUTHOR(S): SCHWARTZ, F.J., P. PERSCHBACHER, K. SANDOY AND M. MCADAMS
YEAR: 1979
TITLE: An Ecological Study of Fishes and Invertebrate Macrofauna Utilizing the Cape Fear River Estuary, Carolina Beach Inlet, and Adjacent Atlantic Ocean
PUB: Carolina Power and Light Company, Raleigh, NC. Brunswick Steam Electric Plant Cape Fear Studies, Vol. XIVE, 284 pp.
ABSTRACT:

During the period February 1973 through November 1978, 2,013,986 fishes from buoy 42 to 13, in the river, at Carolina Beach Inlet, and in the vicinity of the ocean outfall were surveyed. Fish and macroinvertebrate communities formed a naturally varying system that changed annually and seasonally by species and numbers, and in relation to various environmental factors, especially temperatures and salinity. The sampling employed enabled detection of rapid responses of species to environmental change prior to or during plant operation. An environmental factor, low February water temperature, was correlated to, and was the cause of, drastic declines of penaeid populations in 1976-1978. The absence of a significant detrimental effect by power plant operations was reflected and confirmed in length frequency histograms, low impingement rates, the upward trends of the fish diversity indices and fish and crabs CPUE, and fish cluster analyses data. Therefore, the Brunswick Steam Electric Plant has no measurable detrimental effect on the resident, transient or sporadic fish and macroinvertebrate communities that utilize the Cape Fear estuary and ocean outfall area.

-2270-
AUTHOR(S): SCHWARZ, A.L. AND G.L. GREER
YEAR: 1984
TITLE: Responses of Pacific Herring, Clupea harengus pallasi, to Some Underwater Sounds
PUB: Can. J. Fish. Aquat. Sci. 41:1183-1192
ABSTRACT:

Herring did not respond visibly to any of the taped sounds of natural origin or to sonar or echo sounders. There were three categories of negative response given to other sounds. Avoidance responses were elicited by sounds of large vessels approaching at constant speed, by smaller vessels but only when on accelerated approach, and by 11 different triads of the electronically synthesized sounds. Alarm, and less frequently Startle, were both elicited by those electronic sounds with an essentially instantaneous rise time in amplitude. Herring produced Chirps and Whistles in addition to feeding and hydrodynamic noises.

-2271-
AUTHOR(S): SCHWEIGERT, J.F. AND D. FOURNIER
YEAR: 1982
TITLE: A Model for Predicting Pacific Herring (Clupea Harengus pallasi) Spawn Density From Diver Observations
PUB: Can. J. Fish. Aquat. Sci. 39(10)1361-1365
ABSTRACT:

A series of mathematical models were examined to predict the density of Pacific herring (C. h. pallsi) spawn in 1-M super (2) quadrats from diver observation, and the density of the vegetation in the quadrat (percent cover). The most appropriate model was chosen statistically and used to make predictions for comparison with egg counts. Outliers were identified and if a plausible biological interpretation was found, these were deleted from the data series. The model provides an efficient and precise means for estimating

herring spawn density from diver observation and could be incorporated into a sampling survey design for estimating spawn abundance for stock assessment.

-2272-
AUTHOR(S): SCIENCE APPLICATIONS, INC.
YEAR: 1978
TITLE: Southern California Baseline Study Intertidal, Year Two Final Report. Vol. II. Summary and Synthesis
PUB: BLM
ABSTRACT:
This study summarizes the 1975/76 and 1976/77 findings of the BLM baseline study. It includes sampling and analysis of rocky shore and sandy beach intertidal communities. Macrobiota were collected seasonally for the analysis of structure and chemical composition of communities. Aerial surveys of coastal kelp beds were conducted throughout the Southern California Bight.

-2273-
AUTHOR(S): SCIENCE APPLICATIONS, INC.
YEAR: 1979
TITLE: Southern California Outer Continental Shelf Envrionmental Baseline Study, 1976/1977 (Second Year) Benthic Program. Volume IV. Data Reports, Series 1, Reports 1-17
PUB: Bureau of Land Management, Washington, DC, Report No.: BLM/YN/SR-79/14, 795 pp.
ABSTRACT:
This report completes a 2-year baseline study of the offshore benthic and water column environments of the Southern California Bight. As a complement to the second year baseline study a multi-component study of the chemical pollutant flux into the area was conducted. The baseline study contained elements on macro- and micro-biological community structure, water column and sedimentary geochemistry, pollutant tissue burdens of pelagic macro-biota, fish histopathology, and water mass characterization. The pollutant flux study included chemical (petroleum hydrocarbons and heavy metals) investigations on sediments and suspended particulates collected from four deep basins located within the Bight.

-2274-
AUTHOR(S): SEAGRAVES, R.J.
YEAR: 1984
TITLE: Delaware Bay Juvenile Finfish Trawl Survey
PUB: NMFS, U.S. Dept. of Commerce, Division of Federal Aid, Annual Report, DOC. No. 40-05/84/08/05, pp. 108-134
ABSTRACT:
In 1977 the Delaware Division of Fish and Wildlife began conducting a survey of the Delaware River Estuary nursery area to assess annual recruitment success of blue crab utilizing a 4.9 m otter trawl. Beginning in 1980 this program was expanded to include catch frequency data of juvenile fishes to determine their relative abundance and distribution and, where possible, as an indicator of year class strength for selected species. This report summarizes the 1983 survey.

-2275-
AUTHOR(S): SEAGRAVES, R.J.
YEAR: 1984
TITLE: Survey of Sport Fishery of Delaware Bay, 1983
PUB: Delaware Division of Fish and Wildlife, Dover, DE, DOC. No. 40-05/84/04/06

ABSTRACT:
The study objective is to determine the total annual effort in man-days and catch of fishes in numbers and pounds by shore-based and boat recreational fishermen in all of Delaware's marine waters and the New Jersey portion of Delaware Bay for 1983.

-2276-
AUTHOR(S): SEAGRAVES, R.J.
YEAR: 1986
TITLE: Survey of Sport Fishery of Delaware Bay, 1984
PUB: Delaware Division of Fish and Wildlife, Dover, DE, DOC. No. 40-05/84/04/06, 134 pp.
ABSTRACT:
Because of the need to update information concerning the status of Delaware's marine recreational fishery, a study of the fishery was initiated during 1982 and has been conducted annually since then. This work is intended to update estimates of total participation and catch by marine anglers in Delaware. To accomplish these objectives, an aerial survey in conjunction with dockside interviews was used to estimate effort and catch in the fishery.

-2277-
AUTHOR(S): SEAGRAVES, R.J. AND D. ROCKLAND
YEAR: 1983
TITLE: Survey of the Sport Fishery of Delaware Bay
PUB: Delaware Division of Fish and Wildlife, Dover, DE. Performance Rep. 15 April 1982-14 April 1983, 62 pp.
ABSTRACT:
The study objective is to determine the total annual effort in man-days and catch of fishes in numbers and pounds by shore-based and boat recreational fishermen in all of Delaware's marine waters and the New Jersey portion of Delaware Bay.

-2278-
AUTHOR(S): SEAGRAVES, R.J. AND D.B. ROCKLAND
YEAR: 1983
TITLE: Annual Report of Gill Net Catch and Effort Statistics in Delaware
PUB: NMFS, U.S. Dept. of Commerce, Division of Federal Aid, Final Report: Chapter VII, 26 pp.
ABSTRACT:
The objective of this program is to provide estimates of the total catch in weight, total effort, and to document the economic magnitude and importance of commercial finfisheries in Delaware. In addition to determining the dockside value of the fishery, the purpose of the economic analysis was to describe the total economic impact resultant from commercial gill netting in Delaware.

-2279-
AUTHOR(S): SEAPY, R.R.
YEAR: 1974
TITLE: Zooplankton
PUB: In: Dailey, M.D., B. Hill and N. Lansing, eds. A Summary of Knowledge of the Southern California Coastal Zone and Offshore Areas. Vol. II. Biological Environment. Performed for BLM. The So. CA Ocean Studies Consort., Chp.8
ABSTRACT:
Collection methods and abundance information for Southern California Bight zooplankton are provided.

-2280-
AUTHOR(S): SEDBERRY, G.R. AND R.F. VANDOLAH
YEAR: 1984
TITLE: Demersal Fish Assemblages Associated with Hard Bottom Habitat in the South Atlantic Bight of the U.S.A.
PUB: Environ. Biol. Fish 11(4):241-258
ABSTRACT:

Demersal fish communities associated with hard bottom habitats in the South Atlantic Bight were investigated in three depth zones (inner, middle and outer shelf) between 30 Degrees and 33 Degrees N latitudes. Fishes were sampled with trawls and baited fishing gear, and were observed by remotely operated underwater television. Most demersal hard bottom fishes demonstrated seasonal differences in abundance in each depth zone, especially at the inner and outer shelf stations. Diversity values from trawl catches were higher in winter than summer at inner and outer shelf stations, but lower in winter at middle shelf stations. Species richness was higher in summer than in winter at most stations, but H' diversity patterns were more influenced by community evenness. Diversity values were higher than those reported for similar depths in the Middle Atlantic Bight. Mean biomass of demersal teleosts for all stations combined was slightly greater in winter than in summer. There was no significant difference in biomass between stations in summer, however, middle shelf stations had significantly greater biomass than inner or outer shelf stations in winter. Biomass estimates from the hard bottom areas studied were considerably higher than those reported in the literature for sand bottom areas in the South Atlantic Bight, but less than those reported from tropical reefs. Cluster analysis revealed differences in community composition between day and night trawl tows at all stations, and greater seasonal differences in species composition at inner and outer shelf stations than at middle shelf depths. Underwater television provided useful complementary data to trawl catches, documented the presence of large fishes which avoided the trawl, and provided information on the community composition at high relief stations which could not be trawled.

-2281-
AUTHOR(S): SEKAVAC, G.B. AND G.R. HUNTSMAN
YEAR: 1972
TITLE: Reef Fishing on the Carolina Continental Shelf
PUB: Proceedings of the Fifteenth Annual International Game Fish Research Conference, Miami Beach, FL, pp. 76-84
ABSTRACT:

Catch data from headboats operating between Morehead City, North Carolina and Charleston, South Carolina were collected by interviewing all active headboat operators and by having each vessel maintain a daily record of the number of fish of each species caught, the number of anglers aboard and the location fished. Collections of stomachs, gonads, and scales were obtained for further biological investigation. A general analysis of the catch data is provided along with recommendations for further study and development of this fishery.

-2282-
AUTHOR(S): SELIGER, H.H., J.A. BOGGS, R.B. RIVKIN, W.H. BIGGLEY AND K.R.H. ASPEN
YEAR: 1982
TITLE: The Transport of Oyster Larvae in an Estuary
PUB: Mar. Biol. 71(1):57-72
ABSTRACT:

Vertical and horizontal distributions of three larval stages of the oyster, Crassostrea virginica, were measured concurrently with phytoplankton

species compositions, phytoplankton size distributions and physical hydrographic parameters in tributaries of the Chesapeake Bay (U.S.A.) during the oyster spawning seasons of 1980 and 1981. The superposition of the biological distributions upon the physical hydrographic data provide instantaneous distributions of the entire system which are consistent with the upstream transport of oyster larvae. Oyster larvae distributions in the Choptank River and its Broad Creek and Tred Avon River Tributaries can be described in terms of three contiguous regions: (1) a common spawning region, (2) an intermediate upstream transport region, and (3) a seed bed region where major spat set occurs. The phytoplantkon species compositions and abundances in the size fraction less than 10 mu m in the tributary system during the transport were sufficient to supply optimum growth requirements of developing larvae.

-2283-
AUTHOR(S): SELLERS, M.A. AND J.G. STANLEY
YEAR: 1984
TITLE: Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (North Atlantic)--American Oyster
PUB: U.S. Fish. Wildl. Serv. FWS/OBS-82/11.23. U.S. Army Corps of Engineers, TR EL-82-4, 15 pp.
ABSTRACT:
Species profiles are literature summaries of the taxonomy, morphology, range, life history, and environmental requirements of coastal aquatic species. They are designed to assist in environmental impact assessment.

-2284-
AUTHOR(S): SEMAN, G.A., G.F. TANDY, D.L. CLAUSEN, D.L. CLAUSEN AND L.L. TRASKY
YEAR: 1981
TITLE: Mid-Beaufort Coastal Habitat Evaluation Study: Colville River to Kuparuk River. Report for North Slope Borough. (Revisions included, March 1982)
PUB: AK Dept. Fish & Game, Habitat Div. Anchorage, AK, 206 pp.
ABSTRACT:
Habitat descriptions and species life histories for coastal, marine and inland fish, birds and mammals include a section dealing with management recommendations and information gaps.

-2285-
AUTHOR(S): SEN, A.R.
YEAR: 1984
TITLE: Sampling Commercial Rockfish Landings in California
PUB: NOAA/NMFS/SWFC, NOAA Tech. Memo, NOAA-TM-NMFS-SWFC-45, 103 pp.
ABSTRACT:
This study was undertaken during 1983 (May 15-October 15) under agreement between the present author, the Humboldt State University Foundation and the Department of Commerce, NOAA, NMFS, Tiburon Laboratory. The purpose of the investigation was in the first place to determine if the present sampling plan for the estimation of parameters such as age and species composition of California rockfish landings is workable; i.e., if the operational procedures being utilized during the execution of the plan meet its requirements. If not, whether a revised plan could be designed which would conform to operationally feasible sampling procedures. It was also intended to obtain, under certain assumptions, the precision of the estimates of total catch of rockfish by species and by sex-age groups stratified by type of fishery and port and time of landing in California north of Point Arguello; and compare these with the precision of alternative estimators with a view to find the

most efficient estimator. Finally, it was required to determine the optimum sample size for estimating the parameters as accurately as possible within the usual limitations of budget and personnel.

-2286-
AUTHOR(S): SEN, A.R.
YEAR: 1986
TITLE: Methodological Problems in Sampling Commercial Rockfish Landings
PUB: Fish. Bull. 84(2):409-422
ABSTRACT:

The present sample survey plan, for the estimation of age and species composition of California rockfish landings, which is stratified two-stage with port-month group as a stratum, poses serious operational problems in data collection. A revised plan is suggested which is workable. Formulas have been developed for estimating total catch and its error by species-sex-age groups; optimum sampling and subsampling fractions have been obtained for a given cost function and the precision of the estimator is compared with two other estimators. The method developed has been extended to cover situations other than rockfish.

The paper also deals with double-sampling for specified cost for the estimation of age composition of a species, which is important to predict the status of a stock in future years, the inherent problems in data collection in commercial fisheries, and the measurement errors involved in the survey.

-2287-
AUTHOR(S): SENN, H.
YEAR: 1969
TITLE: Investigation of Effect of Grays Harbor Waters on Coho Emigration
PUB: NOAA/NMFS, Washington, D.C., Proj. No. 1-18-R, 11 pp.
ABSTRACT:

Suspected causes of below average returns of coho to the Simpson Hatchery were low quality of reared juveniles, a water pollution problem in upper Grays Harbor, or a combination of both. Two lots of approximately 200,000 coho smelts of the 1964 brood year were given identifying fin clips. One lot was planted in the hatchery stream and the other in the Humptulips River which empties into Grays Harbor below the problem area. Sampling in the various ocean salmon troll and sport fisheries revealed that the contribution from the Humptulips plant was 65% better than that of the Satsop plant. The experiment was repeated with the 1965 brood year and preliminary results corroborate the 1964 findings.

-2288-
AUTHOR(S): SENN, H.
YEAR: 1971
TITLE: Hatchery Coho Salmon Contribution to the Fishery: Coho Marking and Sampling, 6-20-66 through 6-30-67
PUB: NOAA/NMFS, Washington, D.C. Proj. No. 1-32-R, 131 pp.
ABSTRACT:

During the fiscal year 1967 approximately 10% of the 1965 brood coho being reared at Puget Sound Hatcheries and a like percentage of the 1966 brood being reared at Columbia River Hatcheries were marked by fin clipping. Prior to releasing the 1965 brood from the Columbia River stations, a 1% sample was obtained to determine marked to non-marked ratios along with estimated numbers of fish on hand. At several Puget Sound streams sampling was conducted on the harvest of mark coho of the 1964 brood by sports fishermen. Several hatcheries were able to obtain a count on the return of these fish to the rack. The liberation of all reared 1965 brood coho in the Columbia River and

Puget Sound drainages was completed. A calculated total of 18,270,297 fish were involved.

-2289-
AUTHOR(S): SERCHUK, F.M. AND P.W. WOOD
YEAR: 1981
TITLE: Assessment and Status of the Sea Scallop (Placopecten magellanicus) Populations off the Northeast Coast of the United States
PUB: Proc. Nat. Shellfish. Assoc. 69:161-191
ABSTRACT:
Landings of sea scallops (Placopecten magellanicus) from the Northwest Atlantic reached record levels in 1977 when 24,000 metric tons of meats were harvested. The history of sea scallop landings, however, is one of large fluctuations. Catches have been affected by changes in population abundance, economic factors, and sociopolitical activities.

The biology and fishery for sea scallops on Georges Bank and in the Middle Atlantic is reviewed. Trends in commercial landings for both the United States and Canada, the sole participants in the fishery, are described from 1887 to the present. Recent fishing patterns are related to resource evaluations derived from U.S.A. and Canadian research vessel sea scallop survey data. An outstanding 1972 year-class resulted in significant increases in population biomass in the late 1970s in almost all areas on Georges Bank and in the Middle Atlantic, and has supported the recent intensive fishery. Recruitment has since been much poorer and with the exception of the Northern Edge and Peak region of Georges Bank, populations in most areas have substantially decreased. Present management aspects are elucidated, both in regard to the resource, and the United States-Canada territorial boundary dispute. Future outlooks for the Georges Bank and Middle Atlantic populations are presented together with strategies which could contribute to increasing the long term potential yield of these resources.

-2290-
AUTHOR(S): SERCHUK, F.M. AND R.L. WIGLEY
YEAR: 1982
TITLE: Deep-Sea Red Crab, Geryon quinquedens
PUB: In: Fish Distribution MESA New York Bight Atlas, Monograph 15. New York Sea Grant Institute, Albany, New York, pp. 125-130
ABSTRACT:
The Middle Atlantic Bight is a complex ecosystem characterized by rapid latitudinal changes in water temperatures and associated fauna. Subtropical and boreal fish fauna overlap in the region from Cape Hatteras to Georges Bank, resulting in a highly diverse fish community with large seasonal fluctuations in distributions. The general ecology of Deep Sea Red Crab, Geryon quinquedens, species, fish, and shellfish in the Middle Atlantic Bight is summarized in terms of 1) distribution and seasonal movements, 2) population size and fisheries, 3) reproduction-growth-lifespan, 4) feeding interrelationships, and 5) environmental sensitivity to pollutants and natural environmental factors.

-2291-
AUTHOR(S): SERCHUK, F.M. AND S.A. MURAWSKI
YEAR: 1980
TITLE: Evaluation and Status of Ocean Quahog, Arctica islandica (Linnaeus) Populations off the Middle Atlantic Coast of the United States
PUB: NOAA/NMFS, NEFC
ABSTRACT:
This report presents an updated evaluation of the status of ocean quahog, Arctica islandica, populations off the Middle Atlantic coast of the United

States (Cape Cod to Cape Hatteras). Estimates of minimum population size and equilibrium yields from the Middle Atlantic resources, provided in Murawski and Serchuk (1979a), are re-examined relative to current commercial landings levels from the Middle Atlantic Fishery Conservation Zone, and new information on ocean quahog growth rate and longevity.

-2292-
AUTHOR(S): SERCHUK, F.M. AND S.E. WIGLEY
YEAR: 1986
TITLE: Status of the Sea Scallop Resources off the Northeastern United States, 1986
PUB: NMFS/NEFC, Woods Hole Lab. Ref. Doc. No. 86-08, 36 pp.
ABSTRACT:
The Atlantic sea scallop fishery off the northeastern coast of the United States is of major importance to both the United States and Canada. Total landings peaked at 26,700 mt in 1978 and declined to a 10-year low of 9,800 mt in 1984. Provisional landings in 1985 were 10,600 mt, an 8% increase from 1984, but still the second lowest catch level since 1975.

-2293-
AUTHOR(S): SERCHUK, F.M., S.A. MURAWSKI AND J.W. ROPES
YEAR: 1982
TITLE: Ocean Quahog, Artica islandica
PUB: In: Fish Distribution MESA New York Bight Atlas, Monograph 15. New York Sea Grant Institute, Albany, New York, pp. 144-146
ABSTRACT:
The Middle Atlantic Bight is a complex ecosystem characterized by rapid latitudinal changes in water temperatures and associated fauna. Subtropical and boreal fish fauna overlap in the region from Cape Hatteras to Georges Bank, resulting in a highly diverse fish community with large seasonal fluctuations in distributions. The general ecology of Ocean Quahog, Artica islandica, species, fish, and shellfish in the Middle Atlantic Bight is summarized in terms of 1) distribution and seasonal movements, 2) population size and fisheries, 3) reproduction-growth-lifespan, 4) feeding interrelationships, and 5) environmental sensitivity to pollutants and natural environmental factors.

-2294-
AUTHOR(S): SERFLING, S.A. AND R.F. FORD
YEAR: 1975
TITLE: Ecological Studies of Puerulus Larval Stage of California Spiny Lobster, Panulirrus interruptus
PUB: Fish. Bull. 73(2):360-377
ABSTRACT:
The mode of life, benthic or pelagic, of the puerulus larval stage in the life history of the California spiny lobster, Panulirus interruptus, was determined. The development of a suitable field sampler was discussed and used to study recruitment dynamics, general abundance, and the possibility of collecting this stage for use in aquaculture. A comparison of habitat trap types was performed, with larvae having a strong preference for those containing Phyllospadix torreyi. Results indicate that the puerulus stage is a member of the surface-dwelling neuston, well developed for directional swimming. This may allow them to actively swim back to their shallow water nursery grounds, indicating that this stage may have evolved for the purpose of recruitment. Increasing fishing pressure may require the need to protect their natural habitats, develop artificial habitats, and supplement natural stocks by culturing the puerulus stage.

-2295-
AUTHOR(S): SEROBABA, I.I.
YEAR: 1974
TITLE: Spawning Ecology of the Walleye Pollock (Theragra chalcogramma) in the Bering Sea
PUB: J. Ichthyol. 14(4):544-552
ABSTRACT:
Data are given concerning the spawning conditions and the distribution pattern of spawners, juveniles, fingerlings, larvae and eggs of the walleye pollock (Theragra chalcogramma) in the Bering Sea. It is shown that spawning in clearly segregated water layers and all examples of the vertical localization of adult walleye pollock and of eggs and larvae are of an adaptive nature, promoting the survival of the individual and the preservation of the species as a whole.

-2296-
AUTHOR(S): SEROBABA, I.I.
YEAR: 1979
TITLE: The Reproductive Capability of the Alaska Pollock, Theragra chalcogramma, from the Eastern Part of the Bering Sea in Connection with Its Population Change
PUB: Biol. Morya 0(3):74-77
ABSTRACT:
An analysis of the growth rate dynamics and individual and population fecundity of the Alaska pollock showed that depending on fishery influence, these indices and maturation times of the fish change. This results in changes in reproductive rates of the spawning school and in its abundance.

-2297-
AUTHOR(S): SETTE, O.E.
YEAR: 1926
TITLE: Fishery Industries of the United States: 1924
PUB: U.S. Dept. of Commerce. Bureau of Fisheries Document No. 997, pp. 352-385
ABSTRACT:
The statistics of the fisheries contained in this report apply to the commercial coast fisheries of North Carolina, South Carolina, Georgia and the eastern coast of Florida for the calendar year 1923. The report contains a general discussion of the statistics for the U.S. South Atlantic Coast. In addition, a detailed discussion is included concerning the commercial fishery of North Carolina. This discussion includes statistics dealing with the fisheries by county, the persons engaged, investment and products of the fishery, yield per vessel, yield of shore fisheries, and the yield by apparatus.

-2298-
AUTHOR(S): SETTE, O.E.
YEAR: 1943
TITLE: Biology of the Atlantic Mackerel (Scomber scrombrus) of North America. Part I: Early Life History, Including Growth, Drift, and Mortality of the Egg and Larval Populations
PUB: Fish. Bull. 50(38):149-237
ABSTRACT:
The common mackerel, Scomber scombrus, is found on both sides of the Atlantic Ocean, approximately between the 30th and 50th parallels of north latitude. Although American and European representatives are very much alike in appearance, life history, and habits, their ranges are discontinuous, so that the two populations may be regarded as separate races with no

intermigration. Consistent with this view is the observation (Garstang, 1898, p. 284) that the two stocks differ in morphological characters.

-2299-
AUTHOR(S): SETTE, O.E.
YEAR: 1950
TITLE: Biology of the Atlantic Mackerel (Scomber scombrus) of North America. Part II: Migrations and Habits
PUB: Fish. Bull. 51(49):251-258
ABSTRACT:
The commercial catch of mackerel, Scomber scombrus (Linnaeus) 1758, along the Atlantic coast of North America has fluctuated widely (Sette and Needler 1934) owing to similarly wide changes either in abundance or in availability of the fish to fishermen. Since such fluctuations vitally affect both the fishery and the trade in its products, and also because they confuse the conservation problem, the United States Bureau of Fisheries (now a part of the Fish and Wildlife Service) in 1925 undertook an investigation of the causes of these fluctuations. The work involved not only studies of the fluctuations, but also of the many phases of life history and habits which had to be understood to interpret the observations of the changes in catch.

-2300-
AUTHOR(S): SHARP, G.D. AND CSIRKE, J., EDS.
YEAR: 1983
TITLE: On the Variability of Population Biology Rates. Examples from the California Pelagic Fisheries
PUB: In: Proceedings of the Expert Consultation to Examine Changes in Abundance and Species Composition of Neritic Fish Res., San Jose, Costa Rica, 18-29 April 1983. FAO Fish. Rep./FAO, Inf. Pegea., No 291, Vol. 3, pp. 1039-1040
ABSTRACT:
Department of Fish and Game fishery sampling and sea survey data on anchovy and mackerel were used to describe the variability of post-recruit life history rates.

-2301-
AUTHOR(S): SHARP, G.D. AND J. CSIRKE
YEAR: 1983
TITLE: Vertical Distribution of Larvae of Mackerel, Scomber scombrus, and Microplankton, with Some Conclusions on Feeding Conditions and Survey Methods
PUB: In: Proceedings of the Expert Consultation to Examine Changes in Abundance & Species Composition of Neritic Fish Resources, San Jose, Costa Rica, 18-29 April 1983. FAO Fish. Rep./FAO, Inf. Pega. No. 291, Vol. 3, pp. 936-95
ABSTRACT:
The results of vertically stratified plankton sampling are presented, describing the relationship between the vertical distribution of mackerel larvae (S. scombrus) and microplankton. The implications of the results are discussed in relation to the design of plankton sampling for investigations of the dependence of recruitment on plankton abundance, and suitable methodologies are outlined.

Experience from the use of high-speed and broad-scale sampling techniques is used to suggest improved sampling strategies for ichthyoplankton surveys as required, for example, to provide data for stock management.

-2302-
AUTHOR(S): SHARPE, B.
YEAR: 1949
TITLE: Fishing Carolina's Coast
PUB: Marine Publishing House, Inc., Wilmington, NC, 69 pp.
ABSTRACT:
This book attempts to show where various species are most numerous and catchable, and when the season is most favorable. Records of past years' catches are provided as a guide to probabilities. Information on guides, boats, accommodations, prices, and recommended localities are given. A majority of the information provided is very outdated.

-2303-
AUTHOR(S): SHAW, R.F., J.H. COWAN, JR. AND T.L. TILLMAN
YEAR: 1985
TITLE: Distribution and Density of Brevoortia patronus (Gulf Menhaden) Eggs and Larvae in the Continental Shelf Waters of Western Louisiana
PUB: Bull. Mar. Sci. 36(1):96-103
ABSTRACT:
Eggs and larvae of Brevoortia patronus (gulf menhaden) were identified from 179 oceanic samples taken during 5 monthly ichthyoplankton cruises from December 1981 to April 1982. Stepped-oblique plankton tows were taken with a bongo-type net at five transects over the continental shelf from west of the Sabine River, Texas, to east of the Mermentau River, Louisiana. Charts of gulf menhaden egg and larval density (no./100 m super (3)) are presented along with surface temperature and salinity plots. A peak in average egg density (28/100 m super (3)) occurred in December between the 10- and 23-m isobaths where surface temperatures and salinities ranged from 15 to 18 degrees C and 30 to 36 ppt. Most larval menhaden were taken between the 10 and 37-m isobaths where surface temperatures and salinities ranged from 12 to 18 degrees C and 29 to 36 ppt.

-2304-
AUTHOR(S): SHAW, R.F., W.J. WISEMAN, JR., R.E. TURNER, L.J. ROUSE, JR. AND R.E. CONDREY
YEAR: 1985
TITLE: Transport of Larval Gulf Menhaden, Brevoortia patronus, in Continental Shelf Waters of Western Louisiana: A Hypothesis
PUB: Trans. Amer. Fish. Soc. 114(4):452-460
ABSTRACT:
The gulf menhaden commercial fishery in the Gulf of Mexico is the largest by weight in the United States. Spawning takes place on the continental shelf during fall and winter and the pelagic larvae are transported into estuarine nursery areas. Quantitative information on a transport mechanism had previously been lacking. Knowledge of the coupling between continental shelf and estuaries is necessary to understand the causes of high natural variability in estuarine recruitment and to develop and evaluate spawner-recruit and environment-survival relationships. Analysis of a variety of biological and physical data led to the development of a testable transport hypothesis. The hypothesis suggests that west-northwest longshore advection within the horizontally stratified coastal boundary layer is the primary mechanism transporting gulf menhaden larvae to the Calcasieu River estuary, the major estuarine system in western Louisiana.

-2305-
AUTHOR(S): SHAW, W., G.A. MACFARIANE AND S.E. MACLELLAN
YEAR: 1986
TITLE: Biological Survey of Pacific Hake, Walleye Pollock, and Spiny Dogfish in the Strait of Georgia
PUB: Can. Data Rep. Fish. Aquat. Sci. No. 590
ABSTRACT:
A total of 26 midwater trawls were completed in the Strait of Georgia. The majority of the twos were made deeper than 135 m (74 fth). Pacific hake, Merluccius productus, accounted for 44.2% of the total catch of all species. Walleye pollock, Theragra chalcogramma, accounted for 33.2% of the total catch of all species. Squalus acanthias, spiny dogfish, acounted for 22.2% of the total catch of all species.

-2306-
AUTHOR(S): SHAW, W.N.
YEAR: 1986
TITLE: Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Pacific Southwest)--Spiny Lobster
PUB: U.S. Fish Wildl. Serv. Biol. Rep. 82(11.47). U.S. Army Corps of Engineers, TR-EL-82-4, 10 pp.
ABSTRACT:
Species profiles are summaries of the literature on taxonomy, morphology, distribution, life history, and environmental requirements of major coastal aquatic species, which are prepared to assist in environmental impact assessment. The spiny lobster (Panulirus interruptus) supports a valuable commercial and sport fishery along the southern California coast. Mating takes place from March to August in water 50 to 100 ft. deep. The larvae pass through 11 pelagic stages in 7 to 9 months. The puerulus stage lasts another 2.5 months before the lobster transforms into the benthic form. Age at sexual maturity is 3 to 6 years for males and 5 to 9 years for females. Spiny lobsters are caught in commercial traps from October through March. Sport fishing for lobsters is mainly done by skin divers and scuba divers. Juveniles live in shallow coastal waters under the protection of plant cover; adults live in crevices or dens. Larvae are plankton feeders and adults are omnivorous, primarily scavengers. Because of a scarcity of information on larval food requirements and the slow larval growth rate, profitable mariculture of the spiny lobster currently is not feasible.

-2307-
AUTHOR(S): SHAW, W.N.
YEAR: 1986
TITLE: Common Littleneck Clam Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates
PUB: U.S. Fish. Wildl. Serv. Biol. Rept., Common Littleneck Clam. No. 82(11.46)
ABSTRACT:
Species profiles are literature summaries of the taxonomy, morphology, distribution, life history, and environmental requirements of coastal aquatic species. They are prepared to assist in environmental impact assessment. Common littleneck clam (Protothaca staminea) supports an important sport fishery in the Pacific Southwest Region, but has no commercial importance. The species is distributed from Alaska to Baja, California. The egg develops into the trochophore stage 12 h after fertilization, and the planktonic larval stage lasts about 3 weeks. Adults usually mature in the second or third year of life. Mortality is greatest early in life. Intraspecific competition

among adults is more evident in mud than in sand. Most littleneck clams live in the lower intertidal zone. Littleneck clams concentrate heavy metals and are highly sensitive to copper.

-2308-
AUTHOR(S): SHELDON, R.W., W.H. SUTCLIFFE, JR., K. DRINKWATER AND M.C. MERCER, EDS.
YEAR: 1982
TITLE: Fish Production in Multispecies Fisheries
PUB: In: Workshop on Multispecies Approaches to Fisheries Management Advice, St. John's nfld., 26 Nov. 1979. Can. Spec. Publ. Fish. Aquat. Sci., No. 59, pp. 28-34
ABSTRACT:

It is possible, by relating the biomass of phytoplankton and fish, to make estimates of fish standing stocks. The advantage of this method for estimating fish stocks is that it is far easier to measure the standing stock of phytoplankton than it is to measure the standing stock of fish. If the growth rate of fish is known then fish production and potential fishery yield can also be estimated. Fishery yields of the Gulf of St. Lawrence and the Scotian Shelf have been estimated by these methods. The predicted yields were close to the actual yields of the fisheries. This indicates that the fisheries are probably being exploited at rates that are near to the maximum for sustained production. Successful forecasts have been made of the catch of the American lobster (Homarus americanus), and equally successful forecasts seem possible for other species.

-2309-
AUTHOR(S): SHENKER, J.M. AND J.M. DEAN
YEAR: 1979
TITLE: The Utilization of an Intertidal Salt Marsh Creek by Larval and Juvenile Fishes: Abundance, Diversity and Temporal Variation
PUB: Estuaries 2(2):154-163
ABSTRACT:

The utilization of an intertidal salt marsh creek in South Carolina during January 1977 was determined by sampling every third ebb tide for 13 days. All fishes leaving the creek during that period were captured in a channel net. This procedure produced a time-series of samples which permitted analysis of the fish community occupying the intertidal creek at all times of day and night.

A total of 14,730 larval, juvenile, and adult fishes comprising at least 22 species in 16 families were collected. The most common larval and juvenile fishes were Leiostomus xanthurus, Mugil spp., Myrophis punctatus leptocephali, Lagodon rhomboides, Paralichthys spp., and Micropogonias undulatus. Catch sizes for all species varied widely between samples. No diurnal-nocturnal pattern in catches was evident for L. xanthurus, Mugil spp., L. rhomboides and M. undulatus. M. punctatus was taken in large numbers only when the flood tide occurred during the day, while more Paralichthys spp. larvae were taken in late afternoon-evening flood tide samples. The most common invertebrate, Palaemonetes pugio, was taken in large quantities only in late afternoon-night flood tide samples.

-2310-
AUTHOR(S): SHEPARD, M.P., A.C. HARTT AND T. YONEMORI
YEAR: 1968
TITLE: Salmon of the North Pacific Ocean. VIII. Chum Salmon in Offshore Waters
PUB: Int. N. Pac. Fish. Comm. Bull. No. 25, pp. 2-67
ABSTRACT:

Research on the distribution of Pacific salmon on the high seas began in the 1920s and 1930s with offshore exploration by Japan involving driftnetting and tagging in the western North Pacific area including the western Bering Sea (Sato, 1939; Hirano, 1953; Japan Fisheries Agency, 1955; Kasahara, 1961). These studies, interrupted by the Second World War, were revived in 1952 and expanded rapidly with the development of the Japanese mothership fisheries for salmon in the North Pacific, the Bering Sea, and the Sea of Okhotsk (Japan Fisheries Agency, 1955; Taguchi, 1957; Kasahara, 1961). From 1939 to 1941 and in 1953 the United States conducted some preliminary reconnaissance work in the eastern part of the Bering Sea (Barnaby, 1952; Schaeffers and Fukuhara, 1954). In 1955, the vast cooperative program of the International North Pacific Fisheries Commission began. Since 1955, research vessels of Japan, the United States, and Canada have explored the North Pacific Ocean and the adjacent seas to study the offshore distribution of salmon. Independently, U.S.S.R. scientists have also conducted exploratory fishing on the high seas close to the U.S.S.R. coast (Birman, 1958). Tagging of salmon caught by purse seines, longlines, and driftnets to determine the migration pattern of salmon has been conducted along the Aleutian Chain, in the far west North Pacific, and in the Gulf of Alaska. Intensive studies have been carried out to develop means of identifying the continental origin of fish taken on the high seas by comparisons of body measurements and meristic counts, scale characteristics, parasite content, and blood chemistry of salmon originating in different areas.

-2311-
AUTHOR(S): SHEPHERD, G.R. AND C.B. GRIMES
YEAR: 1984
TITLE: Reproduction of Weakfish, Cynoscion regalis, in the New York Bight and Evidence for Geographically Specific Life History Characteristics
PUB: NOAA, Fish. Bull. 82(3):501-512
ABSTRACT:

Reproduction characteristics for weakfish, Cynoscion regalis, in the New York Bight were examined. Spawning in 1980-81 occurred from May to early July with spawning time dependent on parental size. Maturity for both sexes occurred by age 1 but at a greater size in females. Annual fecundity estimates were compared with literature values for North Carolina weakfish and were found to be considerably lower in size, yet cumulative fecundities were nearly equivalent. The latitudinal variations in fecundity may be a behaviorally and environmentally induced phenomena, and influence the long-term population stability of weakfish.

-2312-
AUTHOR(S): SHERIDAN, P.F.
YEAR: 1983
TITLE: Abundance and Distribution of Fishes in the Galveston Bay System
PUB: Contrib. Mar. Sci. 26:143-163
ABSTRACT:

The fish fauna inhabiting the Galveston Bay estuarine system was studied from January 1963 through December 1964; 96 spp. and 364,815 individuals were

collected by trawl. Dominant in the system was Micropogonias undulatus (51.2% by number, 36.5% by weight). Other numerically important fishes were: Anchoa mitchilli, 22.3%; Stellifer lanceolatus, 8.0%; Leiostomus xanthurus, 4.1%; Cynoscion arenarius, 3.3%; and Arius felis, 2.4%. In terms of biomass, other important species were: L. xanthurus, 9.1%; Mugil cephalus, 7.6%; S. lanceolatus, 6.5%; A. felis, 5.7%; and C. arenarius, 5.0%. Fishes were most abundant in the upper estuary, but the number of species recorded was highest in the shallow Gulf of Mexico just offshore from the estuary. S. lanceolatus was the most abundant fish in the channel zones of the estuary and co-dominated with C. arenarius in Gulf waters. Anchoa mitchilli was the dominant fish in the waters of the main tidal pass. In all other zones (open, near shore and peripheral waters) and bay subareas, Micropogonias undulatus was numerically dominant. The areas of maximum abundance for 59 spp. are also given. Mean number of fishes per tow was significantly higher in 1963 than in 1964, attributable mainly to larger catches of A. mitchilli and S. lanceolatus in several months of 1963. On an annual basis, mean fish biomass per tow was stable even though monthly differences were noted. No other system-wide studies of the fish fauna of Galveston Bay have been conducted. Results of the few limited investigations conducted before or after 1963-1964 conflict with the results of the latter. Resultant differences might equally be attributed to natural fish population fluctuations, differences in sampling methodology and rapid human development, and use of the estuary and surrounding lands.

-2313-
AUTHOR(S): SHERIDAN, P.F. AND R.J. LIVINGSTON
YEAR: 1983
TITLE: Abundance and Seasonality of Infauna and Eipfauna Inhabiting a Halodule-Wrightii Meadow in Apalachicola Bay, Florida
PUB: NMFS, Estuaries 6(4):407-419
ABSTRACT:

The fauna inhabiting a H -Wrightii meadow in Apalachicola Bay, Florida was studied from March 1975-February 1976. The infaunal community was sampled by monthly coring. Fifty-eight species were recorded, averaging 35 spp./mo. A maximum faunal abundance of 104,338 organisms/m2 in April was one of the highest infaunal densities recorded in the literature. Sixteen species accounted for 84% of the total numbers and 80% of the total biomass over the study period. Numerical dominants were Hargeria rapax, Heteromastus filiformis, Ampelisca vadorum, Aricidea fragilis and oligochaetes. Biomass dominants were Tagelus plebeius, Neritina reclivata, Enis minor and Haploscoloplos fragilis. Life history notes are given for several dominant species. Epibenthic fishes and macroinvertebrates were sampled monthly near the coring site, with most species and individuals recorded during the months of May through September. Bairdiella chrysoura, Orthopristis chrysoptera and Lagodon rhomboides comprised 76% of the total fish numbers. Eleven species of macroinvertebrates were collected mainly in June and July. Callinectes sapidus comprised 61% of the total invertebrate numbers. The influx of juvenile fishes and crabs into the Halodule meadow in summer months probably leads to a coincident decline in infaunal population densities (number per m2) through predation. Infaunal biomasses are largely unaffected by these predators since the biomass dominants are large or deep-burrowing species.

-2314-
AUTHOR(S): SHERMAN, K.
YEAR: 1980
TITLE: MARMAP, A Fisheries Ecosystem Study in the Northwest Atlantic: Fluctuations in Ichthyoplankton-Zooplankton Components and Their Potential for Impact on the System
PUB: In: Diember, F.P. F.K. Vernberg and D.F. Mikes, eds. Advanced Concept in Ocean Measurements for Marine Biology, Belle W. Baruch Inst. for Mar. Biol. & Coastal Research, Univ. of S. Carolina Press, Columbia, SC, pp. 9-37
ABSTRACT:
Initial results of a fishery ecosystem study based on time-series surveys of fish plankton, benthos, hydrography, fish catch data, and ancillary process-oriented subjects are described for continental shelf area off northeast coast of the U.S. The decline in biomass of principal fish species from 1968 to 1975 is documented, and preliminary evidence suggesting that recent (1974 to 1977) increases in sand lance (Ammodytes spp.) abundance may be indicative of a shift in dominance among fish species is presented. The importance of time series studies is emphasized in relation to emerging theory that stressed ecosystems favor development of fast growing, short-lived and generally less desirable commercial species.

-2315-
AUTHOR(S): SHERMAN, K., J.R. GREEN, J.R. GOULET AND L. EJSYMONT
YEAR: 1983
TITLE: Coherence in Zooplankton of a Large Northwest Atlantic Ecosystem
PUB: NMFS, Narragansett, RI. Narragansett Lab. In: Fish. Bull. V. 81, No. 4, pp. 855-862
ABSTRACT:
Mesoscale measurements of zooplankton of the continental shelf off the northeast United States reveal previously unreported large-scale temporal and spatial coherence in the Gulf of Mexico, on Georges Bank, off Southern New England, and in the Mid-Altantic Bight. Recent declines in fish populations of the shelf appear related more directly to excessive fishing mortality than to any changes in the abundance of zooplankton.

-2316-
AUTHOR(S): SHERMAN, K., R. LASKER, W. RICHARDS AND A.W. KENDALL
YEAR: 1983
TITLE: Ichthyoplankton and Fish Reruitment Studies in Large Marine Ecosystems
PUB: NOAA/NMFS, Dept. of Commerce, Narragansett, RI, 25 pp.
ABSTRACT:
The study provides an overview of the research strategies and new studies implemented by NMFS to overcome resource assessment problems posed by the large-scale temporal and spatial biological and environmental changes influencing the abundance levels of U.S. fishery resources within the Fishery Management Zone (FMZ).

-2317-
AUTHOR(S): SHERMAN, K., R. LASKER, W. RICHARDS AND A.W. KENDALL, JR.
YEAR: 1983
TITLE: Ichthyoplankton and Fish Recruitment Studies in Large Marine Ecosystems
PUB: Mar. Fish. Rev. 45(10-11-12):1-25

ABSTRACT:

Within the FMZ of the United States, seven Large Marine Ecosystems (LME's)-Insular Pacific, Eastern Bering Sea, Gulf of Mexico, Southeast Atlantic Shelf, and Northeast Atlantic Shelf-support multi-billion-dollar fisheries, operating at different trophic levels. The LME's are characterized by unique bathymetry, hydrography, productivity, and population structure. To improve abundance forecasts of recruitment success of incoming year classes, two assessment strategies are used by NMFS in the LME's: 1) Fisheries independent surveys of fish eggs and larvae on mesoscale grids of 20-100 km at frequencies of two to twelve times a year to obtain estimates of the size of the spawning adult stocks, and 2) other studies within the mesoscale survey matrix aimed at discovering the processes controlling the annual recruitment success of new year classes. Processes under investigation include growth and mortality of eggs and larvae under variable density-dependent predator-prey interactions and density-independent influences of changes in circulation, water-column structure, biological production, and pollution. The sampling designs of the multispecies ichthyoplankton surveys in the LME's provide measures of spatial and temporal variability within acceptable confidence limits for estimating changes in abundance levels of spawning stock sizes off the northeast coast and in the California Current areas.

-2318-

AUTHOR(S): SHERMAN, K., R. MAURER, R. BYRON AND J. GREEN

YEAR: 1981

TITLE: Relationship Between Larval Fish Communities and Zooplankton Prey Species in an Offshore Spawning Ground

PUB: In: R. Lasker and K. Sherman, eds. ICES Symposium on: The Early Life History of Fish, Woods Hole, MA, 2 April 1979. Conseil Int. Explor. Mer, pp. 289-294

ABSTRACT:

The present report describes predator-prey interactions of the larval fish community and zooplankton populations on Georges Bank in spring. The present analysis was limited to 20 samples collected from Georges Bank. In the laboratory all fish larvae were identified and enumerated from the 0.505 mm mesh sample. For the zooplankton analysis approximately 500 organisms were aliquoted from each 0.333 mm mesh sample, identified and enumerated. The alimentary tracts of selected size groups of the dominant larval fish species were examined for food organisms under microscope. Relative abundance and dominance indices were calculated for both larval fish and zooplankton. Regression analyses were used to examine maxillary of 23 larval fish taxa which were in the collections. Of this number, seven: Gadus morhua, Melanogrammus aeglefinus, Myoxocephalus octodecemspinosus, Pollachius virens, Sebastes marinus, Pholis gunnellus, and Cottidae were dominant at one or more of the sampling locations. The patches of zooplankton prey of co-occurring cod and haddock are extensively distributed over the Bank, and are sufficiently populated with developing naupliar and copepodite stage to preclude serious interspecific competition for food between the two species.

-2319-

AUTHOR(S): SHERWOOD, M.

YEAR: 1980

TITLE: Recruitment of Nearshore Demersal Fishes

PUB: In: Bascom, W., ed. Coastal Water Research Project Biennial Report for Years 1979-80, S. Calif. Coastal Water Research Project, Long Beach, CA, pp. 319-333

ABSTRACT:

This study set out to identify demersal species of fish with abundant juvenile populations in nearshore waters off southern California. Approximately 15% of each trawl contained specimens less than 60 mm standard length (the chosen range for juvenile fishes). In each area sampled, less than 10 species represented over 95% of the trawl caught juveniles. These included the Dover sole, Microstomus pacificus, which was sampled below 30 m at the three coastal sampling areas, and the chilipepper, Sebastes goodei, which was the least abundant fish sampled off Catalina Island, and was found only at stations between 23-26 m deep. The stripetail rockfish, Pacific sanddab, and speckled sanddab were among the most abundant species in each area sampled. Recruitment occurred during all seasons, with winter and spring being the primary seasons. The calico rockfish and the California lizardfish showed strong aperiodic recruitment. Dover sole recruit primarily during spring. Reduced growth was exhibited during the winter months by several species collected in San Pedro Bay, including Dover sole.

-2320-
AUTHOR(S): SHEW, D.M., R.H. BAUMAN ET AL.
YEAR: 1981
TITLE: Texas Barrier Islands Region Ecological Characterization: Environmental Synthesis Papers
PUB: U.S. Fish and Wildl. Serv., National Coastal Ecosystem Team, Slidell, LA, FWS/035-81/32, 413 pp.
ABSTRACT:

This report is a synthesis of selected environmental literature for the Texas Barrier Islands Region and is a part of the Texas Barrier Islands Region Ecological Characterization Study. The Texas Barrier Islands Region is defined to include the coastal counties and extends 64 km inland and offshore to the State-Federal demarcation.

-2321-
AUTHOR(S): SHIELD, H.W. AND E.A. JOYCE, JR.
YEAR: 1972
TITLE: Summary of Florida Commercial Marine Landings, 1972
PUB: Florida Division of Marine Resources, 62 pp.
ABSTRACT:

Commercial landings of fish and shellfish at ports in Florida during 1972 were 168.3 million pounds worth $54.7 million at dockside. Compared to 1971, the volume increased 2% and the value 27%. The increase in volume was due mainly to increased landings of menhaden and black mullet. The gain in value was caused by moderate-to-strong price increases for almost all species of food fish and shellfish. In terms of quantity, menhaden and black mullet were the leading finfish. Shrimp continued to be the leading shellfish in volume as well as the most valuable species at dockside.

-2322-
AUTHOR(S): SHIMEK, R.L., D. FYFE, L. RAMSEY, A BERGEY, J. ELLIOTT AND S. GUY
YEAR: 1984
TITLE: A Note on Spawning of the Pacific Market Squid, Loligo opalescens (Berry, 1911), in the Barkeley Sound Region, Vancouver Island, Canada
PUB: Fish. Bull. 82(2):445-446
ABSTRACT:

Spawning of the market squid, Loligo opalescens, was observed in the Barkeley Sound region. The size of egg masses varied from individual masses of 1.3m2 to large aggregations of 69.3m2. Approximately 1,937 capsules per

isolated mass were found and totaled about 288,000 eggs (150 eggs/capsule). The large aggregation would have been the result of 24,000 females spawning (with each female laying about 20 capsules). The northern population of squid form large spawning schools lay large egg mass clusters as seen in the California population.

-2323-
AUTHOR(S): SHIPMAN, S. AND R.J. ESSIG
YEAR: 1984
TITLE: Georgia Sounds: An Evaluation of Shrimp Management Strategy. Presented at Annu. Meet. National Shellfisheries Association, Hilton Head Island, SC, 6 Jun 1983
PUB: J. Shellfish Res. 4(1):100
ABSTRACT:
Commercial landings data and mark-and-recapture results revealed that sound closures during periods of environmental extremes such as fall 1980 effected less than optimum harvest. Biological and socioeconomic implications of alternate management strategies are discussed with respect to the shrimp resource, other resources, and resource users.

-2324-
AUTHOR(S): SHIPPEN, H. AND G. STAUFFER
YEAR: 1983
TITLE: Pacific Ocean Perch
PUB: In: Stauffer, G., ed. Condition of the Groundfish Resources of the Gulf of Alaska Region as Assessed in 1983. NOAA/NMFS, NWAFC, Seattle, WA, 33 pp.
ABSTRACT:
Stock conditions and commercial landings for Gulf of Alaska stocks of Pacific ocean perch are assessed. Pacific ocean perch encompasses five Sebastes species: Pacific ocean perch, northern rockfish, rougheye rockfish, shortraker rockfish, and sharpchin rockfish as found in the current Gulf of Alaska Groundfish Management Plan.

-2325-
AUTHOR(S): SHOMURA, R.S.
YEAR: 1984
TITLE: Seamounts: A Biological Concourse in the Open Sea-An Introductory Statement
PUB: In: Uchida, R.N., S. Hyaasi and G.W. Boehlert, eds. Environment and Resources of Seamounts in the North Pacific. Proceedings of a Workshop, Mar. 21-23, 1984, Shimizu, Japan. DOC, NOAA, NMFS. Tech. Rep. NMFS 43, pp. 1-2
ABSTRACT:
The bulk of the world's ocean resources comes from the coastal zones and the adjacent continental shelf. A small fraction comes from the pelagic areas and includes species such as the tunas, billfishes, sharks, and offshore squids. In comparison with the resources of the continental shelf and the open ocean, the seamounts are a direct source of only a small fraction of the world's marine catch. Details of the historical catch and present knowledge of seamounts will be presented during this workshop. This introduction will provide a brief description of seamounts.

-2326-
AUTHOR(S): SHUMWAY, S.E.
YEAR: 1985
TITLE: Synopsis of Biological Data on the Pink Shrimp, Pandalus borealis
PUB: NOAA/NMFS, Seattle, WA, 66 pp.
ABSTRACT:
The synopsis of the literature was designed to summarize the biological and biochemical studies involving Pandalus borealis as well as to provide a summary of the literature regarding the fisheries data published before early 1984.

-2327-
AUTHOR(S): SHUMWAY, S.E. AND D.F. SCHICK
YEAR: 1987
TITLE: Variability of Growth, Meat Count and Reproductive Capacity in Placopecten magellanicus: Are Current Management Policies Sufficient?
PUB: Proceedings of Counc. Meet. of the Int. Council for the Exploration of the Sea, Santander, Spain, 1 Oct 1987. Ices, Copenhagen (Denmark), 26 pp.
ABSTRACT:
Recent studies have demonstrated variations in a number of allometric relationships, growth rate and reproductive capacity between populations of the scallop, Placopecten magellanicus from various depths. Current management policies are reviewed. It is suggested that considerable flexibility may be required in management so as to account for peculiarities of individual populations.

-2328-
AUTHOR(S): SICK, L.V.
YEAR: 1986
TITLE: Larval Distribution of Commercially Important Penaeidae in North Carolina
PUB: J. Elisha Mitchell Sci. Soc. 86(3):118-127
ABSTRACT:
The geographical distribution and seasonal occurrence of mature penaeid shrimps have been described both in the Gulf of Mexico (Anderson, King, and Lindner, 1949; Berkenroad, 1934) and along the southeastern Atlantic coast of the United States (Broad, 1959; Weymouth, Lindner, and Anderson, 1933; Williams, 1955). The distribution of juvenile penaeids inhabiting the estuaries of North Carolina has also been determined (Williams, 1955). Although seasonal distribution and relative abundance of planktonic-stage shrimp have been examined in the northwestern Gulf of Mexico (Temple and Fischer, 1967), very little is presently known about correlations between planktonic larval distribution along the North Carolina coast and environmental parameters. A comprehensive systematic distributional, and ecological review of larval, juvenile, and adult stages of penaeid shrimps is given in Farfante (1969).

-2329-
AUTHOR(S): SIDWELL, V.D., A.L. LOOMIS AND R.M. GRODNER
YEAR: 1979
TITLE: Geographic and Monthly Variation in Composition of Oysters, Crassostrea virginica
PUB: Mar. Fish. Rev. 41(3):13-17

ABSTRACT:

Cholesterol and glycogen contents of oysters, Crassostrea virginica, harvested each month for 1 year during 1975-76 from upper Chesapeake Bay (Md.), Mobile Bay (Al.), and Barataria Bay (La.) were determined. The values varied from 38 to 218 mg with an average of 109.4 mg for cholesterol and from 467 to 6,797 mg with an average of 2,355 mg for glycogen per 100 g of raw oyster meat on a wet-weight basis. Chesapeake Bay and Mobile Bay oysters were further analyzed for protein, fat, ash, moisture, and amino acid content. The protein varied from 5.8 to 10.4 g; fat, 1.4 to 3.0 g; ash, 0.6 to 2.3 g; and moisture, 77.7 to 87.0 g per 100 g of oyster meats on a wet-weight basis. Amino acid profiles of the protein were quite similar in oysters harvested from both locations. The variation in values reported in the literature for the composition of oysters may be associated with time of year and area from which the oyster was harvested. The variation is also due to the physiological status of the organism, which is somewhat influenced by temperature and salinity of growing waters and available food.

-2330-

AUTHOR(S): SIEGFRIED, C.A., M.E. KOPACHE AND A.W. KNIGHT

YEAR: 1979

TITLE: The Distribution and Abundance of Neomysis mercedis in Relation to the Entrapment Zone in the Western Sacramento-San Joaquin Delta

PUB: Trans. Am. Fish. Soc. 108(3):262-270

ABSTRACT:

The distribution and abundance of the opossum shrimp, N. mercedis, was studied in a portion of the upper San Francisco Bay estuary in 1976, the fourth-driest year on record. For much of 1976 the entrapment zone, an area of zero net horizontal flow, was located in the study area. Variations in the annual abundance of N. mercedis can be related to the location of the entrapment zone. In years of low flow, such as 1976, the entrapment zone is in the narrow channels of the upper estuary, thereby reducing habitat availability and, thus, the abundance of N. mercedis. Mysid population dynamics were highly correlated with reproduction, and fecundity with length, although the latter relationship changed seasonally. Juvenile mysids (3 mm long) tend to be higher in the water column during daylight than do mature mysids (7 mm long) leading to a geographic separation of these life stages. Estuarine hydraulics rather than salinity tolerance determines the distribution of N. mercedis in the study area.

-2331-

AUTHOR(S): SILVERMAN, M.J.

YEAR: 1982

TITLE: Atlantic Croaker, Micropogonias undulatus

PUB: In: Fish Distribution MESA New York Bight Atlas, Monograph 14. New York Sea Grant Institute, Albany, New York, pp. 95-96

ABSTRACT:

The Middle Atlantic Bight is a complex ecosystem characterized by rapid latitudinal changes in water temperatures and associated fauna. Subtropical and boreal fish fauna overlap in the region from Cape Hatteras to Georges Bank, resulting in a highly diverse fish community with large seasonal fluctuations in distributions. The general ecology of Atlantic croaker, Micropogonias undulatus, species, fish, and shellfish in the Middle Atlantic Bight is summarized in terms of 1) distribution and seasonal movements, 2) population size and fisheries, 3) reproduction-growth-lifespan, 4) feeding interrelationships, and 5) environmental sensitivity to pollutants and natural environmental factors.

-2332-
AUTHOR(S): SILVERMAN, M.J.
YEAR: 1982
TITLE: The Distribution and Abundance of Silver Hake, Merluccius bilinearis, Larvae off Northeastern United States, 1977-1980
PUB: Council Meeting for the International Council for the Explorations of the Sea, 11 October 1982, ICES, 16 pp.
ABSTRACT:
Density and abundance estimates for silver hake larvae in four subareas of the western North Atlantic from Cape Hatteras to the Gulf of Maine are reported. The period during which spawning occurrs, starting in early May in southern New England and as it spreads south, east, and then north is documented. The pattern of dispersion of larvae throughout the area was discerned during the study.

-2333-
AUTHOR(S): SIMENSTAD, C.A.
YEAR: 1983
TITLE: The Ecology of Estuarine Channels of the Pacific Northwest Coast: A Community Profile
PUB: U.S. Fish. Wildl. Serv. FWS/OBS-83-05, 181 pp.
ABSTRACT:
A review of the estuarine channels of the Pacific Northwest in terms of the physical characteristics, primary productivity, detritus, mammals, trophic and community ecology, and assemblages of invertebrates, fish and birds. The survey of fish assemblages included both demersal and pelagic fishes (resident and anadromous pelagic fishes, and ichthyoplankton. Information on migrating spawning and life history are also included.

-2334-
AUTHOR(S): SINCLAIR, M. AND T.D. ILES
YEAR: 1985
TITLE: Atlantic Herring (Clupea harengus) Distributions in the Gulf of Maine-Scotian Shelf Area in Relation to Oceanographic Features
PUB: Can. J. Fish. Aquat. Sci. 42(5):880-887
ABSTRACT:
There are clear, temporally persistent patterns in the spatial distributions of Atlantic herring (Clupea harengus) at various life overwintering stages. Three areas of potential importance for summer feeding and overwintering and one juvenile nursery area are described. In contrast, there are several well-defined spawning locations and larval distributional areas. The distributional patterns infer considerable between population mixing at all phases of the life history except at spawning time itself and during the first several months of the larval phase. The life history distributions are interpreted in relation to tidally induced oceanographic features of the area. The specific locations of spawning and the associated larval distributions are interpreted to be a function of the location of physical features associated with "larval retention."

-2335-
AUTHOR(S): SINCLAIR, M., R. O'BOYLE AND T.D. ILES
YEAR: 1983
TITLE: Consideration of the Stable Age Distribution Assumption in "Analytical" Yield Models
PUB: Can. J. Fish. Aquat. Sci. 40(1):95-101

ABSTRACT:

The implications on the "analytical" yield model of deviations from the stable age distribution were investigated for stocks of five species with a range of life history characteristics, these being Atlantic cod (Gadus morhua), haddock (Meanogrammus aeglefinus), pollock (Pollachius virens), Atlantic herring (Clupea harengus harengus), and Atlantic mackerel (Scomber scombrus). Recruitment variability for the stocks considered ranged from 21% for pollock to 104% for haddock. The comparison of the growth rates at age for the five species showed the expected continuum in relative growth rates from cod to mackerel. With the population in a stable age distribution without fishing there is also a continuum from cod to mackerel in the manner in which age-specific production decrease through the life span.

-2336-

AUTHOR(S): SINCLAIR, M., V.C. ANTHONY, T.D. ILES, AND R.N. O'BOYLE

YEAR: 1985

TITLE: Stock Assessment Problems in Atlantic Herring (Clupea harengus) in the Northwest Atlantic

PUB: Can. J. Fish. Aquat. Sci., 42(5):888-898

ABSTRACT:

Total annual catches of Atlantic herring (C. harengus) in (North Atlantic Fisheries Organization) statistical areas 3-6 have declined steadily since 1968, and have not rebounded after management measures were implemented in the late 1970's (unlike demersal species in the area). The accuracy of the biomass estimates generated by sequential population analysis is evaluated by a retrospective analysis for 3 of the 10 management units for herring fisheries. In each case, the stock assessments have tended to seriously underestimate the declines in stock abundance and overestimate the upswings. Fishing mortalities have exceeded F0.1, but they have rarely exceeded Fmax, the level below which growth overfishing is prevented. Three assumptions in the stock assessment process are evaluated in relation to the 4WX management unit: the various management units are in fact self-sustaining populations; catchability (i.e., fishing mortality per unit of effort) is constant and independent of stock size; and the population is in the stable age distribution. At least part of the management failures are due to invalid assumptions in the stock assessment models. An approach that has prevented growth overfishing may well have caused recruitment overfishing. Atlantic herring should be managed on principles suited to salmon rather than those applied to groundfish.

-2337-

AUTHOR(S): SINDERMANN, C.J.

YEAR: 1979

TITLE: Status of Northwest Atlantic Herring Stocks of Concern to the United States

PUB: NOAA/NMFS, NEFC, Sandy Hook Lab., Highlands, NJ, Tech. Ser. Rep. No. 23, 449 pp.

ABSTRACT:

This report is a comprehensive review of Atlantic herring stock assessments. Critical problem areas, hypotheses to be tested, and research needs are identified to analyze the decline in Atlantic herring stocks.

-2338-
AUTHOR(S): SISSENWINE, M.P.
YEAR: 1978
TITLE: Using the U.S.A. Research Vessel Spring Bottom Trawl Survey as an Index of Atlantic Mackerel Abundance
PUB: Sel. Pap. ICNAF, (No. 3), pp. 49-55

ABSTRACT:
Catch frequency distributions of mackerel (Scomber scombrus) in U.S.A. research vessel spring bottom trawl surveys were examined and found to be highly skewed. A linear relationship (on a log-log scale), with a slope of approximately 2, between the mean and variance of a series of samples from the survey indicates that a log transform is appropriate in order to normalize the distribution of survey catches. The log transformation was tested by simulating sampling from hypothetical cumulative distribution functions which were based on observed survey frequency distributions. These simulations indicate that the mean of log transformed catches has a symmetric distribution with a strong central tendency.

-2339-
AUTHOR(S): SISSENWINE, M.P.
YEAR: 1981
TITLE: An Overview of Some Methods of Fish Stock Assessment
PUB: Fisheries 6(6):31-35
ABSTRACT:
Stock assessments, which evaluate the effects of fishing on a fishery, are one basis of fishery management decision. Stock assessments are based on fisheries data (a description of the catch and catching process), research vessel survey data, and qualitative information drawn from the observations of the harvesters and other knowledgeable observers. The fundamental model used as a basis for stock assessments and fishery management decisions takes account of four forces affecting biomass of the exploited population. These are growth, recruitment, natural mortality, and fishing mortality. Recruitment is the major source of variability in production of a fish population. The magnitude of past recruitment is estimated by application of virtual population analysis (VPA) to fisheries data. Future recruitment is predicted from current research vessel survey data and the relationship between survey catch rates and VPA estimates of recruitment during past years.

-2340-
AUTHOR(S): SKOW, L.C. AND M.E. CHITTENDEN, JR.
YEAR: 1981
TITLE: Differences in Hemoglobin Phenotypes Among Spanish Mackerel, Scomberomorus maculatus
PUB: Northeast Gulf Sci. 5(1):67-70
ABSTRACT:
The Spanish mackerel, S. maculatus, inhabits continental waters of the western Atlantic Ocean from the Gulf of Maine to the Yucatan Peninsula and is seasonally common as far north as Chesapeake Bay. Spanish mackerel support important recreational and/or commercial fisheries in U.S. and Mexican waters (Lyles 1969; Deuel 1973; Doi and Memdizabal 1979; Trent and Anthony 1979). Intelligent management of Spanish mackerel requires determination of how many populations make up the stock and of the population distributions and migrations. The present paper presents electrophoretic evidence for the existence of at least two populations of Spanish mackerel.

-2341-
AUTHOR(S): SKUD, B.D., G.D. SHARP AND J. CSIRKE (EDS.)
YEAR: 1983
TITLE: Interactions of Pelagic Fishes and the Relation Between Environmental Factors and Abundance
PUB: In: Proceedings of the Expert Consultation to Examine Changes in Abundance and Species Composition of Neritic Fish Resources, San Jose, Costa Rica, 18-29 April 1983. A Prelim. Meet. for FAO World Conf. on Fish, pp. 1133-1
ABSTRACT:

Fishery biologists have noted that correlations between physical environmental factors and fish abundance often fail. Explanations of these failures generally assume that the data were faulty, or criteria for comparison were ill-founded, or the relation spurious. Examination of stock abundance and environmental factors (such as temperature and salinity) of the Atlantic mackerel (Scomber scombrus) and the California sardine (Sardinops sagax, Caerulea) indicate that failure of these correlations occur when the species changes dominance in their social hierarchy. A change in dominance may also explain why the indices of abundance of the same or similar species are positively correlated in one area and not another. Dominance may also explain certain observations concerning exploited stocks and the effects of fishing.

-2342-
AUTHOR(S): SKUD, B.E.
YEAR: 1979
TITLE: Soak Time and the Catch Per Pot in an Offshore Fishery for Lobsters (Homarus Americanus)
PUB: In: Thomas, H.J., ed. Population Assessments of Shellfish Stocks. Rapp. P.-V. Reun. CIEM. Vol. 175, pp. 190-196
ABSTRACT:

Records from two vessels that fished from April 1969 to April 1970 in the offshore port fishery for lobsters showed that the catch per pot per day (C/P/D) during the summer and early autumn was substantially higher than in other seasons. The catch per haul generally increased through the six soaking-day, but the C/P/D declined after the first day. The results show that the catch per haul is not a reliable measure of abundance unless it is standardized for length of soak or includes estimates of ingress and escape. Standardization of catch per haul based on a constant soak time provided estimates of effective effort that suggested seasonal differences in availability and the rate of escapement. The catch and effort data showed that 2- and 3-day soaks would be more profitable than 1-day soaks but the advantages of length of soak differed with season and vessel operation.

-2343-
AUTHOR(S): SKUD, B.E.
YEAR: 1982
TITLE: Dominance in Fishes: The Relation Between Environment and Abundance
PUB: Science 216:144-149
ABSTRACT:

Marine fishery studies are replete with comparisons of environmental factors and population abundance or recruitment, and, recently, correlation matrices have been used to compare responses (coefficients) of different species to the same factor. Although the studies have included dominant and subordinate species that interact, the responses of these species have not been related specifically to their positions in the dominance hierarchy. The

purposes of this article are to compare the relation of temperature to the catch of Atlantic herring (Clupea harengus) and Atlantic mackerel (Scomber scombrus), species that have alternated as dominant and subordinate in the pelagic biomass off New England and the Canadian Maritime Provinces, and to relate their response to dominance. The relation also is examined for other species, including the California sardine (Sardinops sagax, Caerulea) and anchovy (Engraulis mordax).

-2344-
AUTHOR(S): SKUD, B.E. AND W.B. WILSON
YEAR: 1960
TITLE: Role of Estuarine Waters in Gulf Fisheries
PUB: In: Trans. 25th. N. A. Wildl. Conf., pp. 320-321
ABSTRACT:

The commercial fisheries of the Gulf of Mexico have experienced a phenomenal growth during the past 20 years. In 1940 landings of the Gulf states, Florida (west coast), Alabama, Mississippi, Louisiana and Texas totaled 250 million pounds valued at 10 million dollars and increased to 700 million pounds valued at 85 million dollars in 1957. In 1940, the Gulf accounted for only 10% of the total value of U.S. fisheries and in 1957 accounted for nearly 25% of the U.S. total. In value, three Gulf states are included among the ten leading states, Texas ranks third in the nation and Florida and Louisiana follow in fifth and eighth place, respectively (Power, 1959).

-2345-
AUTHOR(S): SKUD, R.E.
YEAR: 1963
TITLE: Herring Tagging Experiments in Southeastern Alaska
PUB: U.S. Fish Wildl. Serv. Fish. Bull. 63(1):19-32
ABSTRACT:

Results of herring tagging experiments in southeastern Alaska during 1934-37 were studied to provide background information for more recent taggings. Recovered tags evidenced extensive movement and intermingling between Sitka and Craig stocks, which were previously considered discrete. Tagging was concentrated on a single year class during these 4 years, and the extent of the migrations apparently increased with age of the herring.

Total mortality increased with each year of recovery in each experiment, and successively later experiments indicated higher mortality rates. The fishing effort exhibited a general decline during this period. These results coupled with the concentration of tagging on a single year class support the conclusion that natural mortality increases with age. Recommendations for future tagging in southeastern Alaska are included in the discussion.

-2346-
AUTHOR(S): SLAYBAUGH, D.K., B.J. GALLOWAY AND J.S. BAKER
YEAR: 1989
TITLE: The Databank for Arctic Anadromous Fish: Description and Overview
PUB: D.W. Norton, (ed.). In: Research Advances on Anadromous Fish in Arctic Alaska and Canada. Fairbanks, AK, Institute of Arctic Biology, Biological Papers of the Univ. of Alaska No. 24, pp. 4-26.
ABSTRACT:

A search of documents reporting on arctic anadromous fish investigations conducted as early as 1771 and through the year 1985 yielded 280 references relevant to the ecology of arctic anadromous fish, mostly in the form of unpublished research reports and some supporting computer tapes of original

data. These are referred to as the database. Of these, 96 individual studies were found to contain or be supported by sufficiently detailed research protocols that original data sets could be extracted and entered into a computerized Databank for Arctic Anadromous Fishes (DAAF-85). The content and organization of DAAF-85 are described in this paper, and the annotated list of references in the database is appended.

-2347-
AUTHOR(S): SMEDLEY, S.C. AND M.C. SEIBEL
YEAR: 1967
TITLE: Forecast of 1967 Pink Salmon Runs in Southeastern Alaska
PUB: State of Alaska, Dept. of Fish and Game, Informational Leaflet 103, 15 pp.
ABSTRACT:
In 1966 the third series of pre-emergent pink salmon fry samples was taken from the spawning streams of southeastern Alaska. Previous sampling on a "production basis" was done in 1964 and 1965 and some pilot work was performed in 1965. The primary objective of this work is the development of a method for predicting a year in advance the abundance of pink salmon adults returning to southeastern Alaska. The thought behind these studies rests on the assumption that a consistent relationship exists between the abundance of pink salmon fry within the spawning gravels just prior to emergence, and the abundance of the returning run produced by them. In southeastern Alaska sufficient pre-emergent fry and return data has not yet been collected by which this relationship can be demonstrated.

-2348-
AUTHOR(S): SMITH R.Z. AND E. WOLD
YEAR: 1983
TITLE: Columbia River Fisheries Development Program Annual Report-FY 1982
PUB: NOAA/NMFS F/NWR-6, 46 pp.
ABSTRACT:
This study discusses the following: fish culture; fall Chinook hatchery evaluation study; transportation operations on the Snake and Columbia Rivers, 1982; stream improvements; fish facilities section.

-2349-
AUTHOR(S): SMITH, C.L.
YEAR: 1971
TITLE: A Revision of the American Groupers Epinephelus and Allied Genera
PUB: Bull. Am. Mus. Nat. Hist. 146:241
ABSTRACT:
The family serranidae, which includes some 300 species, forms an important segment of the marine shore fauna in tropical and subtropical areas. This family consists of some of the most generalized perciform fishes and apparently represents the stock from which many of the more specialized perdiforms have evolved.

-2350-
AUTHOR(S): SMITH, C.L.
YEAR: 1986
TITLE: The Life Cycles of Fisheries
PUB: Fisheries 11(4):20-25
ABSTRACT:
Fisheries are viewed as organisms that have a life cycle. The typical life cycle begins with an initial emphasis on food production, next a growing

interest in recreation develops, and finally comes aesthetic uses. As commercial productivity and the number of commercial and recreational users increases, conservation requires more stringent management measures. Food production opportunities decline and recreation uses expand. Substituting cultured stocks for natural ones increases the quantity of fish available, but usually the life cycle process continues. To adjust to life cycle and evolutionary changes, management needs to separate conservation decisions from allocation issues, manage to include as much of the stock's range as possible, control effort growth, and keep expectations reasonable.

-2351-
AUTHOR(S): SMITH, D.E. AND J.W. JOSSI
YEAR: 1984
TITLE: Net Phytoplankton and Zooplankton in the New York Bight, January 1976 to February 1978, with Comments on the Effects of Wind, Gulf Stream Eddies, and Slope Water Intrusions
PUB: NOAA/NMFS, SEFC, NOAA Tech. Rep. NMFS 5, 41 pp.
ABSTRACT:
Results are given of monthly net phytoplankton and zooplankton sampling from a 10 m depth in shelf, slope, and Gulf Stream eddy water along a transect running southeastward from Ambrose Light, New York, in 1976, 1977, and early 1978.

-2352-
AUTHOR(S): SMITH, G.B.
YEAR: 1976
TITLE: Ecology and Distribution of Eastern Gulf of Mexico Reef Fishes
PUB: Marine Research Laboratory, Florida Department of Natural Resources, Florida Marine Research Publications, No. 19, 78 pp.
ABSTRACT:
Comprehensive survey of fishes inhabiting patch reefs off Sarasota, FL is summarized. Data on fish species composition and relative abundance, intra-reef species distributional patterns, inter-reef and bathymetric species distribution, relation of physiochemical and biological parameters to species distribution, seasonality, ecology and behavior, and zoogeographic relationships of the mideastern Gulf reef fish fauna are presented.

-2353-
AUTHOR(S): SMITH, G.B.
YEAR: 1981
TITLE: The Biology of the Walleye Pollock
PUB: In: Hood, D.W. and J.A. Calder, eds. The Eastern Bering Sea Shelf: Oceanography and Resources. Vol. I., NOAA/OCSEAP, U.S. Dept. of Commerce, OMPA, pp. 527-552
ABSTRACT:
Walleye pollock, Theragra chalcogramma, occur broadly distributed over the eastern Bering Sea OCS, and at their presently estimated population size of five million mt are a large source of organic production. Within the food web pollock are an important food resource for a wide variety of other fish species, marine mammals, and avifauna. Pollock also represent a major source of predation directed toward zooplankton and cannibalistic behavior. In addition, trawl fisheries harvest approximately 950,000 mt of pollock annually.

-2354-
AUTHOR(S): SMITH, G.B. AND L.H. OGREN
YEAR: 1974
TITLE: Comments on the Nature of the Florida Middle Ground Reef Ichthyofauna
PUB: In: Smith, R.E., ed. Proceedings of Marine Environmental Implications of Offshore Drilling in the Eastern Gulf of Mexico., State Univ. Syst. Fla. Inst. Oceanogr., pp. 229-232
ABSTRACT:

The Florida Middle Ground is an extensive offshore area of rugged submarine terrain located along the outer West Florida Shelf (28 deg. 11' to 28 deg. 45' N.,; 84 deg. 25' W) approximately 95 miles south of the Florida northwest coast and 100 miles northwest of Tampa. The entire region is characterized by steep-profiled escapements and prominences which may precipitously rise 35 to 50 feet from the surrounding bottom. Depths throughout the area vary betwen 78 and 138 feet. Brooks (1962) has suggested that much of the Middle Ground topography is due to underlying Pleistocene reefs which flourished during the last interglacial, the Sangamon.

-2355-
AUTHOR(S): SMITH, G.B. AND R.G. BAKKALA
YEAR: 1982
TITLE: Demersal Fish Resources of the Eastern Bering Sea
PUB: NMFS/NWAFC, Seattle, WA. NOAA-TR-NMFS-SSRF-754, 141 pp.
ABSTRACT:

During the spring of 1976, 683 otter trawl samples were collected within an area of 337,930 km in the second of two baseline surveys designed to describe characteristics of Bering Sea demersal fish and shellfish populations. Climatic conditions during the spring 1976 survey were anomalously cold, affecting both the pattern of trawl sampling and the apparent distributions of fish populations. During April and May, winter pack ice still covered 50-75% of the study area. Most demersal fish populations were distributed in deep water along the OCS where bottom water temperatures were warmest. At least two species populations showed extensive migrations.

A total of 78 fish species distributed among 22 families was recorded during the 1976 survey. The overall apparent mean density of demersal fish was 12.3t/km of which pleuorectids accounted for 67.8%, gadids 18.8%, and cottids 8.7%. Specific regions of highest fish densities were the OCS between St. George and Unimak Islands, directly west of St. Paul Island, and the central shelf area between Cape Newenham and Port Moller. Comparisons between results of the first (August-October 1975) and second (April-June 1976) surveys were interpreted as representing seasonal extremes. During the survey of August-October 1975, apparently large-scale migratory movements had ended and the demersal fish populations were in late summer distributional patterns. Geographical ranges were generally broad and many species extended into Bristol Bay. During the survey of April-June 1976, demersal fish populations were apparently sampled during a period of transition from late winter to early summer distributions. Compared to August-October 1975, species ranges were restricted more to deep water, although some populations were initiating migrations across the continental shelf.

-2356-
AUTHOR(S): SMITH, G.B., G.E. WALTERS, P.A. RAYMORE, JR. AND W.A. HIRSCHBERGER
YEAR: 1984
TITLE: Studies of the Distribution and abundance of Juvenile Groundfish in the Northwestern Gulf of Alaska, 1980-82: Part I, Three Year Comparisons
PUB: NOAA/NMFS, NWAFC, Seattle, WA. NOAA Tech. Memo. NMFS F/NWC-59.
ABSTRACT:

Juvenile groundfish were studied in the northwestern Gulf of Alaska to describe interannual variations in distribution and abundance, evaluate the feasibility of measuring year-class strengths, and obtain other information on this poorly understood life history stage. Bottom trawl data were collected at a total of 749 stations during three surveys conducted in the late summer periods of 1980-82. This report emphasizes comparisons of descriptive and analytical results for the study areas that received comparable sampling coverage over all 3 yr. Juveniles of at least 13 fishes were observed in these coastal nursery areas. Most abundant were: walleye pollock, Theragra chalcogramma; Pacific cod, Gadus macrocephalus, and sablefish, Anoplopoma fimbria. Each of these studies was represented by the three youngest age groups.

-2357-
AUTHOR(S): SMITH, G.B., H.M. AUSTIN, S.A. BORTONE, R.W. HASTINGS AND L.H. OGREN
YEAR: 1975
TITLE: Fishes of the Florida Middle Ground with Comments on Ecology and Zoogeography
PUB: Marine Research Laboratory, Florida Department of Natural Resources, Florida Marine Research Publication No. 9, 14 pp.
ABSTRACT:

Annotated checklist of fishes known to inhabit the Florida Middle Sound with ecological and distributional comments when appropriate is provided.

-2358-
AUTHOR(S): SMITH, H.M.
YEAR: 1907
TITLE: The Fishes of North Carolina
PUB: N.C. Geol. Econ. Survey. II:306-326
ABSTRACT:

The following report on the Fishes of North Carolina has been prepared to meet the numerous inquiries that are constantly being received by the Geological and Economic Survey concerning the fishes found in the different waters of the State. It has been the desire of the state geologist to awaken an increased interest in the local fishes, and to give the people of North Carolina and to others a more accurate knowledge of the abundance, distribution, habits, migrations, spawning, food value, etc., of the fishes, in the belief that such knowledge will lead to a fuller realization of the economic importance of the fishery resources of the State. It is also desirable that a deeper interest in the welfare of both fishes and fishermen and a better understanding of the condition and needs of the fishing industry be created with a view to placing this important branch on a permanent basis and making it yield an increasing revenue to both State and people.

-2359-
AUTHOR(S): SMITH, J.W., E.J. LEVI, D.S. VAUGHAN AND E.A. HALL
YEAR: 1987
TITLE: Gulf Menhaden, Brevoortia patronus, Purse Seine Fishery, 1974-85, with a Brief Discussion of Age and Size Composition of the Landings
PUB: NOAA/NMFS, U.S. Dept. of Commerce, NOAA Tech. Rep. NMFS 60, 8 pp.
ABSTRACT:
Routine biostatistical port sampling data and landing records collected from the gulf menhaden purse seine fishery between 1974 and 1985 are updated. Estimated total numbers of menhaden landed varied from 4,510.5 million in 1975 to 11,154.9 million in 1985. Annual mean lengths and weights of sampled fish-at-age showed little variation. Nominal or observed fishing effort gradually increased through the 1970s and 1980s, reaching 655,800 vessel-ton-weeks in 1983.

-2360-
AUTHOR(S): SMITH, K.H.
YEAR: 1963
TITLE: Exploratory Fishing for Marine Herring
PUB: U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 463:1-9
ABSTRACT:
Exploratory herring fishing operations were carried out along the Maine coast during the summers of 1955 and 1956 using the research vessel Theodore N. Gill and the chartered small otter trawler Metacomet. The coastal and Gulf of Maine waters were sounded and fished with a lampara seine, gill nets, midwater trawls, and otter trawls. Inshore explorations located zero-year-class herring in the bays and inlets and traced their development in these areas until they became sardine-sized fish in late fall. Sardine-sized and large herring were found occupying an ocean-bottom habitat during the winter. A scattering of large unschooled herring was found in coastal waters during the summer of 1956.

-2361-
AUTHOR(S): SMITH, P.E.
YEAR: 1972
TITLE: The Increase in Spawning Biomass of Northern Anchovy, Engraulis mordax
PUB: Fish. Bull. (U.S.) 70:849-874
ABSTRACT:
A new compilation of anchovy and sardine larval data is presented for 1940, 1941, 1949, 1950, and 1951-69. The effect of several errors of estimate are examined and it is concluded that none is important enough to affect measurably the trend of increase between 1951 and 1966. Lastly, a current interpretation of the larval survey data is used to estimate the spawning biomass of both sardine and anchovy.

-2362-
AUTHOR(S): SMITH, P.E.
YEAR: 1985
TITLE: Year-class Strength and Survival of O-group Clupeoids
PUB: In: Proceedings of the Symposium on the Biological Characteristics of Herring and Their Implication for Management, Can. J. Fish. Aquat. Sci. 42 (suppl), pp. 69-82
ABSTRACT:
Global marine fish catch has been stable over the past decade but the clupeoid contribution has declined from one-half to one-third of the marine fish catch. This decline appears to be caused by changes in recruitment

success during heavy fishing pressure. Theoretical population approaches and correlative environmental indices are not yet sufficient for setting catch limits. For some time the direct measurement of current biomass appears to be necessary for setting clupeoid quotas. Precision and cost studies on the estimation of biomass with current methods indicate that a standard error of estimate less than 25% cannot be justified based on the increased long-term yield of the stock. Assembly of a prospective life-table for the central subpopulation of the northern anchovy (Engraulis mordax) allows the discussion of intrapopulation and environmental controls on growth of the population. Using reasonable values for survival and growth in the embryonic, larval, and juvenile stages in the context of a life-table allows one to evaluate the stages where recruitment is controlled. From this manipulation it appears that significant decreases in recruitment could originate at any stage but marked increases in recruitment are only likely to arise from lower mortality rates in the embryonic and larval stages. The late larval stage of the anchovy could exhibit remarkable control on the level of recruitment through plasticity of the interaction between growth rate and survival. Maximum cohort biomass of the anchovy occurs late in the first year of life but current measures of juvenile survival and biological production are inadequate to explore density-dependent survival and growth rates.

-2363-
AUTHOR(S): SMITH, P.E. AND R.W. EPPLEY
YEAR: 1982
TITLE: Primary Production and the Anchovy Population in the Southern California Bight: Comparison of Time Series
PUB: Limnol. Oceanogr. 27(1):1-17
ABSTRACT:

Time series are used to examine the functional relationships between primary production, zooplankton abundance, and northern anchovy, Engraulis mordax, populations in the Southern California Bight region. A detailed description is given for estimated primary production, zooplankton standing stock, and microplankton standing crop for the area. Although annual values show no dependence of larvae on plankton, quarterly values show production, zooplankton standing stocks, and anchovy larvae are all positively intercorrelated. Fish-scale deposition rates showed no significant correlations with primary production and anchovy biomass from 1785-1970 in 5-year intervals. The intensity of spawning activity in part depends on zooplankton abundance three quarters earlier and in part on the productivity of the area in the same season. Anchovy schooling may be important in providing nutrients for phytoplankton. Results suggest that there was a higher zooplankton biomass per unit primary production when anchovies were abundant than when they were less abundant.

-2364-
AUTHOR(S): SMITH, P.E., H. SANTANDER AND J. ALHEIT
YEAR: 1983
TITLE: Comparison of Egg Sample Probability Distributions of the Anchovy and Sardine of Peru and the Anchovy (Engraulis Mordax) and the Sardine (Sardinops caerulea) of California
PUB: Fao Fish. Rep. Fao. Inf. Pesca., No. 291, Vol. 3, pp. 1027-1038
ABSTRACT:

Historical data on egg abundance of four stocks of two genera, engraulis and sardinops, from two habitats, Peru and California, are compared. Analysis of the distribution of the egg samples together with additional data enables the study of biological factors important for pelagic fisheries, such as

aggregation, fertilization, etc. Also the effect of cannibalism, predation, and other causes of mortality may be determined.

-2365-
AUTHOR(S): SMITH, P.E., R. LASKER AND K. SHERMAN
YEAR: 1981
TITLE: Time Series of Anchory Larva and Juvenile Abundance
PUB: In: The Early Life History of Fish: Recent Studies. Conseil Int. Explor. Mer., Copenhagen. p. 201
ABSTRACT:
The authors examined 1951-75 to determine whether the estimates of the number of largest larvae sampled in the spawning biomass surveys foretold small and large year-classes of the central subpopulation of northern anchovy. Of the 9 years examined for immediate post-larvae in trawl surveys, only four (1966, 1969, 1972, 1975) had simultaneous ichthyoplankton spawning surveys. A 21 year series (1951-69; 1972; 1975) of estimates of the abundance of 15 mm larvae and 0-group catch from bait and reduction fisheries from 1952 to 1977, and estimates of mortality rates in the embryonic, early and late larval periods, has been compared with 0-group contribution to catch in the ensuing fishing season. There is a weak tendency for embryonic (yolk sac) to early larval (9 mm) mortality rates to match year-class size. There is also a weak tendency for the abundance of 15 mm larvae to match year-class size. Exceptionally small recruitment can be seen from ichthyoplankton surveys, but moderate and large year-classes will not be discriminated by monitoring the first month of life of the northern anchovy.

-2366-
AUTHOR(S): SMITH, R.T.
YEAR: 1936
TITLE: Report on Puget Sound Otter Trawl Investigations
PUB: Washington Dept. of Fisheries, Biol. Rep. 36B:1-61
ABSTRACT:
This report is based upon data collected aboard the vessels of the trawler fleet during the actual operation of fishing, supplemented by laboratory investigation into the life histories of the important flatfish.

-2367-
AUTHOR(S): SMITH, R.W.
YEAR: 1975
TITLE: Sport Fishing in Western Delaware Bay: Assessment of Critical Areas. Research on the Effects of Crude Oil Transfer and Upstream Refineries in Delaware Bay
PUB: National Science Foundation, Washington, DC, NSF/RA/E-75/195, 24 pp.
ABSTRACT:
Sport fishing in Delaware Bay is very important to the region's economy ($4.5 million) and recreation (0.3 million people). Sport fishing pressure is greatest in the lower bay, especially in areas associated with the channel running through the Ship Anchorage or lightering area. These five areas account for almost half of the total fishing pressure with the Ship Anchorage by far the most important one. Trawl survey data also show this area had the highest total fish and weakfish densities of those areas sampled. The Ship Anchorage and associated areas should be protected to maintain their natural attributes, in spite of physical characteristics which might make them desirable for industrial development. A coastal ocean site which does not support a good sport fishery and is not within easy reach of small boats might be used for such projects as oil transfer and port development. Though the

cost of ocean port islands may be enormous, such an approach is still more reasonable than permitting the deterioration of irreplaceable natural areas such as estuaries.

-2368-
AUTHOR(S): SMITH, R.W.
YEAR: 1983
TITLE: Marine Fish Populations in Delaware Bay, Annual Performance Report, April 1, 1982-March 31, 1983.
PUB: Project #F-34-R-1., Doc. No. 40-05/83/04/5
ABSTRACT:
A study of marine fish populations of the inshore estuarine area of Delaware Bay is described.

-2369-
AUTHOR(S): SMITH, R.W. AND F.C. DAIBER
YEAR: 1977
TITLE: Biology of the Summer Flounder, Paralichthys dentatus, in Delaware Bay
PUB: U.S. Natl. Mar. Fish. Serv. Fish. Bull. 75(4):823-830
ABSTRACT:
Data on the age, growth, food habits, and racial characters of summer flounder, Paralichthys dentatus, from Delaware Bay were examined. Fish were present year-round, although 95% were taken from May through September, and no mature fish were caught during the winter. Fish were aged from annuli on the largest left otolith. The growth rate for males was described by L t+1 = 141.91 + 0.767(Lt), and for females L t+1 = 136.72 + 0.843(Lt). The Delaware Bay commercial fishery in 1966 was primarily supported by age-groups 2 through 5. The total length-weight relationship was described by log weight (grams) = log 0.404 x 10 to the negative 5th power + 3.151 log [total length (millimeters)], and the total length-standard length relationship by, total length (millimeters) = 16.695 + 1.55 [standard length (millimeters)]. Age and sex made no significant difference in meristic character evaluation. The reported range of variation for some characters was extended: dorsal rays, 89-98; anal rays, 63-78; pectoral rays, 10-13; vertebrae, 40-43; standard length/head length, 3.64-4.30; and head length/upper jaw length, 1.54-2.26.

-2370-
AUTHOR(S): SMITH, S.E. AND S. KATO
YEAR: 1979
TITLE: The Fisheries of San Francisco Bay: Past, Present, and Future
PUB: NOAA/NMFS, Tiburon, CA, pp. 445
ABSTRACT:
The character of the important fisheries of San Francisco Bay (chinook salmon, striped bass, sturgeon, shad, Pacific herring, northern anchovy, starry flounder, surfperch, elasmobranchs, bay shrimp, and bivalves) has changed dramatically over the past century. Many commercial fisheries that were once important to the Bay Area economy have disappeared (e.g., the river fishery for chinook salmon and the extensive clam and oyster industries), and although other commercial fisheries have been revived in recent years (e.g., herring, bay shrimp), there has been an overall change in emphasis from commercial to recreational fishing. This has been largely due to legislation restricting the commercial harvest of anadromous species such as salmon, striped bass and sturgeon.

Man-induced changes in the environment are implicated in the decline of certain fishery resources. Water storage and diversion projects have affected the distribution and abundance of salmon and striped bass, and land

reclamation and domestic sewage pollution essentially eliminated the clam and oyster industries. Fishing pressure has also been linked with the decline of the bay shrimp and sturgeon fisheries.

-2371-
AUTHOR(S): SMITH, S.H.
YEAR: 1957
TITLE: Evolution and Distribution of the Coregonids
PUB: J. Fish. Res. Bd. Can. 14:599-604
ABSTRACT:
Of the four phyletic lines recognized through world-wide studies, coregonus originated in the lake and stream area of northwest Eurasia, stenodus and prosopium evolved in the rivers of Siberia and northwest America respectively, and leucichthys became differentiated in the lake-studded area of northeast America. Range extensions of each group are characterized by lesser morphological variability and at the extremes only one or two relatively stable species remain.

-2372-
AUTHOR(S): SMITH, S.J. AND R.K. MOHN
YEAR: 1987
TITLE: Considerations on the Representation and Analysis of a Spatially Agregated Resource: Georges Bank Scallops
PUB: Proceedings of Counc. Meet. of the Int. Counc. for the Exploration of the Sea. Ices, Copenhagen (Denmark), 19 pp.
ABSTRACT:
A number of asymmetric statistical distributions have been suggested as appropriate for modelling populations which exhibit aggregated spatial patterns. However, these distributions assume that each observation is independent and identifically distributed which implies that there is no spatial autocorrelation. The impact of such an assumption is explored using data from Georges Bank scallop research surveys.

-2373-
AUTHOR(S): SMITH, W.G.
YEAR: 1973
TITLE: The Distribution of Summer Flounder, Paralichthys dentatus, Eggs and Larvae on the Continental Shelf Between Cape Cod and Cape Lookout, 1965-66
PUB: Fish. Bull. U.S. 71:527-548
ABSTRACT:
Three spawning populations of summer flounder, Paralichthys dentatus, were identified from R.V. Dolphin collections. Abundance and distribution of eggs and larvae are reported and important spawning grounds, temperature range and time period in which spawning occurs were determined.

-2374-
AUTHOR(S): SMITH, W.G.
YEAR: 1983
TITLE: Temporal and Spatial Shifts in Spawning of Selected Fish and Invertebrate Species in the Georges Bank Region
PUB: NOAA/NMFS, NEFC, Sandy Hook Laboratory, Highlands, NJ
ABSTRACT:
Spawning seasons are given for 37 species of fish and elasmobranchs, lobsters, two species of crabs, scallops, and squid in five subareas on the continental shelf of the northeastern U.S. Species are arranged in six

groups; boreal (shallow), boreal (deep), warm water, eurythermal, stenothermal, and "other," corresponding to faunal groupings and related to general depth and/or temperature preferences (tolerances).

-2375-
AUTHOR(S): SMITH, W.G. (ED.)
YEAR: 1988
TITLE: An Analysis and Evaluation of Ichthyoplankton Survey Data from the Northeast Continental Shelf Ecosystem
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Northeast Fisheries Center, Woods Hole, MA, NOAA Tech. Memo. NMFS-F/NEC-57, 132 pp.
ABSTRACT:
The Northeast Fisheries Center has conducted standardized ichthyoplankton surveys of the Northeast Continental Shelf ecosystem for about a decade. This report describes an evaluation of the surveys to determine their usefulness, the uniqueness of the information they provide, and the relationship between the quality of results and the survey effort.

-2376-
AUTHOR(S): SMITH, W.G., A. WELLS AND D.G. MCMILLAN
YEAR: 1979
TITLE: The Distribution and Abundance of Ichthyoplankton in the Middle Atlantic Bight as Determined from Coastal Surveys and Site-Specific Studies, 1965-1976
PUB: Prepared for BLM. NMFS/NEFC, Sandy Hook Laboratory, Highlands, NJ, SHL-79-02, 263 pp.
ABSTRACT:
Densities of fish eggs and larvae are summarized by species collected during R.V. Dolphin cruises (1965-1966), New York Bight Survey (1974-76), and semi-annual MARMAP surveys of the Middle Atlantic Bight (Fall, 1976 to Spring, 1976).

-2377-
AUTHOR(S): SMITH, W.G., D.G. MCMILLAN AND A. WELLS
YEAR: 1980
TITLE: The Distribution and Abundance of Atlantic Herring Larvae in the Gulf of Maine Region as Determined form MARMAP Surveys, 1977-80
PUB: Presented at Annual Meeting of North Atlantic Fisheries Organization Scientific Council, Sepember, 1980, NAFO SCR Doc. 89/1x/146, Serial No. N220
ABSTRACT:
Population estimates are given for Atlantic herring larvae collected by MARMAP surveys of the Gulf of Maine and Georges Bank from 1977 to 1980. Continued low numbers of herring larvae and a shift in the center of distribution from the eastern part of Georges Bank to Nantucket Shoals and along the western parts of the Gulf of Maine and Georges Banks are reported.

-2378-
AUTHOR(S): SMITH, W.G., D.G. MCMILLAN, C. OBENCHAIN, P. ROSENBERG, A. WELLS, M. SILVERMAN, E. BARANOWSKI AND M. ADAMUS
YEAR: 1980
TITLE: Spawning Cycles of Marine Fishes off Northeastern United States, Based on Broad Scale Surveys of Eggs and Larvae, 1977-79
PUB: Presented at Council Meeting, 1980, of the Distributional Council for the Exploration of the Sea., ICES, Copenhagen, 22 pp.

ABSTRACT:
Densities (number per 10 square meters) and abundance estimates for fish eggs and larvae collected in four subareas of western north Atlantic from Cape Hatteras to Gulf of Maine during bi-monthly cruises from 1977 to 1979 are calculated.

-2379-
AUTHOR(S): SMITH, W.G., J.D. SIBUNKA AND A. WELLS
YEAR: 1975
TITLE: Seasonal Distribution of Larval Flatfishes (Pleuronectiformes) on the Continental Shelf Between Cape Cod, MA and Cape Lookout, N.C., 1965-1966
PUB: NOAA/NMFS, U.S. Dept. of Commerce, NOAA Tech. Rep. NMFS SSRF No. 691, 68 pp.
ABSTRACT:
Distribution and abundance of 18 species from four families of flatfishes are reported.

-2380-
AUTHOR(S): SMITH, W.G., J.G. MCMILLAN AND A. WELLS
YEAR: 1981
TITLE: The Distribution and Abundance of Atlantic Herring Larvae in the Gulf of Maine Region as Determined from MARMAP Surveys During Autumn and Winter, 1980-81
PUB: North Atlantic Fishery Organization, NAFO SCR Doc 81/1x/115, Serial No. N421, 7 pp.
ABSTRACT:
Density and abundance are estimated for Atlantic herring larvae in Gulf of Maine, on Georges Bank, and off southern New England, 1977 to 1981. Continued low production of larvae is reported.

-2381-
AUTHOR(S): SMITH, W.G., M. PENNINGTON, P. BERRIEN, J. SIBUNKA, M. KONIECZNA, M. BARANOWSKI AND E. MELLER
YEAR: 1979
TITLE: Annual Changes in the Distribution and Abundance of Atlantic Cod and Haddock Larvae of the Northeastern United States between 1973-74 and 1977-78
PUB: Presented at Council Meeting: 1979, of the International Council for the Exploration of the Sea, Charlottenlund (Denmark) 1 October 1979, ICES, Biological Oceanographic Comm., Demersal Fish Comm.
ABSTRACT:
Density and abundance are estimated for Atlantic cod and haddock larvae from four subareas of western North Atlantic from 1973-74 to 1977-78.

-2382-
AUTHOR(S): SMITH, W.G., P. BERRIEN, D.G. MCMILLAN AND A. WELLS
YEAR: 1981
TITLE: The Distribution, Abundance and Production of Atlantic Cod and Haddock Larvae off Northeastern United States in 1978-79 and 1979-80
PUB: Presented at Council Meeting, 1981, of the International Council for the Exploration of the Sea Ices, Copenhagen (Denmark), 16 pp.

ABSTRACT:
Density, abundance estimates, and distribution of cod and haddock larvae are reported for four subareas of the continental shelf from Cape Hatteras to Gulf of Maine. Period of peak spawning by Atlantic cod and onset of haddock spawning was associated with environmental conditions.

-2383-
AUTHOR(S): SMYTH, P.D.
YEAR: 1980
TITLE: Callinectes (Decapoda: Portunidae) Larvae in the Middle Atlantic Bight 1975-77
PUB: Fish. Bull. 78(2):251-265
ABSTRACT:
Distribution of Callinectes larvae in surface (Neuston) and subsurface shelf waters in the Middle Atlantic Bight was determined from quarterly zooplankton collections taken during a 2-year study. Observations confirmed the presence in offshore waters of a large larval pool from which recruitment may take place. Larvae were predominantly late zoeae and megalope, with peak abundances in late summer collections reaching 16,000 per 100 m SUP-3 in neuston collections. During summer, crab larvae were distributed across the shelf with the majority at 10-80 km offshore. Abundances were significantly greater in neuston than subsurface zooplankton collections and generally greater in neuston collections taken at night. Water temperature and distance from shore were factors most closely correlated with abundance of larvae in the neuston. Megalope of Callinectes were present at outer shelf stations in winter and spring and together with megalope of Portunus and other forms were of southern origin. Based on experimentally determined temperature-salinity preferences reported in the literature for Callinectes larvae, metamorphosis may be delayed in cooler offshore waters, thus increasing chances of long-range transport.

-2384-
AUTHOR(S): SNYDER, J.O.
YEAR: 1924
TITLE: Young Salmon at Sea
PUB: Calif. Fish Game 10:62-64
ABSTRACT:
Reports have at times come to the Fish and Game Commission relating to the capture at sea of young king salmon along with sardines, smelt and anchovies which were intended for use as bait. One small salmon taken in Half Moon Bay was reported by Willis H. Rich in 1920. Since then others have been found and something relating to their food, stream history, etc., has been learned.

-2385-
AUTHOR(S): SNYTKO, V.A.
YEAR: 1986
TITLE: New Distribution Records of Rockfishes of the Subfamily Sebastinae in the Northern Pacific Ocean
PUB: J. Ichthyol. 26(3):124-130. Translation of: VOPR. IKHTIOL., vol. 26, no. 2, 1986
ABSTRACT:
Information (coordinates, depth, temperature and fish length) are provided for new distribution sites of the rockfish genus, Sebastes, in the Northern Pacific Ocean.

-2386-
AUTHOR(S): SOLOMON, F. AND M.L. MILLS
YEAR: 1983
TITLE: Location, Harvest, and Economic Values of Salmon, Baitfish, Groundfish, and Shellfish Resources, Summarized from the WDF Sponsored Testimony in the Northern Tier Pipeline Case (Proposed Cross-Sd)
PUB: Washington Dept. of Fisheries, Tech. Rep. No. 76
ABSTRACT:

This report summarizes treaty and non-treaty commercial and recreational harvest of marine fish (baitfish and groundfish), shellfish, and salmon in Washington state's marine waters. Landings are segregated by species, harvest method, and location, and economic values are also developed. Marine aquaculture is also discussed. These figures were developed for testimony in the Northern Tier Pipeline contested case (proposed cross-Sound route) before the Energy Facility Site Evaluation Council (EFSEC).

-2387-
AUTHOR(S): SOLONSKY, A.C.
YEAR: 1985
TITLE: Fish Colonization and the Effect of Fishing Activities on Two Artificial Reefs in Monterey Bay, California
PUB: Bull. Mar. Sci. 27(1):336-347
ABSTRACT:

Juvenile recruitment is compared with adult colonization in an attempt to determine whether artificial reefs actually enhance, redistribute or concentrate fish stocks. The possible advantages from constructing unmarked reefs next to marked reefs is investigated. Studies are conducted through underwater fish surveys, tagging, fishing success, and fishing pressure. Results of tagging studies demonstrate that fish movement was directed from the unmarked to the marked reef. Fishing success was greater on the unmarked reefs in all months except January and February (1982) when it was similar on both. Due to fishing pressure, fish movement and colonization was from an unexploited reef to a reef with substantial fishing pressure. Fishing pressure was sufficiently strong enough to reduce CPUE in a 1-year period. The movement of fishes was not fast enough to replace the losses from fishing. Artificial reefs will probably not contribute to production until they become natural communities. A potential problem in artificial reef construction may be the concentration of fishes where high fishing pressure can be applied. Locating unmarked reefs nearby can mitigate this problem by providing a refuge from fishing pressure, allowing movement and reproduction by mature adults.

-2388-
AUTHOR(S): SOMERTON, D.
YEAR: 1979
TITLE: Competitive Interaction of Walleye Pollock and Pacific Ocean Perch in the Northern Gulf of Alaska
PUB: In: Lipovsky, S.J. and C.A. Simenstad, (eds.). Gutshop '78. Fish Food Habits Studies. Proceedings of the 2nd Pacific Northwest Technical Workshop, Maple Valley, WA, 10-13 October, 1978, Washington Sea Grant, Seattle, WA
ABSTRACT:

Since the early 1960s, a spectacular increase in the abundance of Walleye pollock (Theragra chalcogramma) has occurred throughout the northern Gulf of Alaska. Nearly synchronous with this change, the stocks of Pacific Ocean perch (Sebastes alutus) were severely reduced due to the activities of foreign

trawlers. There are several lines of evidence which suggest that pollock are responding to a release from food competition with S. alutus: (1) both species are found in roughly the same depth zone, (2) juveniles of both species make nocturnal vertical migration to feed on planktonic crustaceans, (3) the euphausid, Thysanoessa spinifera, is the major prey item consumed by small adult pollock and by all mature S. alutus, and (4) pollock display density dependent growth and thus appear to be food limited. The predominant component of the diet of pollock changes from euphasids to fish with increasing fish size. S. alutus eat euphausids over their entire adult size range. Consequently, competition is most intense between adult S. alutus and the size range of pollock bounded by the size at which they first consume euphausids and the size at which they cease making diet vertical migrations. Compared to S. alutus, pollock, appear to be a classic selected species as evidenced by the attributes of rapid growth, early maturity, high fecundity, and low investment in parental care and predator defenses, thus they are able to rapidly expand into the feeding niche previously monopolized by S. alutus.

-2389-
AUTHOR(S): SOMERTON, D.A.
YEAR: 1982
TITLE: Effects of Sea Ice on the Distribution and Population Fluctuations of C. opilio in the Eastern Bering Sea
PUB: In: Proceedings of the International Symposium on the Genus Chionoecetes, Alaska Sea Grant College Program, Anchorage, AK, pp. 157-172
ABSTRACT:
Evidence is examined which suggests that, in the eastern Bering Sea, Chionoecetes opilio may synchronize the release of its larvae with a spring phytoplankton bloom which is initiated by sea ice. When this ice edge bloom does not occur, either because ice is not present or because other conditions are not appropriate for initiation of a bloom, larval survival decreases. The distribution of C. opilio is therefore limited by the maximum extent of sea ice in April when C. opilio larvae enter the plankton.

-2390-
AUTHOR(S): SOULE, M. AND R.N. TASTO
YEAR: 1983
TITLE: Stock Identification Studies on the Dungeness Crab, Cancer magister
PUB: In: Wild, P.W. and R.N. Tasto, eds. Life History, Environment, and Mariculture Studies on the Dungeness Crab, Cancer magister, with Emphasis on the Central Calif. Fishery Resource. CA Dept. Fish Game, Fish. Bull. 172,
ABSTRACT:
The purpose of this study was to determine if genetic and geographic variation exist in Dungeness crab stocks in commercial fishing areas. Electrophoretic techniques were used on various internal tissues. The study was divided into two phases. In Phase I, crabs were studied in nine localities ranging from northern California to Alaska. The low level of electrophoretic variation indicate that gene flow in Cancer magister is sufficient to prevent local differentiation of populations. In Phase II, the study concentrated on juvenile crabs from San Francisco and Humbolt Bays. It was found that each crab had two loci (instead of one, as concluded in Phase I) but neither was polymorphic. It was concluded that due to an extensive larval phase continuously exposed to strong currents, discrete populations of Dungeness crabs are unlikely to develop.

-2391-
AUTHOR(S): SOUTAR, A. AND J.D. ISAACS
YEAR: 1974
TITLE: Abundance of Pelagic Fish During the 19th and 20th Centuries as Recorded in Anaerobic Sediments off California
PUB: Fish. Bull. (U.S.) 72:257-274
ABSTRACT:

This paper analyzes anaerobic sediments from the Santa Barbara Basin, Alta California, and the Soledad Basin, Baja California, when these sediments are scales from the Pacific sardine (Sardinops sagax caeruleus), the northern anchovy (Engraulis mordax), the Pacific hake (Merluccius productus), the Pacific saury (Cololas saira), and the Pacific mackerel (Scomber japonicus). Using the relative abundance of the scales of these species in the deposits, the authors draw conclusions on the population trends, abundance and distribution over the past hundred years or so. The years from 1855 to 1865 show strong recruitment for the Pacific sardine, with the years from 1865 to 1880 showing poor year-class success. The decline of the Pacific sardine is considered to have begun by at least 1890, 30 years before the inception of the fishery. Northern anchovy populations appear to have made moderate increases in the population densities over the past 100 to 200 years. Pacific hake appears to have increased in density since a low in 1920, with higher concentrations appearing before. The combined mean biomass for these three species over the past 30 years is about 2 million MT. While over the past 150 years the mean biomass was about 8 million MT. The Pacific saury and Pacific mackerel appear only to have invaded, in significant numbers, the coastal waters of California since the 1940s.

-2392-
AUTHOR(S): SOUTH ATLANTIC AND GULF OF MEXICO FISHERY MANAGEMENT COUNCILS
YEAR: 1983
TITLE: Fishery Management Plan, Final Environmental Impact Statement, Regulatory Impact Review and Final Regulations for Coastal Migratory Pelagic Resources (Mackerels) in the Gulf of Mexico and South
PUB: South Atlantic & Gulf of Mexico Fishery Management Councils, Charleston, SC and Tampa, FL
ABSTRACT:

Regulations are proposed for king mackerel, Spanish mackerel, and cobia. Species in the fishery but not in the management unit (no regulations proposed) include cero mackerel, little tunny, dolphin, and bluefish (Gulf of Mexico only).

-2393-
AUTHOR(S): SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL
YEAR: 1981
TITLE: Profile of the Penaeid Shrimp Fishery in the South Atlantic
PUB: South Atlantic Fishery Management Council, Charleston, SC, 306 pp.
ABSTRACT:

This work updates the 1974 management planning profile of the South Atlantic shrimp fishery. This comprehensive document discusses the life history and ecology of penaeid shrimp, estimates yield, describes habitat and habitat protection programs of North Carolina, South Carolina, Georgia, and Florida, discusses management regulations in each of the four states, presents a comprehensive review of shrimp fisheries and discusses the economic characteristics of the shrimp fishery.

-2394-
AUTHOR(S): SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL
YEAR: 1983
TITLE: Source Document for the Snapper-Grouper Fishery of the South Atlantic Region
PUB: South Atlantic Fishery Management, Charleston, SC, 292 pp.
ABSTRACT:
This source document is the background material for the Snapper-Grouper Fishery Management Plan of the South Atlantic Region containing detailed supportive documentation on which the management regime for the snapper-grouper fishery is based.

-2395-
AUTHOR(S): SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL
YEAR: 1983
TITLE: Fishery Management Plan, Regulatory Impact Review, and Final Environmental Impact Statement for the Snapper-Grouper Fishery of the South Atlantic Region
PUB: South Atlantic Fishery Management Council, Charleston, SC
ABSTRACT:
This document presents a combined fishery management plan for the snapper-grouper fishery of the South Atlantic region, regulatory impact review of the economic consequences of the proposed management measures, and a final environmental impact statement describing the possible effects on the environment of implementing the plan.

-2396-
AUTHOR(S): SOUTH CAROLINA MARINE RESOURCES RESEARCH INSTITUTE, GEORGIA DEPARTMENT NATURAL RESOURCES, AND DUKE UNIVERSITY MARINE LABORATORY
YEAR: 1981
TITLE: Final report. South Atlantic OCS Area: Living Marine Resources Study. Vol. 1. An Investigation of Live Bottom Habitats South of Cape Fear, NC
PUB: Prepared for BLM, Washington, D.C. SC Wildlife & Marine Resources Dept., Charleston, SC. GA Dept. Natural Resources, Brunswick, GA, 297 pp.
ABSTRACT:
This report characterizes benthic and nektonic communities associated with representative live bottom habitats on the continental shelf south of Cape Fear, NC and evaluates factors which might influence these communities, particularly the potential for impact by offshore oil and gas activities.

-2397-
AUTHOR(S): SOUTH CAROLINA WILDLIFE AND MARINE RESOURCES DEPARTMENT
YEAR: 1981
TITLE: South Atlantic OCS Area Living Marine Resources Study. Volume II: An Investigation of Live Bottom Habitats North of Cape Fear, NC (Final Report)
PUB: BLM, Washington, D.C., 146 pp.
ABSTRACT:
The major objectives of this study were to (1) characterize benthic and nektonic communities associated with representative live bottom habitats on continental shelf of the South Atlantic Bight, and (2) evaluate factors which might influence these communities, particularly the potential for impact by offshore oil and gas activities. The report describes three study sites at

the edge of the continental shelf in a 55-100m depth zone, near Cape Fear, North Carolina.

-2398-
AUTHOR(S): SOUTH CAROLINA WILDLIFE AND MARINE RESOURCES DEPARTMENT
YEAR: 1981
TITLE: South Atlantic OCS Area Living Marine Resources Study. Volume I: An Investigation of Live Bottom Habitats South of Cape Fear, NC (Final Report)
PUB: BLM, Washington, D.C., 329 pp.
ABSTRACT:
The major objectives of this study were to (1) characterize benthic and nektonic communities associated with representative live bottom habitats on the continental shelf of the South Atlantic Bight, and (2) evaluate factors which might influence these communities, particularly the potential for impact by offshore oil and gas activities. The study areas include nine live bottom areas located off South Carolina, Georgia and Florida.

-2399-
AUTHOR(S): SOUTH CAROLINA WILDLIFE AND MARINE RESOURCES DEPARTMENT
YEAR: 1984
TITLE: South Atlantic OCS Area Living Marine Resources Study, Phase 3, Executive Summary
PUB: Georgia Dept. of Natural Resources, Brunswick., Coastal Resources Div., MMS, Vienna, VA, 16 pp.
ABSTRACT:
This report volume summarizes the results obtained from three study tasks designed to better understand the possible effects of energy or mineral related activities on hard-bottom communities in the South Atlantic Bight.

-2400-
AUTHOR(S): SPEIR, H.J.
YEAR: 1987
TITLE: Status of Some Finfish Stocks in the Chesapeake Bay
PUB: Water Air Soil Pollut. 35(1-2):49-62
ABSTRACT:
Commercial landings and indices of reproductive success indicate declines in several species of anadromous and semi-anadromous finfish. Causes for the declines may be due to point and non-point sources of water pollution, acid deposition or overfishing. The EPA Chesapeake Bay Study identified a number of major environmental problems in the Bay but the exact linkages between environmental problems and fish stocks have not been made.

-2401-
AUTHOR(S): SPILL, K.W.
YEAR: 1982
TITLE: The Daytime Fall Southern Flounder Recreational Fishery in Three Texas Passes
PUB: Texas Parks and Wildlife Department, Coastal Fisheries Branch, Management Data Ser., No. 46, 28 pp.
ABSTRACT:
A survey of wade/bank daytime southern flounder fishermen in the Galveston jetty-Pelican Island area, the Colorado River tidal area, and the Port Aransas pass area was conducted from October through December 1980. This study indicated that special surveys are probably not needed to monitor the southern flounder harvest on a coastwide basis. By increasing the sample size in the

routine creel survey, the precision of the harvest estimates of southern flounder and all other species on a bay system basis could be improved. Harvest rates, sex ratios of harvested fish, bait types, and fishermens' residences were assessed.

-2402-
AUTHOR(S): SPILLER, J.
YEAR: 1981
TITLE: Analysis of Offshore Biology in the Vicinity of the Gulf of Maine Maritime Boundary Area
PUB: Submitted to the Office of the Geographer, U.S. Department of State. Under Contract to the Woods Hole Oceanographic Institution.
ABSTRACT:
Report discusses the zoogeography of the Gulf of Maine maritime boundary area, the physical environment of the area, distribution of invertebrates and commercially important fish and shellfish and food habits for commercially important finfish in the area.

-2403-
AUTHOR(S): SPILLER, K.W.
YEAR: 1981
TITLE: A Profile of the Daytime Fall Southern Flounder Recreational Fishery in Three Texas Passes
PUB: Texas Parks and Wildlife Department and NOAA/NMFS, U.S. Dept. of Commerce, under PL 88-309, Proj. No. 2-310-R-4, 23 pp.
ABSTRACT:
A survey of wade/bank daytime southern flounder (Paralichthys lethostigma) fishermen in the Galveston jetty-Pelican Island area, the Colorado River tidal area, and the Port Aransas pass area was conducted from October through December 1980.

-2404-
AUTHOR(S): SPRINGER, S.
YEAR: 1951
TITLE: The Oregon's Fishery Explorations in the Gulf of Mexico, 1950
PUB: Commer. Fish. Rev. 13(4):1-8
ABSTRACT:
Recognition of the need for more knowledge of the fishery resources of the Gulf of Mexico led to the formation of the Gulf States Marine Fisheries Compact and the development of a program for fishery explorations and research. The U.S. Fish and Wildlife Service is the primary exploratory and research agency for the Gulf States Marine Fisheries Commission.

-2405-
AUTHOR(S): SPRINGER, S. AND H.R. BULLIS
YEAR: 1954
TITLE: Exploratory Shrimp Fishery in the Gulf of Mexico, Summary Report for 1952-1954
PUB: Commer. Fish. Rev. 16(10):1-16
ABSTRACT:
U.S. Fish and Wildlife Service. An extensive new fishing area for brown-grooved shrimp revealed by these explorations was immediately utilized by the shrimp fishing fleet. An extensive fishing area for deep-water red shrimp has also been discovered, but this species of shrimp has not been fished commercially as yet.

-2406-
AUTHOR(S): SQUIRE, J.L, JR.
YEAR: 1982
TITLE: Patch Temperatures for Some Important Marine Species off California
PUB: NOAA, Tech. Rep. NMFS, 0(759), pp. 1-20
ABSTRACT:

Airborne sea surface temperature surveys using IR techniques were conducted monthly off the central and southern California coast, 1963-1968, by the NMFS in cooperation with the U.S. Coast Guard. The resulting temperature data were matched to commercial and sportfishing boat catch data to determine the relationship between catch and temperature for the following major sport species: chinook and silver salmon, Oncorhynchus tshawytscha and O. kisutch; yellowtail, Seriola dorsalis; Pacific bonito, Sarda chiliensis; Pacific barracuda, Sphyraena argentea; white seabass, Atractoscion nobilis and albacore, Thunnus alalunga. Part 1 presents graphs for each of the above species for areas having high catches, the month during which most fish were caught, sea surface temperature at which most fish were caught, mean catch temperature and its standard deviation, and temperature ranges. Part 2 describes how catch and CPUE are related to temperature. A series of weekly airborne temperature surveys were flown over a high catch rate area off San Diego, California, April-October, in 1972, 1973 and 1974. These temperature data were compared with catches of yellowtail, Pacific barracuda, and Pacific bonito by the sportfishing fleet within the survey area.

-2407-
AUTHOR(S): SQUIRE, J.L., JR
YEAR: 1972
TITLE: Apparent Abundance of Some Pelagic Marine Fishes off the Southern and Central California Coast as Surveyed by an Airborne Monitoring Program
PUB: U.S. Natl. Mar. Fish. Serv. Fish. Bull. 70(3):1005-1019
ABSTRACT:

From September 1962 through December 1969, commercial aerial fish spotter pilots estimated tonnage of species observed during flights off the southern and central California coast. Observations of fish and the aircraft's flight route were recorded on special charts. These data were anlayzed using 10-minute-longitude by 10-minute-latitude "block areas." A total of over 17,593 flight hours was involved, surveying 57,628 block areas--37,186 during the day and 20,442 during the night. Data from each block area were used to compute diurnal and nocturnal variation in apparent abundance and an annual index of apparent abundance.

-2408-
AUTHOR(S): SQUIRE, JAMES L., JR.
YEAR: 1983
TITLE: Abundance of Pelagic Resources off California, 1963-1978, as Measured by an Airborne Fish Monitoring Program
PUB: NOAA Tech. Rep., NMFS-SSRF-762, 75 pp.
ABSTRACT:

From September 1962 through December 1978 commercial aerial fish-spotter pilots operating off southern and central California and northern Mexico, maintained a flight log indicating the geographical areas searched and an estimate of the quantity of pelagic species observed. These flight logs were analyzed for quantities of the various species observed per block area.

-2409-
AUTHOR(S): STANLEY, J.G. AND M.A. SELLERS
YEAR: 1986
TITLE: Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Mid-Atlantic)--American Oyster
PUB: U.S. Fish Wildl. Serv. Biol. Rep. 82(11.65). U.S. Army Corps of Engineers, TR EL-82-4, 25 pp.
ABSTRACT:

The species profile is one of a series on coastal aquatic organisms, principally fish, and of sport, commercial, or ecological importance. The profiles are designed to provide coastal managers, engineers, and biologists with a brief comprehensive sketch of the biological characteristics and environmental requirements of the species and to describe how populations of the species may be expected to react to environmental changes caused by coastal development. Each profile has sections on taxonomy, life history, ecological role, environmental requirements, and economic importance, if applicable.

-2410-
AUTHOR(S): STARR, R.M.
YEAR: 1985
TITLE: Hydroacoustic Estimates of Squid (Loligo Opalescens) Abundance off Oregon in 1985
PUB: Oregon Dept. Fish and Wildlife, Informational Report No. 85-9, 41 pp.
ABSTRACT:

Quantitative acoustic surveys off the central Oregon coast produced estimates of squid (Loligo opalescens) distribution and abundance from a 10 km2 area. Squid resided in the middle of the water column early in the study and in the upper one-third later. The center of spawning activity moved southward and shoreward with time. Maximum areal densities in any file ranged from 8.8 to 178.9 squid/m2 of surface area. Average areal densities for an entire transect ranged from 0.8 to 19.2 squid/m2.

Analysis of weight to length ratios of squid commercially harvested in the study area indicated that two different groups of squid entered the study area over the five week study period. The largest school observed covered a surface area of 2.1 km2 and contained an estimated 31.4 million squid. Biomass of the largest school was estimated to be 1714 mt. Including commercial harvest, the lower and upper biomass estimates were 2108 and 3735 mt, respectively.

-2411-
AUTHOR(S): STARR, R.M. AND J.E. MCCRAE
YEAR: 1984
TITLE: Squid Resource Assessment
PUB: Oregon Dept. Fish and Wildlife, Newport, OR, Annual Report, Proj. No. 1-174R Segment1, 39 pp.
ABSTRACT:

Commercial landings of the market squid (Loligo opalescens) increased from 113,000 pound, produced by seven vessels in 1982 to almost one million pound produced by 13 vessels in 1984. A research project was established to provide information to manage the new fishery. Observers were placed on fishing vessels to identify problems associated with incidental catch of the gear, gear impacts on squid egg capsules, and gear conflicts. Observers saw few problems associated with the level of harvest and activity in 1984.

Samples of 200-250 squid were collected three times a week to obtain estimates of the biological characteristics of spawning squid in Oregon.

Results of the analysis indicate that a sample size of 100-150 animals would provide sufficient precision in estimating dorsal mantle lengths. The average dorsal mantle length of squid collected was 110.8 + 0.5 mm (95% CI). Females were significantly ($P<0.05$) larger than males. The average dorsal mantle length of samples declined throughout the season. Average sample weights declined then increased in the second area of harvest, suggesting that new groups of squid moved into the area to spawn.

-2412-
AUTHOR(S): STARR, R.M., AND J.E. MCCRAE
YEAR: 1985
TITLE: Market Squid (Loligo Opalescens) Ivestigations in Oregon, 1983-1985
PUB: Oregon Dept. Fish and Wildlife, Informational Report, No. 85-10, 41 pp.
ABSTRACT:

The Oregon fishery for Loligo opalescens is expanding at a rapid rate. Fishing effort and efficiency are increasing; purse seines are used most frequently to catch squid. In 1985 catch per trip averaged 27.0 thousand pounds. Six vessels accounted for 77% of the 1.75 million pounds landed. Ex-vessel price averaged $350 per ton. L. opalescens caught off Oregon apparently have different biological characteristics than squid caught in California. Females in an aquarium laid an average of 23 egg capsules per animal. A total of 700 egg capsules collected in the field yielded an average of 98 + 2 (95% CI) eggs per capsule. The mean dorsal mantle length of L. opalescens sampled diminished with time. Females had longer dorsal mantle lengths than males. The sex ratio of all samples collected is weighted toward males. Storage tests revealed that squid whole weights decline with time when frozen. Length to weight ratios of spawning female squid indicated that three different groups of squid entered the harvest area to spawn.

-2413-
AUTHOR(S): STAUFFER, G.
YEAR: 1983
TITLE: Condition of Groundfish Resources of the Gulf of Alaska Region as Assessed in 1983
PUB: NOAA/NMFS, NWAFC, Seattle, WA, NWAFC PR 84-02
ABSTRACT:

The U.S. 1983 assessment of the condition of the status of the Gulf of Alaska groundfish stocks is an update of the 1982 INPFC groundfish Document No. 2575. The pollock report has been divided into two reports. The first, Section 1, is an update on the assessment of the stock condition and the second, Section 2, is a description of the fisheries. The sablefish report, Section 3, updates the condition of the resource based on results of the 1982 fisheries, 1982 Japan and U.S. cooperative longline survey, and the 1983 U.S. pot survey in Southeast Alaska. The Pacific ocean perch report, Section 6, was revised to clarify the resource is composed of five species of rockfish, although the status report is primarily directed at Sebastes alutus. The reports for Pacific cod (Section 4), Atka mackerel (Section 5) and flatfish (Section 7) are updated with 1982 catch statistics. Reports on the results from the U.S. pollock resource survey in Shelikof Strait in 1983 have been completed for just the bottom trawl survey (Section 8). A document for the hydroacoustic survey will be completed at a later date. The biomass estimates from this survey are given in Section 1. A summary of the 1983 and planned 1984 resource surveys for the Gulf of Alaska are given in Section 9.

-2414-
AUTHOR(S): STAUFFER, G.D.
YEAR: 1980
TITLE: Estimate of the Spawning Biomass of the Northern Anchovy Central Population for the 1979-80 Fishing Season
PUB: Rep. CalCOFI, Vol. 21, pp. 17-22
ABSTRACT:

The 1979 estimate of northern anchovy, Engraulis mordax, spawning biomass is reported for the central subpopulation in order to establish the optimum yield for the 1979-80 season. The estimate is based on the 1979 California Cooperative Oceanic Fisheries Investigations egg and larva survey. Spawning north of Point Conception off central California was found only during January, while to the south larvae were consistently taken. In 1979 the percent of larvae south of the U.S.-Mexico border was 53.5%, while the long-term average is 30%. Off southern California and Baja California spawning persisted from January through May. The winter-plus-spring larva abundance was 15.670 x 10E12 larvae. The 1979 estimate of annual larva abundance was 17.508 x 10E12 larvae. Spawning biomass was estimated at 1,723,000 short tons, a 28% increase over the 1978 estimate. Optimum yield for the 1979-80 season was 241,000 short tons. Optimum yield in the U.S. zone, U.S. nonreduction reserve, and the U.S. reduction quotas were 168,700, 12,600, and 156,100 short tons, respectively.

-2415-
AUTHOR(S): STAUFFER, G.D.
YEAR: 1983
TITLE: Calibration of Northern Anchovy Spawning Biomass Estimates Derived by Egg Production and Larval Census Methods
PUB: CalCOFI Rep. 24:11-15
ABSTRACT:

Traditionally northern anchovy, Engraulis mordax, spawning biomass has been estimated through larval census. A new egg production method was to be used by 1982 and concurrent surveys by the two methods used in 1982. The procedure for converting egg production estimates to equivalent larval census estimates is presented. The basis for the calibration between the two estimators uses cases of proportionality. In this way the larval census estimates can be calculated from just an ichthyoplankton survey of eggs and an assumption of larval mortality. If an estimate of biomass is desired, then only a survey of adult fish is needed. Larval census estimates for 1980 and 1981 are 1,611,000 and 2,544,000 metric tons (mt), respectively, while egg production estimates of biomass are 782,000 mt for 1980, 585,000 mt for the first 1981 estimate and 343,000 mt for the second. One method of calculation yielded large variations in the constant of proportionality; changes for the two 1981 surveys in respect to 1980 amount to 111% and a 260% increase. A second method yields relatively constant values of the proportionality constant, larval production estimates from larval data being 38% of the value derived from egg data. Anchovy spawning biomass can be estimated in years while only an egg production survey is conducted, using calibration equations.

-2416-
AUTHOR(S): STAUFFER, G.D.
YEAR: 1985
TITLE: Biology and Life History of the Coastal Stock of Pacific Whiting, Merluccius productus
PUB: Mar. Fish Rev. 4(2):2-7

ABSTRACT:
Research on the life history and biology of the coastal stock of Pacific whiting, Merluccius productus, has been conducted since the development of the foreign trawl fishery in the mid-1960's. Insights gained from these studies have been reviewed by Nelson and Larkins (1970) and Bailey et al. (1982). This review provides an updated summary of the information on the biology and life history of the coastal stock of Pacific whiting.

-2417-
AUTHOR(S): STAUFFER, G.D. AND K. PARKER
YEAR: 1980
TITLE: Estimate of the Spawning Biomass of the Northern Anchovy Central Subpopulation for the 1978-79 Fishing Season
PUB: CalCOFI Rep. 21:12-16
ABSTRACT:
The 1978 spawning biomass estimate for the central subpopulation of northern anchovies was 1,304,000 short tons. This estimate is based on the anchovy larvae abundance as measured by four egg and larva surveys conducted over the period January-June 1978. Spawning biomass was estimated from larva abundance using Smith's (1972) method. Based on the Pacific Fishery Management Council's Anchovy Plan (PFMC 1978), optimum yield for the central subpopulation during the 1978-79 season was 101,333 short tons. The optimum yield in the U.S. FCZ was 70,993 short tons. The 1978-79 U.S. reduction quota was 58,333 short tons.

-2418-
AUTHOR(S): STAUFFER, G.D. AND R.L. CHARTER
YEAR: 1982
TITLE: The Northern Anchovy Spawning Biomass for the 1981-82 California Fishing Season
PUB: CalCOFI Rep. 23:15-19
ABSTRACT:
The 1981 spawning biomass is estimated for the northern anchovy, Engraulis mordax, for the 1981-82 fishing season. Estimates use an optimum yield formula from the Fishery Management Plan implemented in 1978 and are based on larval census. Of all stations surveyed, 56% had larvae with their geographic distribution expanded farther offshore than the previous 3 years. High abundances were found in the north during winter and off Baja California in March and April. The highest abundance was found in the Southern California Bight. Winter and spring totals from the central subpopulation were 11,127.4 x 10E9 and 14, 164.3 x 10E9 larvae, respectively. The 1981 biomass estimate was 2,803,000 short tons, a 58% increase over the previous year. Optimum yield for the 1981-82 fishing season is 601,000 tons with that from the U.S. FZC being 420,700 short tons. The U.S. capacity to process is only 371,885 tons. The NMFS set the U.S. quota at 359,285 tons for 1981-82.

-2419-
AUTHOR(S): STAUFFER, G.D. AND S.J. PICQUELLE
YEAR: 1980
TITLE: Estimates of the 1980 Spawning Biomass of the Central Subpopulation of Northern Anchovy
PUB: NOAA/NMFS, Southwest Fisheries Center Admin. Rep. LJ-80-9, 41 pp.
ABSTRACT:
The 1980 spawning biomass for the Northern anchovy central subpopulation has been estimated by the egg production method (Parker, in press) and larva census estimate (Smith 1972). The two estimates are 920,000 and 1,800,000

short tons. The egg production estimate of biomass was derived from estimates of daily production of anchovy eggs in the sea, fecundity, incidence of spawning, sex ratio, and average weight of the adult fish. The data were collected over the range of the central subpopulation from 20 March to 29 April 1980, during a modified California Cooperative Oceanic Fisheries Investigations (CalCOFI) survey in which both plankton and midwater trawl stations were occupied. The larvae census estimate is based on the 1980 CalCOFI survey of four cruises that only partially surveyed the seasonal and areal range of the Northern anchovy spawning period.

-2420-
AUTHOR(S): STEELE, P.
YEAR: 1984
TITLE: Population Dynamics and Seasonal Abundance of the Blue Crab, Callinectes sapidus, in Tampa Bay, Florida West Coast. Florida Marine Resources Research, Development and Management
PUB: NOAA/NMFS, SEFC. St. Petersburg, FL. Project I, Fisheries Stock Assessment, Job VI
ABSTRACT:
Seasonal long-term fluctuations in Florida blue crab populations are evaluated.

-2421-
AUTHOR(S): STEHMANN, M.
YEAR: 1980
TITLE: Deep Sea Fisheries on the North-west Atlantic Continental Slope
PUB: Inf. Fischwirtsch. 27(1):4-10
ABSTRACT:
In the area between 40N (southeastern Georges Bank) and 29N (Florida, Cape Canaveral) 58 bottom trawls with the 140 feet-bottom trawl were carried out. Fishery surveys and fish catch statistics of commercial species, bathythermographic and other biological data are given. Data on vertical distribution of commercial species (Illex illecerebrosus, Loligo pealei, Geryon quinquedens, Aphanopus carbo, Merluccius bilinearis, Merluccius albidus, Centropristis striata, Stenotomus chrysops, Prionotus carlinus, Pomotomus saltatrix, Cophius americanus, Etrumeus teres, Peprilus triacanthus, Rachycentron canadus, Seriola rivoliana, Phycis chesteri, Urophycis regius, Urophycis tenuis, Coryphaenoides rupestris, Glyptocephalus cynoglossus) and their population density are given.

-2422-
AUTHOR(S): STEIDINGER, K.A. AND L.M. WALKER (EDS)
YEAR: 1984
TITLE: Marine Plankton Life Cycle Strategies
PUB: CRC Press, Boca Raton, FL, 158 pp.
ABSTRACT:
This book is intended to summarize selected plankton life cycles in order to emphasize the significance of life cycles and their stages in ecological analyses of populations and communities. The authors in their respective chapters emphasize adaptations for reproductive success, development and protection of early life cycle stages, and dispersal mechanisms.

-2423-
AUTHOR(S): STERN, L.J.
YEAR: 1976
TITLE: Determination and Description of Knowledge of the Distribution, Abundance and Migrations of Salmonids in the Gulf of Alaska and Bering Sea
PUB: NOAA/OCSEAP, Quarterly Report, October-December, 2:586-748
ABSTRACT:

The objective of this report is to summarize the present status of knowledge of distribution, abundance, and timing of salmonids in coastal waters of the Gulf of Alaska as defined below. It forms a portion of a background study designed to provide biological information needed by the Outer Continental Shelf Environmental Assessment Program (OCSEAP) in making decisions with respect to offshore oil leasing in the northern Gulf of Alaska and eastern Bering Sea. A second interim report will follow, covering the St. George Basin of the Bering Sea. A final report will then interface the two interim reports and add data not included in the two interim reports.

-2424-
AUTHOR(S): STEVENS, B.G. AND D.A. ARMSTRONG
YEAR: 1980
TITLE: Distribution and Abundance of Juvenile Dungeness Crab, Cancer-Magister, in Grays Harbor Washington, U.S.A., in Relation to Salinity Tolerance and Food Preferences
PUB: Am. Zool. 20(4):889
ABSTRACT:

This reference is not an actual paper, but an abstract of the annual meeting of the American Society of Zoologists and other societies. This is a proposed study as to the value of Grays Harbor as a nursery ground for juvenile Dungeness crab (Cancer magister) which appear to be able to tolerate a wider range of salinities than adults. This allows juveniles to utilize areas of marginal importance to adults, and partition resources to reduce competition between adults and juveniles. Trawl capture and stomach analysis is proposed in Grays Harbor to test his theory.

-2425-
AUTHOR(S): STEVENS, B.G. AND D.A. ARMSTRONG
YEAR: 1984
TITLE: Distribution, Abundance, and Growth of Juvenile Dungeness Crab, Cancer Magister, in Grays Harbor Estuary, Washington
PUB: Fish. Bull. (U.S.) 82(3):469-484
ABSTRACT:

The age of juvenile Dungeness crab, Cancer magister, were estimated from width-frequency analyses, and the population density and growth rates were monitored for each age class in Grays Harbor Estuary over a 14-month period. Mean density of crabs was greatest at the mouth of the estuary (2,190 crabs per hectare) and decreased with increasing distance from the estuary mouth and decreasing bottom salinity. Crab densities at all sampling sites were greatest from May to August. Lowest densities occurred in October and November. The distribution of crabs within the estuary varied with age group. Crabs in the 0+ age group averaged 46 crabs per hectare and represented 16.6% of all crabs caught. Catches of 0+ crabs were abundant near eelgrass beds. First instar crabs were abundantly distributed on the mudflats at low tide, buried just beneath the sediment surface. The 1+ age group were the most abundant, averaging 268 crabs per hectare and 54.7% of all crabs caught, and were found mainly in subtidal channels. The 2+ age group, consisting of

sexually mature crabs, averaged 121 crabs per hectare, or 21.3% of all crabs caught. They were abundant only at the outer estuary areas. The 3+ age group was the least abundant with an average density of 17 crabs per hectare, representing 3% of all crabs caught. Monthly weight and size growth rates were greater in spring-summer than in fall-winter for all age groups and decreased with size. The seasonal total crab population was estimated at 39.0 million crabs (summer); 3.3 million (fall-winter); and 7.8 million (spring). This estuary serves as an important nursery ground and provides a substantial portion of recruitment to the offshore commercial fishery.

-2426-
AUTHOR(S): STEVENS, B.G. AND R.A. MACINTOSH
YEAR: 1985
TITLE: Report to Industry on the 1985 EBS Crab Survey
PUB: NOAA/NMFS, NWAFC, Seattle, WA, NWAFC PR 85-20
ABSTRACT:

An annual trawl survey is conducted in the eastern Bering Sea to determine the distribution and abundance of crab and groundfish resources. This report summarizes survey results for commercially important crabs. It is intended to aid fishermen and processors in locating productive grounds and judging overall availability of various species. Survey derived data are also used as part of the basis for management decisions. Red king crab (Paralithodes camtschatica), blue king crab (P. platypus), Korean hair crab (Erimacrus isenbeckii), and two species of Tanner crab (Chionoecetes bairdi and C. opilio), are of primary interest. Hybrid Tanner crab are also discussed. Information on groundfish resources is available from the NMFS's Seattle Laboratory (7600 Sand Point Way NE, BIN C15700, Seattle, Washington 98115).

-2427-
AUTHOR(S): STEVENS, B.G., R.A. MACINTOSH AND K. STAHL-JOHNSON
YEAR: 1986
TITLE: Report to Industry on the 1986 Eastern Bering Sea Crab Survey
PUB: NOAA/NMFS, NWAFC, Seattle, WA, NWAFC-PR-86-17, 51 pp.
ABSTRACT:

An annual trawl survey is conducted in the eastern Bering Sea to determine the distribution and abundance of crab and groundfish resources. This report summarizes survey results for commercially important crabs. It is intended to aid fishermen and processors in locating productive grounds and judging overall ability of various species. Survey derived data are also used as part of the basis for management decisions. Red king crab (Paralithodes camtschatica), blue king crab (P. platypus), hair crab (Erimacrus isenbeckii), and two species of Tanner crab (Chionocetes bairdi and C. opilio) are of primary interest. Hybrid Tanner crab are also discussed. Information on groundfish resources is available from the NMFS Seattle Laboratory.

-2428-
AUTHOR(S): STEVENS, B.G., R.A. MACINTOSH AND K.L. STAHL-JOHNSON
YEAR: 1986
TITLE: Analysis of Crab Data from the 1985 NMFS Survey of the Northeast Bering Sea and Norton Sound
PUB: NMFS, U.S. Dept. of Commerce, Northwest and Alaska Fisheries Center, Kodiak, AK, 35 pp.

ABSTRACT:
In September and October 1985, NMFS conducted a trawl survey of Norton Sound and the northeast Bering Sea. This report includes data on the abundance and distribution of red king crab, blue king crab, and Tanner crabs in those regions.

-2429-
AUTHOR(S): STEVENS, B.G., R.A. MACINTOSH AND K.L. STAHL-JOHNSON
YEAR: 1987
TITLE: Report to Industry on the 1987 Eastern Bering Sea Crab Survey
PUB: NMFS, U.S. Dept. of Commerce, Northwest and Alaska Fisheries Center, Kodiak, AK, NAFC Processed Report 87- 18, 58 pp.
ABSTRACT:
An annual trawl survey is conducted in the eastern Bering Sea to determine the distribution and abundance of crab and groundfish resources. This report summarizes survey results for commercially important crabs. It is intended to aid fishermen and processors in locating productive grounds and judging overall availability of various species. Red king crab, blue king crab, hair crab, and two species of Tanner crab are of primary interest. Golden king crab were not surveyed.

-2430-
AUTHOR(S): STEVENS, B.G., R.A. MACINTOSHH AND K.L. STAHL-JOHNSON
YEAR: 1986
TITLE: Report to Industry on the 1986 Eastern Bering Sea Crab Survey
PUB: NMFS, U.S. Dept. of Commerce, Northwest and Alaska Fisheries Center, Kodiak, AK, NAFC Processed Report 87- 18, 51 pp.
ABSTRACT:
An annual trawl survey is conducted in the eastern Bering Sea to determine the distribution and abundance of crab and groundfish resources. This report summarizes survey results for commercially important crabs. It is intended to aid fishermen and processors in locating productive grounds and judging overall availability of various species. Red king crab, blue king crab, hair crab, and two speices of Tanner crab, are of primary interest. Hybrid Tanner crab are also discussed.

-2431-
AUTHOR(S): STEVENS, D.E.
YEAR: 1977
TITLE: Striped Bass (Morone saxatilis) Year Class Strength in Relation to River Flow in the Sacramento-San Joaquin Estuary, California
PUB: Trans. Am. Fish. Soc. 106(1):34-42
ABSTRACT:
Striped bass, Morone saxatilis, abundance indices were developed from two analyses of sport-fishing party boat catch statistics for the Sacramento-San Joaquin Estuary. These analyses cover the periods 1938-1954 and 1958-1972. The abundance indices provided evidence that the size of the fishable population fluctuated by a factor 3.7 during the latter period and that river flows in the first summer of life affected recruitment during both periods.

-2432-
AUTHOR(S): STEVENS, D.E.
YEAR: 1979
TITLE: Environmental Factors Affecting Striped Bass (Morone Saxatilis) in the Sacramento-San Joaquin Estuary
PUB: California Dept. of Fish and Game, Pacific Division, Stockton, CA, pp. 469
ABSTRACT:
The introduction of striped bass to the Sacramento-San Joaquin Estuary has established one of California's most important recreational fisheries. Striped bass requirements are being studied so they can be considered in planning for future water project and other development in the estuary. Study results have shown that striped bass spawning is affected by annual variations in salinity in the San Joaquin River, and survival of the young and subsequent recruitment to the fishery are related to the magnitudes of water diversions from the nursery area and river flows.

-2433-
AUTHOR(S): STEVENS, D.E., D.W. KOHLHORST, L.W. MILLER AND D.W. KELLEY
YEAR: 1985
TITLE: The Decline of Striped Bass in the Sacramento-San Joaquin Estuary, CA
PUB: Trans. Am. Fish. Soc. 114(1):12-30
ABSTRACT:
The abundance of young striped bass, Morone saxatilis, in the Sacramento-San Joaquin Estuary has suffered an unsteady but persistent decline from population levels that were high in the middle 1960s. The authors believe the Sacramento-San Joaquin striped bass population and the fishery that it supports are in serious danger. The cause is most likely one or more of four factors; (1) the adult population is now so low that egg production may be inadequate; (2) the plankton food supply of young striped bass in the western Sacramento-San Joaquin Delta and Suisun Bay has been greatly reduced each spring; diversion of water from the delta for agricultural purposes is a prime suspect for the decrease in food production; (3) large numbers of young fish are lost by entrainment in water diversions; and (4) the population is stressed by toxic substances such as petrochemicals and pesticides. Additional studies are underway to help determine the principal cause(s) of the striped bass decline.

-2434-
AUTHOR(S): STEVENS, J.R.
YEAR: 1963
TITLE: Coordination of Coastwide Finfish Investigations Project
PUB: Texas Game and Fish Commission, Region V, Rockport, Tex. Proj. No. MF-R-4. Job No. 1, Mar. Fish Proj. Rep.
ABSTRACT:
This report is based on a total of 1,098 collections. Two hundred fifty-eight of these collections were collections of adult game fish made with trammel nets or drag seines. Two hundred sixty-three were seine collections for sampling juvenile game fish. Five hundred seventy-seven were trawl collections for sampling forage species.

-2435-
AUTHOR(S): STEVENSON, C.H.
YEAR: 1893
TITLE: Report on the Coast Fisheries of Texas
PUB: U.S. Commerce Fish. 18:373-420, plts 12-27
ABSTRACT:
A history of the oyster industry of Texas, and a description of the oyster grounds, with an account of regulations affecting them.

-2436-
AUTHOR(S): STEVENSON, J.C.
YEAR: 1972
TITLE: Distribution and Survival of Herring Larvae (Clupea pallasi Valenciennes) in British Columbia Waters
PUB: J. Fish. Res. Bd. Can. 19:735-810
ABSTRACT:
Thorough study of the distribution and survival of herring larvae of one of the main populations in British Columbia waters, it is concluded that (a) the principal cause of death in Pacific herring larvae is traceable to their passive transport by inshore water currents to the open sea, and (b) the number of larvae that are not so transported in any particular year determines the strength of the resulting year-class.

-2437-
AUTHOR(S): STICKNEY, A.P.
YEAR: 1979
TITLE: Laboratory Studies on the Development and Survival of Pandalus borealis Eggs in the Gulf of Maine
PUB: In: Proceedings of the International Pandalid Shrimp Symposium, pp. 395-405
ABSTRACT:
The fishery for the northern shrimp Pandalus borealis in the Gulf of Maine has been sporadic. Although data described only landings, there is no doubt that the size of the shrimp stocks has been fluctuating. This paper describes experimental observations on the role of temperature and other environmental factors on the development and survival of eggs. Mortality of eggs directly attributable to unfavorable temperature was not demonstrated, but there are aspects of egg development in relation to temperature that may have an effect on recruitment. If larvae are released before suitable planktonic food organisms become sufficiently abundant, early starvation might occur. Preliminary studies of larval food habits and planktonic abundance in the late winter months indicate that may be the case in the Gulf of Maine.

-2438-
AUTHOR(S): STICKNEY, A.P.
YEAR: 1981
TITLE: The Environmental Physiology of the Northern Shrimp (Pandalus borealis) in the Gulf of Maine
PUB: In: Frady, T. (ed.). Proceedings of the International Pandalid Shrimp Symposium, February 13-15, 1979, Kodiak, AK, Alaska Sea Grant Program, Rep. No. ASG-813
ABSTRACT:
The abundance of northern shrimp in the Gulf of Maine seems to be correlated in part with long term temperature changes. Following a series of warmer than normal winters, the abundance of shrimp appears to decline. This report describes some experiments to determine the effects of water

temperature on egg mortality and the rate of embryonic development. Although no significant difference in mortality could be demonstrated among temperatures between 2 degree and 10 degree C -- the range normally encountered in the habitat, temperature did have a pronounced effect on therate of development. Investigations were also made on a previously unreported parasite which invades and kills the eggs. Infection rates of as high as 30% of the egg mass have been observed, but the usual rate is 2 to 5%. The parasite, which produced characteristically white and swollen eggs, appears to have affinities with dinoflagellates.

-2439-
AUTHOR(S): STOKER, S.
YEAR: 1981
TITLE: Benthic Invertebrate Macrofauna of the Eastern Bering/Chuckchi Continental Shelf
PUB: In: Hook, D.W. and J.A. Calder, eds. The Eastern Bering Sea Shelf: Oceanography and Resources, Vols. 1 and 2, NOAA, Washington D.C., pp. 1069-1090
ABSTRACT:
Chapter summarizes the qualitative and quantitative distribution of benthic invertebrate macrofauna over the eastern continental shelf of the Bering and Chukchi Seas and correlates distributions with depth, sediment type, latitude, and longitude. Faunal assemblages are defined and distribution of assemblages are correlated with environmental conditions. Seasonal and annual fluctuations of the benthic standing stock are reported.

-2440-
AUTHOR(S): STOKER, S.W.
YEAR: 1978
TITLE: Benthic Invertebrate Macrofauna of the Eastern Continental Shelf at the Bering and Chukchi Seas
PUB: Ph.D., Mississippi University of AK, Fairbanks, 270 pp.
ABSTRACT:
The overall view presented by this study is of closely interrelated Bering/Chuckhi benthic community system that extends unbroken over the entire continental shelf, with the Chukchi Sea benthos probably relying heavily on the Bering Sea for both food supply and possibly recruitment. Indications are that this is a highly productive and relatively stable benthic system comprised of at least eight major faunal zones of considerable complexity. The environmental factor correlating most strongly with the distribution of these faunal zones and with distribution of individual major species appears to be sediment type, though summer bottom temperature may also be critical.

-2441-
AUTHOR(S): STOKES, G.M.
YEAR: 1974
TITLE: The Distribution and Abundance of Penaeid Shrimp in the Lower Laguna Madre of Texas, With a Description of the Live Bait Shrimp Fishery
PUB: Texas Parks and Wildlife Department, Tech. Ser., No. 15, 32 pp.
ABSTRACT:
Penaeid shrimp were sampled in the Lower Laguna Madre of Texas from November 1970 through October 1972. At least once a month 47 otter trawl stations and 23 bar-seine stations were sampled. Water samples were taken with each shrimp sample. Live bait shrimp dealers were interviewed monthly to determine the extent and value of this fishery.

-2442-
AUTHOR(S): STOKES, G.M.
YEAR: 1977
TITLE: Life History Studies of Southern Flounder (Paralichthys lethostigma) and Gulf Flounder (P. albigutta) in Aransas Bay Area of Texas
PUB: Texas Parks and Wildlife Department, Tech. Ser. No., 25, 37 pp.
ABSTRACT:
Monthly samples were taken from January 1974 through September 1975 to determine the life histories of southern flounder and Gulf flounder in the Aransas Bay area of Texas. Data concerning the commercial and sport gig flounder fishery were also gathered. Sexually mature southern and Gulf flounder left the bay during October, November and December for spawning in the Gulf of Mexico. Tagged southern flounder were received in water depths of up to 62.8 m. Both species spawned for the first time at 2 years of age. Adult southern flounder began to return to the bay as early as February and Gulf flounder returned as early as April. Maximum immigration of juveniles of both species occurred in February. The authors discussed the influence of temperature, salinity, vegetation, and sediment type on the distribution and/or movement on both species. They also discussed total length and stomach contents of samples taken.

-2443-
AUTHOR(S): STONE, W. AND R.F.J. BAILEY
YEAR: 1980
TITLE: A Survey of the Red Crab Resource on the Continental Slope, N.E., Georges Bank and Western Scotian Shelf
PUB: Can. Tech. Rep. Fish. Aquat. Sci. 977:12
ABSTRACT:
In 1978, a survey was conducted to assess the red crab (Geryon quinquedens) resource on the continental slope, between Sable Island Bank and Corsair Canyon. The number of crabs per trap, sex, carapace width and shell hardness were recorded. A total of 1335 crabs were caught, 75.4% of which were trapped in the 360-540 m depth range. Transect 3 yielded the highest catch with 758 crabs in 48 traps. Estimates of population size, standing stock and biomass were obtained for the total survey area as well as transects 2, 3 and 4 which covered the area of greatest abundance. This area, between southwest of Emerald Bank and south of La Have Bank, yielded an average catch of 26.8 crabs/trap in the 360-540 m depth range. The minimum population estimate for the total area surveyed (2767 km SUP-2) is approximately 2,300,000 crabs, with a standing stock of approximately 2,000,000 crabs (for a culling size of 101 mm carapace width) and biomass of 1,136,000 kg. For transects 2, 3 and 4 (825 km SUP-2), the population is estimated at approximately 2,000,000 crabs, with a standing stock of approximately 1,800,000 crabs and biomass of 1,000,000 kg.

-2444-
AUTHOR(S): STRATY, R.R.
YEAR: 1974
TITLE: Ecology and Behavior of Juvenile Sockeye Salmon (Oncorhynchus nerka) in Bristol Bay and the Eastern Bering Sea
PUB: In: Oceanography of the Bering Sea with Emphasis on Renewable Resources. Proceedings of an International Symposium on Bering Sea Study, Occasional Publ. No. 2, Fairbanks, AK
ABSTRACT:
Sockeye salmon originating in western Alaska spend at least half of their first year of marine life in the Bering Sea and adjacent waters. As a result,

the oceanic climate of this region during the period of seaward migration may be expected to have a significant effect on the abundance of sockeye that reach maturity and return to spawn.

-2445-
AUTHOR(S): STRATY, R.R.
YEAR: 1975
TITLE: Migratory Routes of Adult Sockeye Salmon, Oncorhynchus nerka, in the Eastern Bering Sea and Bristol Bay
PUB: NOAA Tech. Rep. NMFS, SSRF-690, 32 pp.
ABSTRACT:
The stocks of sockeye salmon, Oncorhynchus nerka, in Bristol Bay, Alaska, are produced in the lakes and streams of 10 major river systems, which discharge into the bay over a shoreline distance of 193 km.

-2446-
AUTHOR(S): STRATY, R.R.
YEAR: 1981
TITLE: Trans-Shelf Movement of Pacific Salmon
PUB: In: Hood, D.W. and J.A. Calder (eds.). The Eastern Bering Sea Shelf: Oceanography and Resources, Vol. 1, NOAA/OCSEAP, OMPA, U.S. Dept. of Commerce, Seattle, WA. pp. 575-595
ABSTRACT:
Five species of Pacific salmon are produced in the rivers and streams tributary to the Bering Sea shelf. All spend a portion of their juvenile and adult lives as residents of the shelf. Although this residence is transitory, salmon compose a significant and highly variable portion of the total pelagic fish biomass of the shelf. Knowledge of the distribution and abundance of salmon on the shelf is vital to our future attempts to assess the impact of exploiting them upon other living components of the shelf and the impact of man's modifying the shelf environment on the salmon resource.

-2447-
AUTHOR(S): STRATY, R.R. AND H.W. JAENICKE
YEAR: 1980
TITLE: Estuarine Influence of Salinity, Temperature, and Food on the Behavior, Growth and Dynamics of Bristol Bay Sockeye Salmon
PUB: In: Himsworth, D.C., and W.J. McNeil, (eds.). Salmonid Ecosystems of the North Pacific Ocean, Oregon State University Press, Corvallis, OR
ABSTRACT:
The National Marine Fisheries Service investigated the early sea life of sockeye salmon, Oncorhynchus nerka, in Bristol Bay in 1966-67 and 1969-72. The overall objective was to determine what portion of marine mortality of sockeye salmon occurs as juveniles in the estuary. The results provide information on responses of juvenile sockeye to environmental conditions and insight into some probable causes of marine mortality. In this paper, we use results of our investigations in Bristol Bay and published research from other areas to describe and hypothesize how the estuarine environment affects the behavior, growth and survival of sockeye salmon. Information on the behavior of juvenile sockeye salmon may apply to some extent to other salmonid species.

-2448-
AUTHOR(S): STREET, M.W.
YEAR: 1979
TITLE: Coastal Fisheries Management in North Carolina
PUB: North Carolina DNRCD DMF. Morehead City, NC, Spec. Sci. Rep. No. 32, 17 pp.
ABSTRACT:
This document is a plan for fishery management in North Carolina. It summarizes the present status of fishery management, including its legal basis, and presents a philosophy of management. Procedures are described for preparation, approval, and implementation of North Carolina Fishery Management plans.

-2449-
AUTHOR(S): STREET, M.W. AND A.B. HALL
YEAR: 1973
TITLE: Annotated bibliography of anadromous fishes of North Carolina through 1972
PUB: North Carolina DNRCD DMF. Morehead City, NC, Spec. Sci. Rep. No. 28, 85 pp.
ABSTRACT:
Annotated references are given on 238 papers issued from 1846 through 1972 on American shad, hickory shad, blueback herring, alewife, striped bass, Atlantic sturgeon, and shortnose sturgeon in North Carolina. A subject index is included for each species.

-2450-
AUTHOR(S): STREET, M.W., P.P. POTTS, JR., B.F. HOLLAND, JR. AND A.B. POWELL
YEAR: 1975
TITLE: Anadromous Fisheries Research Program, North Coastal Region
PUB: North Carolina Rep. No. AFCS-8, 235 pp.
ABSTRACT:
Planktonic stages of shrimp were sampled systematically in the Gulf of Mexico near Galveston, Texas, during January-December 1961. The Gulf-V plankton net was used every 3 weeks at stations established at water depths of 14, 27, 46, and 82 m. The study area encompassed about 20,725 km2.
Trends in seasonal abundance of larvae varied with depth. At 14-m stations a unimodal trend was observed, and peak abundance was during May to Sepember. In deeper waters a bimodal trend was apparent; peak abundance extended from late summer through fall. At all depths, trends in larval abundance increased as bottom water temperatures increased.

-2451-
AUTHOR(S): STRUHSAKER, P.
YEAR: 1969
TITLE: Demersal Fish Resources: Composition, Distribution, and Commercial Potential of the Continental Shelf Stocks off Southeastern U.S.
PUB: Fish. Ind. Res. 4(7):261-300
ABSTRACT:
A 5-year study of the demersal fish resources of the continental shelf off Southeastern U.S. resulted in the occupation of 956 exploratory trawling stations in the 6 to 100-fathom depth range. The study showed that the region can be divided into five general habitat types-coastal, open-shelf, live-bottom, shelf-edge, and lower-shelf--each harboring a distinctive association of demersal fishes.

-2452-
AUTHOR(S): STUCK, K.C. AND H.M. PERRY
YEAR: 1981
TITLE: Observations on the Distribution and Seasonality of Portunid Megalopae in Mississippi Coastal Waters
PUB: Gulf Res. Rep. 7(1):93-95
ABSTRACT:
Observations on the distribution and seasonality of common coastal portunid megalopae are presented. Callinectes sapidus megalopae were abundant from May through November. The megalope of C. similis, though present throughout the year, peaked in numbers from February through April. With the exception of January, Portunus spp. megalope occurred in all months, with maximum numbers collected in April. Callinectes sapidus megalope commonly occurred at all stations, whereas, the megalope of C. similis and Portunus spp. appeared to be limited by salinity.

-2453-
AUTHOR(S): STUCK, K.C. AND H.M. PERRY
YEAR: 1982
TITLE: Fishery Monitoring and Assessment: Ichthyoplankton Community Structure in Mississippi Coastal Waters. Completion Report
PUB: Gulf Coast Research Lab., Ocean Springs, MS, Project No. 2-296-R, pp. VI-1-1 thru VI-1-53
ABSTRACT:
Examination of "among species" patterns of larval fish distribution and their interactions with biological and hydrological factors may provide clues to understanding year to year variations in catch. The present study identifies assemblages of larval fish in Mississippi coastal waters and examines the variability in these assemblages over a period of 5 years. No attempt is made to explain the causes of such variability, since the extensive information on hydrological/biological factors needed for such an analysis was not available.

-2454-
AUTHOR(S): SUBRAHMANYAM, C.B.
YEAR: 1971
TITLE: Descriptions of Shrimp Larvae (Family penaeidae) off the Mississippi Coast
PUB: Gulf Res. Rep., The E.A. Richmond Memorial Number, 3(2):241-258
ABSTRACT:
Muller (1864) showed that the penaeid egg hatches into a nauplius. Some years later studies of the metamorphosis of penaeid shrimps in the Gulf of Mexico were made (Pearson 1939, Heegaard 1953, Dobkin 1961, Cook and Murphy 1965, and Renfro and Cook 1963). The present paper treats the larvae taken in Mississippi and brings together the descriptions of the larvae scattered in the literature. The salient features of various stages of different species of the six genera studied are pointed out with the aid of drawings to facilitate easier identification. Besides the references cited above, the works of Heldt (1938), Gurney (1924, 1942), Heegaard (1966) and Cook (1966) have been consulted for this presentation.

-2455-
AUTHOR(S): SUBRAHMANYAM, C.B. AND G. GUNTER
YEAR: 1970
TITLE: New Penaeid Shrimp Larvae from the Gulf of Mexico (Decapoda, Penaeidae)
PUB: Crustaceana 19(1):94-98
ABSTRACT:
During investigations of penaeid larvae off the Mississippi coast some unusual protozoea and mysis stages were taken; they differed from all larvae previously reported from the Gulf of Mexico. The stages of the protozoea of Gennadas and two of the mysis of Artemesia were taken on 10 December 1968 at 29 Degrees 24'15"N 88 Degrees 17'W, 29 Degrees 19'N 88 Degrees 14'W and 29 Degrees 17'15"N 88 Degrees 12'05"W. The depths at the stations were 55, 73, and 91.5 meters, respectively.

-2456-
AUTHOR(S): SUBRAHMAYAM, C.B.
YEAR: 1971
TITLE: The Relative Abundance and Distribution of Penaeid Shrimp Larvae off the Mississippi Coast
PUB: Gulf Res. Rep. 3(2):291-345
ABSTRACT:
Penaeid shrimp go through a complicated metamorphic life cycle involving a change in their habitat during the course of development. Adults inhabit and spawn in highly saline offshore waters, the larvae are planktonic and the postlarvae migrate into low saline coastal bays for their survival and growth. Spawning cycles of several species in the Gulf of Mexico have been studied chiefly by collecting the mature adults. A considerable volume of work has been done on the biology of the postlarvae, but information on the planktonic larvae is scanty. Assessment of reproductive cycles of marine animals based on the larval abundance is one of the several methods employed by biologists (Giese 1959). This method is particularly applicable to animals such as penaeid shrimp, which are benthonic.

-2457-
AUTHOR(S): SULHIN, S.D.
YEAR: 1977
TITLE: Factors Influencing Blue Crab Population Size
PUB: Maryland Dept. of Natural Resources, NMFS Grant-In-Aid Report Maryland, 86 pp.
ABSTRACT:
The principal objectives of Study I are to describe recruitment to Maryland waters and to learn the factors which regulate recruitment. As discussed previously, blue crabs exhibit a similar and characteristic pattern of dispersal in estuarine systems throughout their range. It is reasonable to speculate that the predictable pattern is the result of interactions between behavioral or other intrinsic characteristics and conservative physical parameters of estuaries.

-2458-
AUTHOR(S): SULKIN, S.D.
YEAR: 1973
TITLE: Blue Crab Study in Chesapeake Bay-Maryland: Completion Report
PUB: University of Maryland, Natural Resources Institute, Chesapeake Biological Laboratory, Reference No. 73-94, 66 pp.

ABSTRACT:

The principal objectives of Study I are to describe recruitment to Maryland waters and to learn the factors which regulate recruitment. As discussed previously, blue crabs exhibit a similar and characteristic pattern of dispersal in estuarine systems throughout their range. It is reasonable to speculate that the predictable pattern is the result of interactions between behavioral or other intrinsic characteristics and conservative physical parameters of estuaries.

-2459-
AUTHOR(S): SULKIN, S.D. AND W. VAN HEUKELEM
YEAR: 1981
TITLE: Redefining Estuarine Retention: Factors Regulating Retention Within the Estuary Versus Offshore Recruitment of Larvae of the Blue Crab Callinectes Sapidus
PUB: Estuaries 4(3):239
ABSTRACT:

Descriptions of retention usually involve combinations of behavioral adaptations with fortuitous estuarine circulation. Analogous mechanisms have been postulated for retention of marine larvae in nearshore coastal waters. The authors suggest that the concept of "estuarine retention" be expanded to include coastal marine waters which receive larvae from the estuary and which can serve as a source of subsequent larval recruitment back to the estuary. The blue crab, Callinectes sapidus, which releases its larvae near the estuarine mouth offers an example of this phenomenon. Whether C. sapidus larvae are retained or exported from the parent estuary is dependent upon their vertical distribution and estuarine circulation. Vertical gradients in temperature and salinity, characteristic of stratified estuaries, affect vertical migration of C. sapidus larvae and thus influence the probability of export versus retention.

-2460-
AUTHOR(S): SULKIN, S.D., R.E. MILLER AND R.L. LIPPSON
YEAR: 1975
TITLE: Composition and Seasonal Abundance of the Blue Crab, Callinectes sapidus Rathbun, in the Chesapeake and Pelance Canal and Adjacent Waters
PUB: Chesapeake Sci. 16(1):27
ABSTRACT:

In 1971 and 1972, a field sampling study was conducted in the Chesapeake and Delaware Canal and adjacent waters in order to describe the blue crab population inhabiting the region and also to assess the significance of the Canal as an avenue for recruitment from the Delaware Bay spawning grounds to the upper Chesapeake Bay. Field sampling consisted of simultaneous towing of a 25 ft. otter trawl with tickler chain attached, and a 42 in. wide lined oyster dredge.

The catch of all sizes of crabs was seasonal. in winter and early spring the catch was close to zero; by mid-summer, crabs had re-inhabited the region. Catch densities were higher on the Chesapeake Bay side of the Canal than on the Delaware Bay side. Catch densities in the Canal region were much lower than in Tangier Sound, Maryland, even though the regions are equidistant from spawning grounds in the Delaware and Chesapeake Bays respectively. The population inhabiting the Canal region during the summer consists mostly of juvenile crabs and is predominated by males. The Canal seems of little significance as an avenue for recruitment of blue crabs to the upper Chesapeake Bay.

-2461-
AUTHOR(S): SULKIN, S.D., W. VAN HEUKELEM, P. KELLY AND L. VAN HEUKELEM
YEAR: 1980
TITLE: The Behavioral Basis of Larval Recruitment in the Crab, Callinectes sapidus Rathbun: A Laboratory Investigation of Ontogenetic Changes in Geotaxis and Barokinesis
PUB: Biol. Bull. 159(2):402-417
ABSTRACT:

The first zoeal stage of C. sapidus shows negative geotaxis unaffected by salinity changes of 5 o/oo; high barokinesis at pressure increments above 1 atm; an increase in swimming rate with a salinity increase; and maintenance of swimming rate as temperature drops.

-2462-
AUTHOR(S): SULLIVAN, L.F., D.A. EMILIANI AND K. NEAL BAXTER
YEAR: 1985
TITLE: Standing Stock of Juvenile Brown Shrimp, Penaeus aztecus, in Texas Coastal Ponds
PUB: Fish. Bull. 83(4):677-681
ABSTRACT:

The increased demand for timely information concerning management of shrimp stocks has renewed interest in developing reliable methods of predicting brown shrimp, P. aztecus, crop size for the offshore Gulf of Mexico fishery. Advance information regarding shrimp abundance would also enable elements of the shrimp industry to prepare for a potentially good or poor harvest. Studies exploring the feasibility of predicting the annual abundance of brown shrimp off the Texas coast, initiated in 1960 (Baxter 1963), are based on the premise that post-larval and juvenile shrimp abundances are proportionally related to the subsequent commercial harvest (Berry and Baxter 1969). To examine the relationship between juvenile brown shrimp standing stock and offshore harvest, and to determine the suitability of juvenile brown shrimp abundance as a predictor, the authors conducted a mark-recapture study in Galveston Bay, Texas, during the first week of June 1983. In this report they summarize the results of the study, compare estimates obtained by mark recapture and an alternative drop sampler method, and discuss previously unreported results of 1970-71 studies (Welker and Baxter).

-2463-
AUTHOR(S): SUNADA, J.S.
YEAR: 1979
TITLE: The Anchovy Reduction Fishery for the 1976-77 Season
PUB: Calif. Fish and Game, Mar. Res. Tech. Rep. 42, 23 pp.
ABSTRACT:

Results of a monitoring program for the northern anchovy, Engraulis mordax, are reported for southern California and Monterey Bay. The seasons landings, number of boats, and processing capacities for the southern areas were 92,515 mt, 43 vessels, and 1,678 mt, respectively. Fish prices ranged from $39.75 to $58.75 per ton. In the central area, total landings totaled 4,571 mt, 6 boats operated, and prices were similar to those south. In southern California age groups 0 and III each represented 28% by number of the catch, while age groups I and II combined for 28%. In Monterey Bay age groups III through VI represented 77% of the catch, and age groups 0, I, and II totaled only 23%. Average standard lengths of fishes in southern and central California were 121 mm and 139 mm, respectively. Females were larger than males in both areas. In southern California the female to male ratio was 1.1:1.0, the highest incidence of mature fish was in April, and males mature

earlier than females, while in Monterey Bay the ratio was 2:1 and mature fish appeared in November and December. There was early recruitment of the 1976 year class in southern California, while the 1974 and 1975 cohorts were present in below normal numbers. The 1972 and 1973 year classes were in above average numbers. Central California was characterized by older age groups.

-2464-
AUTHOR(S): SUNADA, J.S. AND S. SILVA
YEAR: 1980
TITLE: The fishery for northern anchovy, Engraulis mordax, off California and Baja California in 1976 and 1977
PUB: CalCOFI 21:132-138
ABSTRACT:

This report is from a cooperative study between the U.S. and Mexico, and deals with the catch data for the northern anchovy, Engraulis mordax, for 1976 and 1977. Anchovy landings for 1976 totaled 189,066 metric tons of which 60% were caught by American fishermen, while landings for 1977 totaled 243,124 mt and Mexico accounted for 58.6% of the catch. In 1976 and 1977, a total of 106 and 86 vessels, respectively, fished for anchovies. The average capacity of the Mexican boat was greater than that of the American boat. From 1976 to 1977, the catch capacity of the Mexican fleet increased considerably, while the American fleet only increased slightly. Monthly landings for the U.S. fishery were greatest during the fall and winter, while in Mexico landings were greatest in summer and fall. Major fishing grounds for both countries are reported. In 1976 the price for anchovies paid to U.S. and Mexican fishermen ranged from $31-44.50 per ton and $17-30 per ton, respectively. Prices in 1977 ranged from $34.50-58.75 per ton in the U.S. and $24-32 per ton in Mexico. Southern California and Baja California samples in 1976 had large numbers of the 1973 year class. In 1977, both areas were characterized by large percentages of young fish. California anchovies averaged lengths of 125 mm SL and 120 mm SL in 1976 and 1977, respectively. Those from the Mexican fleet averaged 106 mm SL in 1976 and 113 mm SL in 1977. The biological data from both countries indicate the fisheries to be harvesting primarily the central stock.

-2465-
AUTHOR(S): SUNDBERG, K. AND D. CLAUSEN
YEAR: 1979
TITLE: Post-Larval King Crab (Paralithodes camtschatica) Distribution and Abundance in Kachemak Bay, Lower Cook Inlet, Alaska
PUB: In: Melteff, B.R., ed. Alaska Fisheries: 200 Years and 200 Miles of Change. Proceedings of the 29th Alaska Science Conference, Alaska University, Fairbanks, AK, pp. 747-766
ABSTRACT:

King crabs were only found in samples taken from the rocky perimeter of Kachemak Bay. Largest catches of post-larval king crab were in the Anchor Point to Bluff Point region in less than 27 m (90 ft) of water. Samples indicate that post-larval king crab generally live on hard substrates coarser than gravel and are associated with certain types of epigrowth, most notably the bryozoan, Flustrella gigantea.

-2466-
AUTHOR(S): SUTCLIFFE, W.H., JR., K. DRINKWATER AND B.S. MUIR
YEAR: 1977
TITLE: Correlations of Fish Catch and Environmental Factors in the Gulf of Maine
PUB: J. Fish. Res. Bd. Can. 34(1):19-30
ABSTRACT:
In an investigation of catches by 17 commercial marine species of fish and shellfish (Alosa pseudoharengus, Peprilus triacanthus, Gadus morhua, Clupea harengus harengus, Brevoortia tyrannus, Sebastes marinus, Merluccius bilinearis, Morone saxatilis, Limanda ferruginea, Mercenaria mercenaria, Mya arenaria, Placopecten magellanicus, Homarus americanus, Pandalus borealis, Glycera dibrachiata, Scomber scombrus, Hippoglossus hippoglossus) from the Gulf of Maine, 10 showed statistically significant correlations with sea temperatures at St. Andrews, New Brunswick, Canada and Boothbay Harbor, Maine.

-2467-
AUTHOR(S): SUTTER, F.C.
YEAR: 1982
TITLE: Fishery Monitoring and Assessment: Annual and Seasonal Diversity Patterns of Organisms from Mississippi Sound. Completion Report
PUB: Gulf Coast Research Laboratory, Ocean Springs, MS, Proj. No. 2-296-R, pp. VI-2-1 thru VI-2-37
ABSTRACT:
Diversity indices are useful as a summary of the numerical association of organisms, allowing comparisons between populations (Cain and Dean 1976). Livingston (1976) stated, based on his results from Apalachicola Bay, Florida, a comprehensive community study should include measures of; N (number of individuals), S (number of species), Margalef's richness (Margalef 1958), a diversity index, and relative dominance. Therefore, a detailed summary of monthly and annual diversity values was made for the 8 years of collections from Mississippi waters (October 1973 through September 1981).

-2468-
AUTHOR(S): SUTTER, F.C.
YEAR: 1982
TITLE: Fishery Monitoring and Assessment: Shrimp Monitoring and Assessment. Completion Report
PUB: Gulf Coast Research Laboratory, Ocean Springs, MS, Proj. No. 2-296-R, pp. I-1-1 thru I-1-55
ABSTRACT:
Data were collected from October 1973 through December 1981 on three commercially important shrimp in Mississippi waters, Penaeus aztecus, Penaeus setiferus, and Penaeus duorarum. Catch and length frequency by gear and salinity zone, and temperature-salinity distribution are presented for all species. Length-weight relationships by season and various length groups were developed for white and brown shrimp. Estimates of growth were also made for brown shrimp.

-2469-
AUTHOR(S): SUTTER, F.C.
YEAR: 1982
TITLE: Fishery Monitoring and Assessment: Cluster Analysis of the Trawl Samples from Mississippi Waters. Completion Report
PUB: Gulf Coast Research Laboratory, Ocean Springs, MS, Proj. No. 2-296-R, pp. VI-3-1 thru VI-3-77

ABSTRACT:

Data from 7 years (October 1973 through September 1980, missing October through December 1976) of Fisheries Assessment and Monitoring (FAM) were studied using clustering analysis techniques to evaluate the effectiveness of our sampling scheme and to look for areas where sampling effort could be economized (see Chapter VI, Section 4). Each of the 7 year segments (a year segment being the period between October through September of the following year) were investigated separately, then summed over the entire 81 month study period. An October through September year segment was used to enable all of the collected data to be analyzed. Four gear types were used over the entire period of sampling; 16 foot and 36 foot trawls; 50 foot seine; and a beam plankton trawl (see General Materials and Methods). Only the 16 foot and 36 foot trawl data were used for the cluster analysis.

-2470-
AUTHOR(S): SUTTER, F.C. AND J.Y. CHRISTMAS
YEAR: 1983
TITLE: Multilinear Models for the Predictions of Brown Shrimp Harvest in Mississippi Waters
PUB: Gulf Res. Rep. 7:205-210
ABSTRACT:

A multilinear regression analysis of water temperature, salinity, and number of postlarval brown shrimp in nursery areas was used to predict the June and July commercial harvest of brown shrimp in Mississippi waters. A total of 80.2% of the variation in harvest was accounted for by this model. When an effort variable was added to the equation, the amount of variation explained by these parameters increased to 85.4%. The coefficients of the two multilinear equations were recalculated exclusive of the data set for the last year to test the predictive capabilities of the models. For that year, the first model showed a percent error of 38.2%, and the second model, 35.3%.

-2471-
AUTHOR(S): SUTTKUS, R.D.
YEAR: 1955
TITLE: Seasonal Movements and Growth of the Atlantic Croaker (Micropogonias undulatus) along the East Louisiana Coast
PUB: Proc. Gulf Caribb. Fish. Inst. 7:151-158
ABSTRACT:

The material reported in this paper concerning the biology of the Atlantic croaker was only a part of that gained from an intensive biological study of Lake Pontchartrain. The full-scale sampling program was started in July, 1953, and has continued to date. The croaker and the southern bay anchovy (Anchoa mitchilli, disphana) were the two most abundant species in the estuarine areas sampled in this study. Croakers appeared in 83% of the trawl catches and 76% of the seine catches during a 1-year period of sampling in Lake Pontchartrain.

-2472-
AUTHOR(S): SUTTKUS, R.D.
YEAR: 1956
TITLE: Early Life History of the Gulf Menhaden, Brevoortia patronus, in Louisiana
PUB: Trans. N. Am. Wildl. Conf. 21:390-407
ABSTRACT:

The study of the Gulf menhaden was conducted on Lake Pontchartrain and adjoining waters from July, 1953 to May, 1955. Repeated sampling with

fine-meshed push nets and catch records from trawls and seines indicate that menhaden do not spawn in the lake. However, during each winter larvae appear in the lake, remain for their first summer of life, and then move out in the fall presumably to the open waters of the Gulf or at least to the mouths of the estuaries and outer regions of the sounds.

-2473-
AUTHOR(S): SUTTKUS, R.D.
YEAR: 1958
TITLE: Distribution of Menhaden in the Gulf of Mexico
PUB: Trans. N. Am. Wildl. Nat. Resour. Conf. 23:401-410
ABSTRACT:

The most recent review of the genus Brevoortia gill was that of the late Samuel F. Hildebrand in 1948. He treated seven species in this paper, gave numerous counts and measurements, changes with growth, color descriptions, and distribution, in addition to the synonymy and history of the nomenclature. Hildebrand fixed the name B. patronus Goode, 1878 to the large-scaled menhaden of the menhaden for his description of B. patronus and thus one form was left without a name which Hildebrand clearly described and called Brevoortia gunteri. An additional character not mentioned by Hildebrand which supports the idea that Goode had both forms before him at the time of description is the stripe on the operculum.

-2474-
AUTHOR(S): SWARTZMAN, G.
YEAR: 1985
TITLE: Adaptive Environmental Assessment and Management of the Pacific Sebastes Fishery Center
PUB: NOAA/NMFS Northwest and Alaska Fisheries, Processed Report 85-09, 76 pp.
ABSTRACT:

Through the construction and testing of a model for fleet and resource dynamics of the INPFC Vancouver/Columbia Sebastes fishery, using an Adaptive Environmental Assessment and Management (AEAM) workshop approach, we gained several new perspectives on how the fleet and the stock will respond to fishery regulation in the form of trip quotas and frequency limits.

-2475-
AUTHOR(S): SWINGLE, H.A.
YEAR: 1971
TITLE: Biology of Alabama's Estuarine Areas-Cooperative Gulf of Mexico Estuarine Inventory
PUB: Ala. Mar. Resour. Bull. 5:1-123
ABSTRACT:

20 trawl stations, 5 seine stations and 4 plankton stations were sampled monthly from January 1968-March 1969. The areal and seasonal distributions of the species are discussed.

-2476-
AUTHOR(S): SWINGLE, H.A. AND D.G. BLAND
YEAR: 1973
TITLE: Notes and New Records of Fishes from the Mobile Bay Area
PUB: Ala. Mar. Resour. Bull. 9:86-88
ABSTRACT:

The abundance and distribution of fishes in coastal and marine waters of Alabama is not well documented. Swingle (1971) listed 238 species of fishes from the Mobile Bay area including Gulf of Mexico north of 30 Degrees N

latitude, but did not include 44 of the freshwater species listed from tidal waters of the state by Smith-Vaniz (1968).

Collections since spring 1971 and examination of records and material in the Alabama Marine Resources Laboratory (AMRL) at Dauphin Island, Alabama have provided information on several species apparently new to the published records of the fishes of the Mobile Bay area. While these species are within their known ranges and were expected here, they apparently have not been documented previously from Alabama in ichthyological literature. The total number of known species of fishes from the Mobile Bay area is 293.

-2477-
AUTHOR(S): SWINGLE, W.E.
YEAR: 1972
TITLE: Survey of the Live Bait Shrimp Industry of Alabama
PUB: Mar. Resour. Bull. 8:1-33
ABSTRACT:

During 1968, there were 24 bona fide live bait shrimp dealers operating in Alabama who sold 1,544,000 live shrimp and 22,200 pounds of dead shrimp having a retail value of $76,540.

-2478-
AUTHOR(S): SWINGLE, W.E.
YEAR: 1976
TITLE: Analysis of Commercial Fisheries Catch Data for Alabama
PUB: Ala. Mar. Resour. Bull. 11:26-50
ABSTRACT:

The commercial marine fishing industry of Alabama is located in Mobile and Baldwin counties. Most of this seafood is landed in Mobile County at Bayou La Batre which ranked as the tenth port in the nation in value of seafood landed during the last few years. Other Alabama ports include Mobile, Coden, gulf Shores, Bon Secour, Alabama Port, Heron Bay and Fairhope.

-2479-
AUTHOR(S): SYKES, J.E. AND J.H. FINUCANE
YEAR: 1966
TITLE: Occurrence in Tampa Bay, Florida of Immature Species Dominant in Gulf of Mexico Commercial Fisheries
PUB: U.S. Fish. Wildl. Serv. Fish. Bull. 65(2):369-379
ABSTRACT:

Populations of finfish, crabs, and shrimp were sampled from August 1961 through November 1962 as part of Tampa Bay estuarine studies. Specimens collected were identified as to species and classified as immature or adult. Twenty-three species of major importance in Gulf of Mexico commercial fisheries were found to inhabit Tampa Bay during immaturity. Seasonal and areal distribution is described for the species common to Tampa Bay biological collections and catches in the Gulf. Although most of these species were distributed throughout the Bay system, Old Tampa Bay harbored greater numbers of them than any other area. Hillsborough Bay, an area of the system similar to Old Tampa Bay in salinity regimen, harbored fewer important species than any other area. Its relatively low production is attributed to loss of the natural habitat through human alteration. The role of the estuary in producing and rearing species important in Gulf fisheries is discussed, and the need for preservation of estuarine nursery areas is stressed.

-2480-
AUTHOR(S): TABB, D.C.
YEAR: 1958
TITLE: Difference in the Estuarine Ecology of Florida Waters and Their Effect on Populations of Spotted Weakfish, Cynoscion Nebulosus (Cuvier and Valenciennes)
PUB: Proc. 23rd N. Am. Wildl. Conf. 23:392-401
ABSTRACT:

The state of Florida is the locale for extensive sport and commercial fisheries. With few exceptions these fisheries depend on species which require inshore waters for some stage of development. The value of the shallow water environment is further enhanced by its accessibility.

-2481-
AUTHOR(S): TABB, D.C.
YEAR: 1966
TITLE: The Estuary as a Habitat for Spotted Seatrout (Cynoscion nebulosus)
PUB: Am. Fish. Soc. Spec. Publ. No. 3:59-67
ABSTRACT:

The spotted seatrout is one of the most valuable fish of the southeastern U.S. It is one of the few species that depends on the changeable habitats of estuaries and lagoons, even spawning there. Both young and adults are tolerant of the normal environmental extremes of estuaries, which are too rigorous for most marine fishes. This enables the spotted seatrout to reproduce, and grow almost unhindered by predation and competition.

Spotted seatrout populations of more northern estuaries apparently make seaward movements to escape winter cold but southern populations do not exhibit a strong offshore movement. They are nearly nonmigratory in Florida; tagging studies show that they seldom move more than 30 miles from the point of tagging. Since most of the flavored estuarine areas are separated by long stretches of exposed seashore there is little exchange of stocks between estuary systems. The nonmigratory character of the species, when combined with differences in habitat, has resulted in spotted seatrout populations having different growth rates. Unfavorable conditions for feeding or spawning in any given estuary, which cause declines in abundance, are likely to be felt for long periods since the region will not likely receive large numbers of immigrants from other estuaries.

-2482-
AUTHOR(S): TAGART, J.V.
YEAR: 1982
TITLE: Review of Washington's Coastal Trawl Rockfish Fisheries
PUB: Washington Dept. of Fisheries
ABSTRACT:

Rockfish landings in Washington State are reported on fish receiving tickets in two mixed species complexes: PACIFIC OCEAN PERCH and OTHER ROCKFISH. Washington Department of Fisheries initiated a sampling program in 1966 to estimate landings of each rockfish species. Methodology employed in calculating rockfish landings by species is reviewed with recommendations for improvements. Estimated annual rockfish landings by species are provided from 1967 to 1979. A historical review of the multispecies fishery begins in 1935 and includes a species by species review of recent landing trends.

-2483-
AUTHOR(S): TAGATZ, M.E.
YEAR: 1965
TITLE: The Fishery for Blue Crabs in the St. Johns River, Florida, with Special Reference to Fluctuation in Yield Between 1961 and 1962
PUB: U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 501:1-11
ABSTRACT:

The Bureau of Commercial Fisheries began studying the blue crab in 1957 to determine factors affecting the abundance of marketable-size crabs. In 1961 a field station for studying the blue crab and its fishery in the St. Johns River was established at Green Cove Springs, Florida.

A description of the commercial fishery for blue crabs in the St. Johns River is presented together with the statistics of the fishery for 1961 and 1962. The catch was 1,384,579 pounds in 1961 and 3,231,569 pounds in 1962 (an increase of 133%). The effort of fishermen fishing pots in 1962 was 68% greater than in 1961 and the effort of trawlers was 109% higher.

The factors primarily responsible for determining the size of the 1961 and 1962 catches were market conditions, migrations, and population size. Market conditions included changes in demand, the availability of outlets, and price. Movements of immature and mature crabs into fishing areas, and the length of stay, affected utilization by the fishery. Data on catch per standard unit of effort indicated fluctuations in population size between years.

-2484-
AUTHOR(S): TAGATZ, M.E.
YEAR: 1968
TITLE: Biology of the Blue Crab, Callinectes sapidus (Rathbun), in the St. Johns River, Florida
PUB: U.S. Fish Wildl. Serv. Fish. Bull. 67(1):17-33
ABSTRACT:

Blue crabs commonly mated from March to July and from October to December in the St. Johns River; the proportion of males and females that matured at a small size was larger in salt water than in fresh water. Blue crabs spawned in the first 30 km. of river above the mouth, and the eggs hatched in the ocean within 6 km. of shore. Spawing began as early as February and continued through October. Some blue crabs of both sexes migrated from the St. Johns River to the Intracoastal Waterway, to four other rivers, and to the ocean. Among crabs tagged 40 to 195 km. above the mouth of the St. Johns River and recovered at a distance from the tagging site, 89% of the males and 96% of the females were recaptured downstream from the point of release. Many females tagged in the ocean were recaptured in inland waters throughout the year.

-2485-
AUTHOR(S): TAGATZ, M.E. AND D.L. DUDLEY
YEAR: 1961
TITLE: Seasonal Occurrence of Marine Fishes in Four Shore Habitats Near Beaufort, North Carolina, 1957-1960
PUB: U.S. Fish Wildl. Serv. Spec. Sci. Rep. Fish. 390:19
ABSTRACT:

Monthly frequency of occurrences and size range of marine fishes in four shore habitats in the vicinity of Beaufort, North Carolina were determined by a 3-year seining program. The largest number of fish was collected during spring, and the least number was obtained during winter. Most species occurred during summer and fall. Collections contained 65 species representing 34 families.

-2486-
AUTHOR(S): TAKAGI, K., K.V. ARO, A.C. HARTT AND M.B. DELL
YEAR: 1981
TITLE: Distribution and Origin of Pink Salmon, Oncorhynchus gorbuscha, in Offshore Waters of the North Pacific Ocean
PUB: Int. North Pac. Fish. Comm. Bull. 40:1-196
ABSTRACT:

Data from an extensive long-term study of the pink salmon by Canada, Japan and the U.S.A., up to 1971 are presented. The 2-year spawning cycle of the salmon may cause the 2-year abundance cycle. Odd-year catches in Asian fisheries are much higher than even-year catches; the opposite is true for North American fisheries, but there is less fluctuation in the latter. Catches are assumed to reflect abundance. Seasonal variation in the diurnal vertical distribution was observed. The largest catches were from tows at a depth of 16-23 m. Few fish were caught in daylight fishing. Tagging experiments allowed the inland spawning area origins of particular offshore schools and their migrations to be mapped. Dusk CPUE was greater than dawn CPUE. Environmental factors related to distribution and migration, such as temperature, salinity, ocean and tidal currents and food organism availability, are discussed. Age, growth, size, sex ratio and gonad (testes) development are also described. Morphological characteristics such as scales and meristic characters as well as biochemistry are considered.

-2487-
AUTHOR(S): TAKEUCHI, I.
YEAR: 1968
TITLE: On the Distribution of Zoea Larva of King Crab, Paralithodes camtschatica, in the Southeastern Bering Sea in 1957 and 1958
PUB: Bull. Hokkaido Reg. Fish. Res. Lab. 34:22-29
ABSTRACT:

The study of the king crab is very important as one of the factors in the early reproductive processes of their resources. The samples taken in both 1957 and 1958 were collected by vertical hauls with a MARUTOKU plankton Net (Type "A") on the mother ship "Tokeimaru" (5,385 tons). The zoeae numbers were converted per 1,000 m 3 of water in both years. These results of the analysis were compared with previous report which had been investigated with a NOTPAC Standard Plankton Net in 1960. Especially the appearance of the zoea was considered in relation to the natural environmental factors as water surface and bottom temperatures in each year.

-2488-
AUTHOR(S): TALBOT, G.B.
YEAR: 1973
TITLE: The California Sardine-Anchovy Fisheries
PUB: Trans. Am. Fish. Soc. 102:178-187
ABSTRACT:

This paper presents a review of the Pacific sardine (Sardinops sagax) and northern anchovy (Engraulis mordax) fisheries off California and discusses controversies concerning their harvest. A brief description of each species life history, distribution, and fishery is given. Early researchers expressed concern about sardine overfishing. There were no restrictions on catches until 1967. At that time a 2-year moratorium was placed on sardine fishing. Maximum incidental catch regulation levels probably still overfished the population. Population estimates for anchovies were based on sardine data. With the disappearance of sardines, industry increased pressure to allow harvest of anchovies for reduction. Industry met opposition by sport fishing

organizations and anchovy bait fishermen. In 1965 an experimental fishery was adopted in the hope that this would help the sardines recover. First and second year catches were 17,000 and 38,000 tons, respectively. In 1969-70 the quota was raised but catches were still poor. In 1970 a committee of commercial and sport fishermen was formed (Commercial and Sportsmen Committee on Ocean Resources). Several problems were discussed, yet curtailment of the sardine fishery was not implemented. Regulations administered by a single non-partisan body dedicated to wise use of natural resources is needed. This group must be quickly responsive to the needs of the resource.

-2489-
AUTHOR(S): TAMM, G.R.
YEAR: 1980
TITLE: Fish
PUB: In: Science Applications, Inc., ed. Environmental Assessment of the Alaskan Continental Shelf, Northeast Gulf of Alaska Interim Synthesis Report Prepared under the Guidance of OCSEAP, NOAA, pp. 151-185
ABSTRACT:
An overview of fish populations in NEGOA is provided and the extent and value of the commercial fisheries are briefly described. Knowledge of marine communities can be used to predict which species are most likely to be harmed by OCS development. The nearshore, estuarine waters are used as spawning grounds for commercially important species and are also important nursery areas.

-2490-
AUTHOR(S): TANIGUCHI, A.K., R. LASKER AND K. SHERMAN, EDS.
YEAR: 1981
TITLE: Survival and Growth of Larval Spotted Seatrout (Cynoscion nebulosus) in Relation to Temperature, Prey Abundance and Stocking Densities
PUB: In: ICES Symposium on the Early Life History of Fish, Woods Hole, MA, 2 April 1979. Rapp. P.-V. Reun. CIEM, Vol. 178, pp. 507-508
ABSTRACT:
This research is the first critical investigation of survival and growth potential of Cynoscion nebulosus in multifactor experiments designed to test effects of temperature, salinity, prey concentration, and stocking density on hatching success and eventual larval recruitment. The experiments were designed to clarify how density-dependent mortality and physical factors act on marine fish larvae, but results also can be applied to aquaculture situations. Results indicated that spotted seatrout populations can reproduce under a wide variety of temperature and salinity conditions. Larvae were tolerant of a wide range of prey levels, temperatures and salinities; they can survive and grow rapidly at low prey levels.

-2491-
AUTHOR(S): TANONAKA, G.K. AND J. NISHIMOTO
YEAR: 1965
TITLE: A Japanese Gill-Net Fishery for Bottomfish in the Gulf of Alaska
PUB: Commerce Fish. Rev. 27(12):1-12
ABSTRACT:
The Seiju Maru No. 3 was one of four factoryships authorized by the Japanese Fisheries Agency to fish in the Gulf of Alaska and adjacent areas for bottomfish during the spring and summer of 1963. It was accompanied by three catcher vesssels which fished bottom gill nets at depths of 150 to 1,000 meters (492 to 3,280 feet) for rockfishes and sablefish (Anoplopoma fimbria). Fishing began April 23 south of Unaaska Island; thereafter to September 20 the

fleet moved generally from west to east. Observers from the United States accompanied the fleet to collect data to assist in the evaluation of the effects on Pacific halibut (Hippoglossus stenepis) of fishing for other bottomfish.

-2492-
AUTHOR(S): TASHIRO, J.E.
YEAR: 1979
TITLE: Annotated Bibliography and Subject Indicies for Western Atlantic Snapper (Lutjanidae)
PUB: NOAA/NMFS, U.S. Dept. of Commerce, Southeast Fisheries Center, NOAA Tech. Memo. NMFS-SEFC-8, 93 pp.
ABSTRACT:
This annotated bibliography contains references to literature published from 1896 to 1977 pertaining to fishes of the family lutjanidae and the snapper fisheries. Seventeen common species in the genera Apsilus, Etelis, Lutjanus, Ocyrurs, Prsitipomoides, and Rhombolites are covered. The geographic area concerned is the Gulf of Mexico, Caribbean Sea and other areas of the western Atlantic Ocean from 35 degrees N latitude to 8 degree S latitude Subject indices of snapper fisheries and biology, and snapper species are included.

-2493-
AUTHOR(S): TASTO, R.N.
YEAR: 1979
TITLE: San Francisco Bay: Critical to the Dungeness Crab
PUB: Calif. Dep. Fish Game, menlo Park, CA, pp. 479
ABSTRACT:
Because of the decline in harvestable yield of Dungeness crab (Cancer magister) in the San Francisco area since 1986, a study has been undertaken to determine critical stages in the crab's life history and environmental factors affecting survival.

-2494-
AUTHOR(S): TASTO, R.N.
YEAR: 1983
TITLE: Juvenile Dungeness Crab, Cancer magister, Studies in the San Francisco Bay Area
PUB: In: Wild, P.W. and R.N. Tasto, eds. Life History, Environment, and Mariculture Studies of the Dungeness Crab, Cancer Magister, with emphasis on Central Calif. Fish. Resource. Calif. Dept. Fish Game, Fish. Bull. 17:135-154
ABSTRACT:
The purpose of this study was to assess the extent to which the San Francisco Bay-San Pablo Bay complex contributes to the fishery of the Dungeness crab, Cancer magister, based on its life history and distribution. It appears that Dungeness crabs enter the bay via bottom currents as early post-larval instars, not as megalope. Crabs-of-the-year reached maximum distribution in September through December. A mixing of outgoing and incoming year classes was generally seen in May and June. By September, replacement of the old year class by the new was essentially complete. Major reductions in crab abundance and shifts in location of crab concentrations occurred concurrently with reduced salinities. No crabs were caught where salinities were measured at less than 10.2 ppt. Abundance estimates were compared for Bay versus ocean populations. Male crabs were significantly larger than female crabs in the ocean population throughout this study. Throughout the

course of this study, 1977 year class crabs had the greater carapace widths, followed by the 1979 year class; 1978 year class crabs were the smallest. Size differences also appeared between sampling locations. There was a differential sex ratio seen throughout different seasons. Of 8,027 Dungeness crabs collected during the Bay shore-based ringnet survey, 52.5% were male and 47.4% female. Ringnetting and trawling inside the Bay complex also showed a dominant sex ratio of males to females. A comparison of food habits between Gulf and Bay-reared crabs was also undertaken. It is not clear as to why Bay-reared crabs have a faster growth rate than ocean-reared crabs. Temperature is probably an important factor, since Bay temperature averaged about 5 degree C higher than ocean temperatures. Settling rates may also play an important nursery ground for Dungeness crabs. The contribution the Bay makes to local recruitment appears to be directly proportional to megalopal year-class strength.

-2495-
AUTHOR(S): TASTO, R.N., D.D. MOGELBERG, S.E. HATFIELD AND R. MULLER
YEAR: 1981
TITLE: A Checklist of Zooplankters from the Gulf of the Farallones and off Northern California
PUB: Calif. Dep. Fish Game, Mar. Resour. Tech. Rep. No. 47, 57 pp.
ABSTRACT:
Checklists of zooplankton found in central California waters include location, frequency of occurrence and density information. Gulf of Farallones region is emphasized.

-2496-
AUTHOR(S): TATUM, W.M.
YEAR: 1978
TITLE: The Blue Crab of Alabama
PUB: Ala. Conserv. 48(4):20-22
ABSTRACT:
There is no animal found on the Gulf Coast that is more tenacious, defensive, belligerent, and just downright ornary than the blue crab (Callinectes sapidus). The description of blue crab includes basic biology and ecology of the species.

-2497-
AUTHOR(S): TAYLOR, F.H.C.
YEAR: 1971
TITLE: Offshore Distribution of Pacific Herring (Clupea pallasi) on Basis of Records from Fur Seal Stomachs
PUB: J. Fish. Res. Bd. Can. 28(10):1663-1665
ABSTRACT:
An examination of stomachs of fur seal (Callorhinus ursinus) taken off the coast of southern British Columbia and Washington from 1958 to 1969 indicated that Pacific herring (Clupea pallasi) were confined mainly to the continental shelf. Herring were most numerous in fur seal stomachs off Barkley Sound. Few occurred north of Cape Cook or from Cape Flattery south of the Columbia River. None were found from seals taken near the Cobb Seamount.

-2498-
AUTHORS(S): TAYLOR, H.E.
YEAR: 1951
TITLE: Survey of Marine Fisheries of North Carolina
PUB: The University of North Carolina Press, Chapel Hill, NC, 544 pp.
ABSTRACT:
This book discusses the marine fisheries of North Carolina from early colonial time to the present. Both commercial and recreational species are discussed and an economic analysis is presented of the North Carolina catch.

-2499-
AUTHORS(S): TEGELBERG, H.G.
YEAR: 1973
TITLE: Dungeness Crab Study: Phase I-Develop Methods for Tagging or Marking Crabs
PUB: NOAA/NMFS, Washington, D.C., Proj. No. 1-76, 48 pp.
ABSTRACT:
Since the preliminary tagging experiment of implanting the Bergman-Jefferts coded wire tag in the 1- and 2-year old Dungeness crabs has shown some promise, a follow-up experiment using 3-year old crabs was conducted in 1971.

-2500-
AUTHORS(S): TEGELBERG, H.G. AND J.M. SMITH
YEAR: 1957
TITLE: Observations on the Distribution and Biology of the Pink Shrimp Pandalus jordani off the Washington Coast
PUB: Washington Dept. of Fisheries, Fish. Res. Pap., Washington Dept. of Fisheries, 2, (1):25-34
ABSTRACT:
The pink shrimp was recorded as abundant off Grays Harbor and the Columbia River by Rathbun (1904). Explorations by the State of California in 1950 and 1951, and by the State of Oregon in 1951 and 1952 established the presence of pink shrimp off their respective coasts. In order to investigate the commercial potential of the shrimp grounds off the Washington coast, two trips were conducted by the U.S. Fish and Wildlife Service exploratory vessel John N. Cobb October 18-November 9, 1955 and March 27 to April 19, 1956. The area of exploration extended from Cape Disappointment to Cape Johnson in depths ranging from 21 to 139 fathoms. A detailed report on the fishing results and gear used has been published by Schaefers and Johnson.

-2501-
AUTHOR(S): TEMPLE, R.F.
YEAR: 1965
TITLE: Distribution and Abundance of Shrimp Larvae
PUB: U.S. Fish Wildl. Circ. 230:14-17
ABSTRACT:
With the continuation of the extensive biological survey, initiated in January, 1962, plankton samples were collected monthly at predetermined stations on the continental shelf of the Gulf of Mexico over an area extending form Mobile, Alabama to Brownsville, Texas. Station depths ranged from 4 to 60 fathoms. As in the past, a 20-min "step-oblique" haul was made with a Gulf-V sampler at each station. Data derived from the examination of these samples, were recorded in terms of the number caught per 100m3 (3,534 ft) of water passing through the sampler distribution and abundance of planktonic-stage penaeids.

-2502-
AUTHOR(S): TEMPLE, R.F. AND C.C. FISCHER
YEAR: 1967
TITLE: Seasonal Distribution and Relative Abundance of Planktonic-Stage Shrimp (Penaeus spp.) in the Northwestern Gulf of Mexico, 1961
PUB: U.S. Fish Wildl. Serv. Fish. Bull. 66:323-334
ABSTRACT:
Planktonic stages of shrimp were sampled systematically in the Gulf of Mexico near Galveston, Texas, during January-December 1961. At all depths, trends in larval abundance increased as bottom water temperatures increased. On the basis of this study and laboratory experiments on larval development and postlarval growth rates as affected by temperature, support was given to the premise that brown shrimp larvae or postlarvae, or both, overwinter in waters over the Continental Shelf.

-2503-
AUTHOR(S): TERRY J.M. AND L.E. QUEIROLO
YEAR: 1987
TITLE: Alaska Groundfish: A Fishery in Which International Trade and Management Are Closely Linked
PUB: Prepared for the 117th Annual Meeting of the American Fisheries Society, September 1987, 16 pp.
ABSTRACT:
The groundfish resources of the U.S. Exclusive Economic Zone (EEZ) off Alaska, dominated by Alaska pollock (Theragra chalcogramma), Pacific cod (Gadus macrocephalus), and flat fish (Pleuronectidae), can sustain annual commercial harvests well in excess of 2 million metric tons (t). The development of the wholly domestic fisheries, which may replace both the foreign and joint venture fisheries during the next several years, has initiated an era in which fishery management and international trade issues will be much more closely linked than they have been in the past. This is due, at least in part, to the differences between the markets for groundfish and the markets for the species that the U.S. domestic fisheries off Alaska have traditionally exploited. These differences are the topic of this paper.

-2504-
AUTHOR(S): TESTER, A.J.
YEAR: 1937
TITLE: Populations of Herring (Clupea pallasi) in the Coastal Waters of British Columbia
PUB: J. Fish. Res. Bd. Can. 3:108-144
ABSTRACT:
From an analysis and comparison counts and measurements made on herring from different localities along the coast it is concluded that intermingling of the stock as a whole is limited and that there exist a number of essentially discrete units or local populations within the waters of the province.

-2505-
AUTHOR(S): TESTER, P., C. WOLFE, R. DIXON AND G. HUNTSMAN
YEAR: 1983
TITLE: Reef Fish Distributions off North Carolina and South Carolina as Revealed by Headboat Catches
PUB: NOAA/NMFS/SEFC-115

ABSTRACT:
In this paper we utilize data from the headboat fishery to present a quantitative description of distributions of several important reef fishes as they are expressed in hook-and-line catches from the outer continental shelf of North Carolina and South Carolina. Our focus here is on the species occurring on hard, or "live" bottom in water deeper than 20 m, where most species are tropical or subtropical.

-2506-
AUTHOR(S): TEXAS A & M RESEARCH FOUNDATION
YEAR: 1976
TITLE: A Biological and Geological Reconnaissance of Selected Topographical Features on the Texas Continental Shelf
PUB: BLM, New Orleans, LA, Final Report, No. BLM/YM/ES-76/01, 382 pp.
ABSTRACT:
During the U.S. DOI, BLM public hearings held in 1973, 1974 and 1975 prior to Texas OCS oil and gas lease sales, concern was expressed over the possible environmental impact of oil and gas drilling and production operations on coral reefs and fishing banks in or adjacent to lease blocks to be sold. The report is an assessment of ground fish populations, reef and epifaunal communities, meiofaunal and infaunal populations, unique biological and geological features, substratum type and distribution, and the biotic and geological relationships between these banks and those farther north as a baseline study.

-2507-
AUTHOR(S): TEXAS AGRICULTURAL EXPERIMENT STATION
YEAR: 1983
TITLE: Seasonal Occurrence of Black Drum, Pogonias cromis, and Red Drum, Sciaenops ocellatus, off Texas
PUB: Northeast Gulf Sci. 6(1):67-70
ABSTRACT:
The black drum, P. cromis, and red drum, S. ocellatus, are important recreational and commercial fishes commonly captured on the Atlantic coast of the U.S. from Virginia to Key West, Florida and along the Gulf of Mexico (Gulf) to at least northern Mexico. The literature describes various aspects of the life history of both species, but their winter distribution has not been well defined. This paper provides data on the seasonal occurrence and distribution of black drum and red drum off Texas.

-2508-
AUTHOR(S): TEXAS ENERGY AND NATURAL RESOURCES ADVISORY COUNCIL, AUSTIN, NATURAL RESOURCES DIV.
YEAR: 1982
TITLE: Coastal Natural Resources in Texas: Report to the Governor and the 68th Legislature
PUB: TENRAC/NRP-81-002. Texas Energy and Natural Resources Advisory Council, Austin, Natural Resources Div, 71 pp.
ABSTRACT:
The Texas coastline stretches for 373 miles along the Gulf of Mexico. This area contains valuable resources, and makes a significant contribution to the state's economy and quality of life. This report summarizes a study of problems and issues affecting the coastal natural resource areas, presents recommendations for action, and contains a policy position statement from the Council. Issues addressed include: offshore energy production and onshore

impacts; marine commerce in Texas, aquaculture; waste disposal; beach access/erosion; freshwater inflows; wetlands; and dunes.

-2509-
AUTHOR(S): TEXAS INSTRUMENTS, INC.
YEAR: 1978
TITLE: South Atlantic Benchmark Program 1977 Report
PUB: Prepared for BLM, U.S. Dept. of the Interior, Contract AA550-CT7-2, 5 Volumes
ABSTRACT:
Texas Instruments, Inc. conducted the South Atlantic Benchmark Program (SABP) in 1977 to provide environmental data on the Georgia Embayment continental margin to assist the BLM in its implementation of the statutory requirements of two acts: the OCS Lands Act of 1953 and the National Environmental Policy Act of 1969.

-2510-
AUTHOR(S): TEXAS PARKS AND WILDLIFE DEPARTMENT
YEAR: 1972
TITLE: The Texas Shrimp Fishery
PUB: A Report to the Governor and the 63rd Texas Legislature, Austin, Texas
ABSTRACT:
A report on the life cycle of the shrimp, departmental studies, management, the Shrimp Conservation Act, and recommendations of the shrimp fisheries industry.

-2511-
AUTHOR(S): THAYER, G.W., D.E. HOSS AND D.W. PETERS
YEAR: 1985
TITLE: Habitat Utilization by Young-of-the-year Fishes in the Everglades National Park
PUB: Estuaries 8(2B):33A
ABSTRACT:
A research program was started to examine habitat utilization during the early life history of four species of fish (red drum, Sciaenops ocellatus: spotted seatrout, Cynoscion nebulosus: snook, Centropomus undecimas: and mangrove snapper, Lutjanus griseus) that are important to the sport fishery in the Everglades National Park (ENP). The long-term goal of this research is for ENP to understand the causes of variation in abundance and distribution of these fishes.

-2512-
AUTHOR(S): THAYER, G.W., D.R. COLBY AND W.F. HETTLER, JR.
YEAR: 1987
TITLE: Utilization of the Red Mangrove Prop Root Habitat by Fishes in South Florida
PUB: Mar. Ecol. (Prog. Ser.), 35(1-2):25-38
ABSTRACT:
A block net and rotenone method was developed and used to sample two sites in each of four regions in Everglades National Park, Florida. Samples collected from the mangrove prop root environment were compared with samples collected using a two-boat otter trawl in the immediately adjacent, fringing seagrass habitat. The density and biomass of fish collected by the two gear were greater in the prop root habitat than in the adjacent fringing seagrass areas. There also were consistent differences in species composition between the two habitat types across all four geographic regions.

-2513-
AUTHOR(S): THAYER, G.W., D.R. COLBY, M.A. KJELSON AND M.P. WEINSTEIN
YEAR: 1983
TITLE: Estimates of Larval Fish Abundance Diurnal Variation and Influences of Sampling Gear and Towing Speed
PUB: Trans. Am. Fish. Soc. 112(2 Part B):272-279
ABSTRACT:
The influence of net-towing speed on estimates of the abundance of larval Atlantic menhaden, spot, and Atlantic croaker was studied in nearshore and estuarine areas of North Carolina. A modified Miler high-speed sampler was towed at speeds ranging from 2 to 12 m/second. In one series, catch increased monotonically with increasing tow speed up to 7 m/second; in a second series, catch increased with speed up to 8 m/second but decreased at higher speeds, possibly because larvae were extruded through the net or defected by the pressure wave.

-2514-
AUTHOR(S): THAYER, G.W., W.F. HETTLER, JR., A.J. CHESTER, D.R. COLBY AND P.J. MCELHANEY
YEAR: 1987
TITLE: Distribution and Abundance of Fish Communities Among Selected Estuarine and Marine Habitats in Everglades National Park
PUB: NMFS/NOAA, U.S. Dept. of Commerce, Southeast Fisheries Center, Beaufort Lab., SFRC-87-02, 166 pp.
ABSTRACT:
The overall objective of our juvenile study was to evaluate relative species abundance and size composition of fish communities among selected habitats in estuarine and marine waters of Everglades National Park and to provide descriptions of the habitats in which these fishes occurred. Particular emphasis was placed on spotted seatrout (Cynoscion nebulosus) and gray snapper (Lutjanus griseus). The study was divided into two subobjectives--juvenile fish associated with open water habitats and fish utilizing red mangrove prop root habitats.

-2515-
AUTHOR(S): THEROUX, R.B. AND R.L. WIGLEY
YEAR: 1983
TITLE: Distribution and Abundance of the East Coast Bivalve Mollusks Based on Specimens in the NMFS Woods Hole Collection
PUB: NOAA Tech. Rep. NMFS SSRF-768, 172 pp.
ABSTRACT:
The distribution and numerical abundance of over 108,000 specimens of bivalve mollusks collected and maintained by the Benthic Dynamics Investigation at the NMFS Northeast Fisheries Center at Woods Hole, Massachusetts, are presented in the report. They are illustrated in a series of charts, and their bathymetric range and bottom sediment preferences are outlined in tabular form.

-2516-
AUTHOR(S): THOMAS, D.
YEAR: 1981
TITLE: Norton Sound-Bering Strait Subsistence King Crab Fishery
PUB: ADF&G, Subsistence Division, Tech. Paper No. 12, 137 pp., Alaska

ABSTRACT:
This paper presents subsistence crabbing effort and harvest data for 1970-1980 collected through retrospective household surveys in Nome, Golovin, White Mountain, Elim, Shaktoolik, Savoonga, Gabell, and Diomede.

-2517-
AUTHOR(S): THOMAS, D.
YEAR: 1982
TITLE: The Role of Local Fish and Wildlife Resources in the Community of Shaktoolik, Alaska
PUB: ADF&G, Subsistence Division, Tech. Paper No. 13, 312 pp.
ABSTRACT:
This report presents an extensive analysis of recent and contemporary subsistence production and exchange in the community of Shaktoolik. It outlines the annual subsistence cycle and details the use of subsistence resources by species.

-2518-
AUTHOR(S): THOMAS, D.C.
YEAR: 1980
TITLE: Nome Salmon Subsistence Research Report
PUB: ADF&G Subsistence Division, Tech. Paper No. 11, Juneau, AK, 14 pp.
ABSTRACT:
This report describes research undertaken by the division in 1980 on Nome area subsistence salmon fishing. The allocation issues within the fishery during this time are reviewed and results of a questionnaire distributed to Nome area subsistence salmon permit holders is examined.

-2519-
AUTHOR(S): THOMAS, D.H.
YEAR: 1985
TITLE: A Possible Link Between Coho (silver) Salmon Enhancement and a Decline in Central California Dungeness Crab Abundance
PUB: Fish. Bull. 83(4):682-691
ABSTRACT:
Dungeness crab, Cancer magister, are taken commercially along the West Coast of the contiguous U.S. from Avila, California, to Destruction Island, Wahsington. Northern California landings generally have followed a fluctuating pattern similar to one expressed in Oregon and Washington, however, landings from the relatively isolated central California population failed to recover from a coastwide low during the early 1960s. Since numerous salmonid food habit studies show that planktonic Dungeness crab megalopes are a major component of the coho salmon diet, it is conceivable that an increase in the coho predation rate associated with an influx of hatchery coho into the central California region is at least partially responsible for the prolonged decline in Dungeness crab landings. The author first presents evidence showing that a large portion of the coho salmon ultimately caught each summer off the West Coast are in California waters during spring, the period Dungeness crab megalopes are most abundant. He then compares and contrasts survival indices to determine if the temporal variations in survival of both species is consistent with the predator-prey hypothesis.

-2520-
AUTHOR(S): THOMAS, G.L. AND D.R. JACKSON
YEAR: 1987
TITLE: Acoustic Measurement of Fish Schools Using Array Phase Information
PUB: Can. J. Fish. Aquat. Sci. 44(9)1544-1550
ABSTRACT:
Array phase information on the azimuth and elevation of fish schools allows for beam directivity corrections of target strength, determinations of school depth, and tracking of school movements. When corrected for beam pattern losses, the target strength of blue whiting and rockfish schools increased =3 dB. The vertical placement of fish schools with the side-scanning split-beam sonar agreed with the fish school depths observed with an echosounder.

-2521-
AUTHOR(S): THOMPSON, B.G.
YEAR: 1983
TITLE: Fisheries of the United States, 1982
PUB: U.S. Natl. Mar. Fish. Serv. Curr. Fish. Stat. 8300, 118 pp., and previous editions: 1981 (Curr. Fish. Stat. 8200), 132 pp., 1980 (8100), 132 pp.; 1979(8000), 131 pp.
ABSTRACT:
This report reviews U.S. commercial landings, foreign catch in the U.S. FCZ, U.S. versus foreign catch in the U.S. FCZ, world landings and prices during the year.

-2522-
AUTHOR(S): THOMPSON, J.M. AND R.J. BEAMISH
YEAR: 1979
TITLE: An Examination of the Biology and Distribution of Walleye Pollock in Dixon Entrance, Hecate Strait, and Mainland Inlets off Queen Charlotte Sound, and in the Strait of Georgia
PUB: Can. Data Rep. Fish. Aquat. Sci. 173):192
ABSTRACT:
Small quantities of pollock (Theragra chalcogramma) were found in Dixon Entrance. Most (90%) of the 201 adult females sampled were in an advanced stage of maturity, and a large proportion (62%) of the males were in spawning condition. Pollock catch rates in Caamano Sound, Squally Channel, Finlayson Channel, and Fitz Hugh Sound ranged 0-105 kg/h. Pollock caught in these sites ranged from 37-74 cm in fork length, 4-10 year in age, and spawning during March 25-27. Age 6 and 7 pollock dominated the sample from Finlayson Channel. In the Strait of Georgia, relatively small concentrations of pollock were found mixed with hake and dogfish in the deep mid-water, below about 165 m. Highest catch rates were obtained at about 85-100 m. Pollock caught in Jervis Inlet, and on the Halibut Bank, had largely completed spawning by the end of March, although a few advanced ripe females were caught on April 21. Peak spawning activity occurred in a concentration of pollock located between Point Robers and Active Pass during the 2nd week of April, and spawning was largely completed by April 20. The difference in spawning period may indicate that at least two stocks spawn in Georgia Strait. Pollock males were in spawning condition sooner than females, and remained in that state longer. Proportionately more males were running ripe than females at any time during spawning. Running ripe males and females were more common in samples collected near bottom, in the lower third of the water column.

-2523-
AUTHOR(S): THOMSON, C. AND R. KLINGBELL
YEAR: 1984
TITLE: California's Northern Anchovy Fishery in 1983/84
PUB: NOAA, NMFS, SWFC, NMFS Admin. Rep. LJ-84-23, 19 pp.
ABSTRACT:
Fishing regulations, satus of the fishery, and fishing fleet and processing plant capacities are reported for the California northern anchovy, Engraulis mordax, fishery.

-2524-
AUTHOR(S): THOMSON, C., A. GROVER AND W.L. CRAIG
YEAR: 1985
TITLE: Status of the California Coastal Pelagic Fisheries
PUB: NOAA, NMFS, Admin. Rep. SWR 85-1:1-27
ABSTRACT:
This report on the status of California coastal pelagic fisheries describes their 1984 economic value, management regulations, the commercial harvesting and processing sectors, and recreational fisheries.

-2525-
AUTHOR(S): THORNE, R.E.
YEAR: 1973
TITLE: Acoustic Assessment of Pacific Hake and Herring Stocks in Puget Sound, Washington and Southeastern Alaska
PUB: Presented at a Symposium on Hydroacoustics in Fisheries Research, Bergen, Norway, 19 June 1973, Rapp. P.-V. Reun. Cons. Int. Explor. Mer.
ABSTRACT:
Acoustic surveys were conducted on the Pacific hake (Merluccius productus) stock in Puget Sound, Washington from 1969-1972, on the Pacific herring (Clupea pallasi) populations in Puget Sound from 1972-1973, and on the herring populations in southeastern Alaska from 1971-1973. Surveys in 1969 and 1970 used analog echo integrators in conjunction with 38 kHz echo-sounders. Surveys in 1971-1973 used 105 kHz sounders and sometimes both 38 kHz and 105 kHz systems, with data processing by digital echo integrator. The variability associated with population assessment for the three stocks was clearly influenced by the patchiness of fish distribution. Surveys of the broadly dispersed hake produced the highest precision. Relative errors of population estimates on hake ranged from 2% to 16%, whereas those for the more patchy herring in Puget Sound ranged from 10% to 30%. Greatest variability was associated with the herring stock in southeastern Alaska which was distributed in large schools.

-2526-
AUTHOR(S): THORNE, R.E.
YEAR: 1977
TITLE: A New Digital Hydroacoustic Data Processor and Some Observations on Herring in Alaska
PUB: J. Fish. Res. Bd. Can. 34:2288-2294
ABSTRACT:
A new hydroacoustic data processor using a PDP 11/45 computer was developed and applied to some herring studies in southeastern Alaska. The new processor allows for analysis of up to 50 different depths intervals, has a threshold to eliminate noise, and has greater dynamic range than previous hydroacoustic data processors. The new system was used to analyze some data previously recorded on analog magnetic tape, including a series of 20

replicate hydroacoustic surveys over a 4-day period in Carro Inlet. Comparsions were made with an earlier model digital integrator and with results of oscilloscope (CRT) measurements. Results of replicate surveys and comparsions between different areas demonstrated that the distributional characteristics of the herring can greatly affect the results of hydroacoustic surveys.

-2527-
AUTHOR(S): THORNE, R.E. AND J.J. AMES
YEAR: 1987
TITLE: A Note on Variability of Marine Survival of Sockeye Salmon (Oncorhynchus nerka) and Effects of Flooding on Spawning Success
PUB: Can. J. Fish. Aquat. Sci. 44(10):1791-1795
ABSTRACT:
Data from Lake Washington sockeye salmon stock, including hydroacoustic surveys of presmolt populations, indicate that marine survival may vary on the order of 4-20%. However, the data also show that river flow conditions during spawning and gravel incubation have a major effect on production for this stock.

-2528-
AUTHOR(S): THORNE, R.E., J.E. REEVES AND A.E. MILLIKAN
YEAR: 1971
TITLE: Estimation of the Pacific Hake (Merluccius productus) Population in Port Susan, Washington, using an Echo Integrator
PUB: J. Fish. Res. Bd. Can. 28(9):1275-1284
ABSTRACT:
Echo integrators developed at the University of Washington were utilized for estimation of the size of a commercially exploited spawning stock of Pacific hake (Merluccius productus) in Port Susan, Washington, in 1969 and 1970. A simple voltage integrator was used in 1969, and a voltage-squared integrator was used in 1970. This change increased the objectivity of the technique, and enabled estimation of confidence intervals. Both population estimates were based on the results of echo integration over a number of transects distributed over the survey area. The integrators were calibrated against net hauls on the assumption of 100% net efficiency. An apparent decrease in the spawning stock size between 1969 and 1970 was indicated by the acoustical census and was supported by a decline in the commercial fishing catch rates between years. Annual catch and age data indicate that this difference apparently is not due to overfishing. The difference probably resulted from variation in the proportion of the total stock that was present in Port Susan at the time of maximum concentration. The major source of variability in the estimates for both years was associated with the net haul calibration. Alternate methods of calibration and improvements in the technique are discussed.

-2529-
AUTHOR(S): THORSON, G.
YEAR: 1950
TITLE: Reproductive and Larval Ecology of Marine Bottom Invertebrates
PUB: Biol. Rev. 25:1-45
ABSTRACT:
The method most commonly used in the studies of the ecological relations of a marine animal is to indicate the quantitative or the geographical occurrence of the animal on a map, and then, from own observations, hydrographical tables, etc., to construct a picture of the amplitudes,

respective average values, of temperature, salinity, substratum, etc., within the area in which the animal occurs. Such studies are helpful if we want to gain knowledge of the conditions prevailing within the area where the particular animals live, and will be a valuable help to such people as scientists working on applied biology, and fishermen who wish to know in what kind of localities they are to look for the animals desired.

-2530-
AUTHOR(S): THORSTEINSON, F.V. AND L.K. THORSTEINSON
YEAR: 1982
TITLE: Finfish Resources
PUB: In: M.J. Hameedi, ed. Proceedings of a Synthesis Meeting: The St. George Basin Environment & Possible Consequences of Planned Offshore Oil & Gas Devel.Apr. 28-30, 1981, DOC, NOAA/OCSEAP, Off. Mar. Poll. Assess., pp. 111-13
ABSTRACT:
The southeastern Bering Sea including the St. George Basin is inhabited by more than 300 species of finfish and is the site of major U.S. and foreign fishing efforts. Because offshore drilling for oil and gas in St. George Basin seems imminent, the potential biological consequences to the fisheries resource of such development and the likely conflicts between the petroleum and fishing industries have been discussed in this report. The implications of an open ocean spill occurring at various times of the year are given special emphasis, particularly the loss of egg, larval, and juvenile fish associated with acute exposures of oiled seawater. At-sea conflicts that do not affect the resource itself include: preemption of fishery grounds; loss of or damage to gear; contamination of catch; and competition for port facilities.

-2531-
AUTHOR(S): THRESHER, R.E.
YEAR: 1984
TITLE: Reproduction in Reef Fishes
PUB: T.F.H. Publ., Neptune City, N, 399 pp.
ABSTRACT:
A review is presented of the literature regarding reproduction in reef fish. Each chapter deals with either a single family of fish or with groups of closely related families whose systematic positions are still uncertain. The final two chapters cover rearing marine fish and patterns of reproduction of the reef fish.

-2532-
AUTHOR(S): TIBBO, S.N., LEGERE, J.E.H., SCATTERWOOD, L.W., AND TEMPLE, R.F.
YEAR: 1958
TITLE: On the Occurrence and Distribution of Larval Herring (Clupea harengus L.) in the Bay of Fundy and the Gulf of Maine
PUB: J. Fish. Res. Bd. Can. 15(6):1451-1469
ABSTRACT:
A major portion of the Bay of Fundy and Gulf of Maine has been surveyed for occurrence and distribution of herring larvae. Plankton samples obtained with Hardy continuous plankton recorders and plankton nets confirm major spawning areas off the southwest coast of Nova Scotia and on the northern edge of Georges Bank. Newly hatched larvae were found in abundance in these areas, but nowhere else. Drift of larvae as indicated by non-tidal surface currents suggests that Nova Scotia spawnings may contribute substantially to commercial

stocks of herring in inshore areas of Maine and New Brunswick. It is possible that Georges Bank spawnings also supply herring to this region.

-2533-
AUTHOR(S): TILLMAN, M.F.
YEAR: 1975
TITLE: Additional Evidence Substantiating Existence of Northern Subpopulation of Northern Anchovy, Engraulis mordax
PUB: Fish. Bull. 73(1):212-215
ABSTRACT:
The northern anchovy, Engraulis mordax, has three distinct subpopulations ranging from Queen Charlotte Islands, B.C. to Cape San Lucas, Baja California. Length-frequency distributions are presented to refute the hypothesis that the northern subpopulation does not reproduce, and the observed larvae are from incidental spawning. Bar graphs show that 0-age anchovies, with lengths of 0-9 cm, were present from 1966 to 1970. Spawning occurred in the summer prior to each collecting period (1965-1969). This information, along with genetic and meristic evidence and larval surveys, indicates that the northern population is one of three independent subpopulations.

-2534-
AUTHOR(S): TILLMAN, M.F. AND D. STADELMAN
YEAR: 1976
TITLE: Development and Example Application of a Simulation Model of the Northern Anchovy Fishery
PUB: Fish. Bull. 74(1):118-130
ABSTRACT:
A computer model of the northern anchovy, Engraulis mordax, fishery was designed to simulate the sectors utilizing the resource. Included within the routine were data on locations, stocks, harvesters, regulators, processors, and market producers. The biological model took into accout the stock structure of the population and the recruit behavior. These factors accounted for age, dependent exploitation, and variable recruitment. The model was tested biologically and economically with results suggesting many inherent problems in regulating fisheries while lacking economic or biological knowledge. Since the model was not effectively validated, the value lay in the ability to illustrate research needs.

-2535-
AUTHOR(S): TOWNSEND, D.W. AND J.J. GRAHAM
YEAR: 1981
TITLE: Growth and Age Structure of Larval Atlantic Herring, Clupea harengus harengus, in the Sheepscot River Estuary Maine, USA as Determined by Daily Growth Increments in Otoliths
PUB: U.S. Natl. Mar. Fish. Serv. Fish. Bull. 79(1):123-130
ABSTRACT:
Larval Atlantic herring were sampled in the Sheepscot River estuary, Maine, using both towed and buoyed and anchored plankton nets from October 1978-March 1979, to determine growth rates and age structure.

-2536-
AUTHOR(S): TOWNSEND, L.D.
YEAR: 1937
TITLE: Geographical Variation and Correlation in Pacific Flounders
PUB: Copeia 1937:92-103

ABSTRACT:
In another publication (Townsend, 1936) the author has presented data for the study of variations of meristic characters in flounders which are known to occur in the northeastern Pacific from Puget Sound, Washington, to Pavlof Bay, Alaska. At the time of this publication it was noted that for certain species these data gave evidence of geographical races that could be characterized by differences in the mean of one or more of the meristic characters studied. It will be the purpose now to examine the data given to determine in what species and to what extent it is possible to distinguish these races. At the same time the pronounced correlations existing between the number of dorsal and anal fin rays will be discussed.

-2537-
AUTHOR(S): TOWNSEND, R.E.
YEAR: 1986
TITLE: A Critique of Models of the American Lobster Fishery
PUB: J. Environ. Econ. Manage. 13(3):277-291
ABSTRACT:
A number of studies have used the American lobster fishery to raise theoretical and empirical issues in the economic application of Schaeler yield-effort models. The present research shows that both published variants of the Schaeler yield-effort model are poor predictors of landing in the lobster fishery. The analysis suggests that minimum size rules in the lobster fishery make the Berton-Holt dynamic pool model more appropriate to the lobster fishery than the Schaeler yield-effort model.

-2538-
AUTHOR(S): TOWSEND, D.W., J.J. GRAHAM AND D.K. STEVENSON
YEAR: 1986
TITLE: Dynamics of Larval Herring (Clupea harengus L.) Production in Tidally Mixed Waters of the Eastern Coastal Gulf of Maine
PUB: In: M.J. Bowman, C.M. Yentsch, W.T. Peterson, eds. Tidal Mixing and Plankton Dynamics. Springer-Verlag, Berlin (FRG), pp. 253-277
ABSTRACT:
Larval herring production in the eastern coastal waters of Maine is discussed, examining the physical and biological features of the tidally mixed waters and their effects on the distribution and abundance of the larvae and their zooplankton food.

-2539-
AUTHOR(S): TRAYNOR, J.J.
YEAR: 1984
TITLE: Dual Beam Measurement of Fish Target Strength and Results of an Echo Integration Survey of the Eastern Bering Sea Walleye Pollock (Theregrachalcogramma)
PUB: Washington Sea Grant Program, Washington University, Seattle, WA
ABSTRACT:
The major objectives of the study were to 1) examine the error structure of dual beam target strength measurement through simulation analysis, 2) obtain a fishery independent assessment of the midwater portion of the eastern Bering Sea walleye pollock (Theragra chalcogramma) population, and 3) obtain in situ target strength measurements of walleye pollock in the same region. Two important effects of fish behavior on acoustic properties of walleye pollock were observed: a change by a factor of 1.9 in the mean scattering cross section between daytime and nighttime measurements, and a trend of increasing target with depth for daytime samples. Both results are

attributed to behavioral effects, primarily changes in fish tile angle distributions.

-2540-
AUTHOR(S): TRAYNOR, J.J.
YEAR: 1986
TITLE: Midwater Abundance of Walleye Pollock in the Eastern Bering Sea, 1979 and 1982
PUB: In: Symposium on Biology, Stock Assessment, and Management of Pollock, Pacific Cod and Hake in the North Pacific Region, Bull. International North PacificFisheries Commission No. 45, pp. 121-135
ABSTRACT:

Systematic demersal resource assessment surveys using bottom trawls have been conducted in the eastern Bering Sea since 1955. In 1975, the US completed the 1st survey to cover a major portion of the shelf and upper slope region. In 1979, a similar, large-scale, cooperative survey by the U.S. and Japan was carried out. Since a large portion of the walleye pollock (Theragra chalcogramma) population is found off-bottom, a midwater (hydroacoustic-midwater trawl) survey was included in addition to the bottom trawl survey. In 1982, a similar cooperative survey was completed as part of a comprehensive triennial direct assessment program. This report describes and compares the results of the U.S. midwater surveys in 1979 and 1982.

-2541-
AUTHOR(S): TRENT, L.
YEAR: 1966
TITLE: Size of Brown Shrimp and Time of Emigration from the Galveston Bay System, Texas
PUB: Proc. Gulf Carib. Fish. Inst. 19:7-16
ABSTRACT:

The study was begun to determine the time period of emigration, the vertical distribution, and the size of juvenile and subadult brown shrimp leaving the Galveston Bay system, Texas, through the Bolivar Roads tidal pass to the Gulf of Mexico. The sampling gear consisted of a bottom and a surface trawl. Samples were taken both day and night on ebbing tides from May 18 to August 1, 1966.

-2542-
AUTHOR(S): TRENT, L., C.H. SALOMAN AND S.P. NAUGHTON
YEAR: 1983
TITLE: Selectivity of Gill Nets on Spanish Mackerel, Scomberomorus maculatus, King mackerel, S. cavalla, and Bluefish, Pomatomus saltatrix
PUB: U.S. Dept. of Commerce, NOAA/NMFS, NOAA Tech. Memo. NMFS-SEFC-119, 28 pp. Panama City Lab., FL
ABSTRACT:

Information from experimental settings of gill nets reported in the literature and data taken from commercial fishermen in Florida from 1973 to 1981 were used to analyze gill net selection on spanish mackerel, Scomberomorus maculatus, king mackerel, S. cavalla, and bluefish, Pomatomus saltatrix from Florida and Serra Spanish mackerel, S. braziliensis, from Brazil. The information on Spanish mackerel and bluefish obtained from the commercial gill-net fisheries did not further our understanding of selectivity over that produced by experimental nettings except in defining girth-length relations. The commercial fisheries data appeared to reflect mostly the sizes of fish that were abundant at the time of capture rather than the effects of selectivity. We did use commercial fisheries data for describing selectivity

of king mackerel, however, because we had other estimates of the size compositions of the populations to adjust the gill-net distributions for unequal numbers of fish in the length intervals.

-2543-
AUTHOR(S): TRENT, L., E.J. PULLEN AND R. PROCTOR
YEAR: 1976
TITLE: Abundance of Macrocrustaceans in a Natural Marsh and a Marsh Altered by Dredging, Bulkheading, and Filling
PUB: U.S. Natl. Mar. Fish. Serv. Fish. Bull. 74(1):195-200
ABSTRACT:
Indices of abundance of macrocrustaceans during March-October 1969 in West Bay, Texas, were determined for day and night and statistically compared between a natural marsh area, upland and bayward canal areas of a housing development, and an open bay area.

-2544-
AUTHOR(S): TRENT, L., E.J. PULLEN, G. ADAMS AND G. ZAMORA, JR.
YEAR: 1974
TITLE: Catch per Unit Effort and Mean Total Length of Brown Shrimp, Penaeus aztecus Ives, Taken by Trawl in the Galveston Bay System, TX., 1963-67
PUB: NMFS, Seattle, WA, and Gulf Coastal Fish Center, Galveston, TX, Rep. No. NOAA-NMFS-DR-93, Contrib-384, 46 pp.
ABSTRACT:
The report presents catches per unit effort and mean lengths for brown shrimp, Penaeus aztecus Ives, taken with a trawl and trawl cod end cover from the Galveston Bay system. Texas during 1963-67 by personnel of the Estuarine Program, NMFS, NOAA, Galveston, Texas. The number of stations at which samples were taken ranged from 58 in 1963 to 16 in 1967. Sampling frequency varied from weekly to monthly; in 1967 samples were not taken throughout the year. Stations were located within three habitats--peripheral, open water, and channel--within each bay area of the system except West Bay.

-2545-
AUTHOR(S): TRENT, L., R.O. WILLIAMS, R.G. TAYLOR, C.H. SALOMAN AND C.S. MANOOCH III
YEAR: 1981
TITLE: Size and Sex Ratio of King Mackerel, Scomberomorus cavalla, in the Southeastern United States
PUB: NOAA/NMFS, NOAA Tech. Memo. Panama City, FL
ABSTRACT:
Data from over 54,000 king mackerel, Scomberomorus cavalla, were analyzed to evaluate temporal variations in size and sex composition in seven areas of the southeastern U.S. Data were obtained from recreational hook-and-line fishermen of the coastal states from Texas to North Carolina, and from commercial hook-and-line and gill-net fishermen of south Florida. Most of the length-frequency distributions derived from king mackerel catches were unimodal. This distribution is typical of a species that spawns over a long period each year, has highly variable growth ratesamong individuals, or both.

-2546-
AUTHOR(S): TRENT, W.L.
YEAR: 1967
TITLE: Ecology of Western Gulf Estuaries
PUB: U.S. Fish. Wildl. Serv. Circ. 295:23-27

ABSTRACT:
The hydrography of Galveston Bay, emigration of brown and white shrimp, and methods for identifying postlarval penaeid shrimp are discussed in this report.

-2547-
AUTHOR(S): TRENT, W.L., E.J. PULLEN, C.R. MOCK AND D. MOORE
YEAR: 1968
TITLE: Ecology of Western Gulf Estuaries
PUB: U.S. Fish Wildl. Serv. Circ. 325:18-24
ABSTRACT:
A detailed analysis was conducted of data collected from the Galveston Bay system since 1963. Information in this report includes: description of the hydrological conditions, determination of the abundance, and size of brown shrimp as related to habitat; documentation of the distribution of sciaenid fishes in relation to temperature and salinity; evaluating the effects of habitat rehabilitation; and the analysis of sediments.

-2548-
AUTHOR(S): TRUESDALE, F.M.
YEAR: 1970
TITLE: Some Ecological Aspects of Commercially Important Decapod Crustaceans in Low Salinity Marshes
PUB: Ph.D. Diss., Texas A & M Univ., College Station, TX, 181 pp.
ABSTRACT:
From March 1966 through May 1968, semimonthly hydrological and biological samples were taken in a low salinity marsh bordering Trinity Bay in the Galveston Bay Estuarine System, Texas. The study area is the site of the proposed Wallisville Reservoir, and this study sought to determine to what extent the area was utilized as a nursery ground for commercially important decapod crustaceans. Trawl, seine, and marsh net samples were used to determine the seasonal abundance and distribution of the brown shrimp (Penaeus aztecus Ives), the white shrimp (Penaeus setiferus Linn.) and the blue crab (Callinectes sapidus Rathbun).

-2549-
AUTHOR(S): TRUMBLE, R.
YEAR: 1977
TITLE: Summary of the 1976 Herring Fishery for Sac Roe in Northern Puget Sound
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 13, pp. 1-12
ABSTRACT:
Sac-roe herring fishing takes place in the Strait of Georgia and Hale Passage during April and May. This fishery, which exploits the largest known herring population in Washington state, started in 1973 after large amounts of herring spawn had been found washed up on beaches in the Strait of Georgia the previous 2 years. The heavy intensity and thickness of the spawn deposition appeared to reduce survival of the eggs. A fishery to harvest the apparent surplus followed the success of the Canadian sac-roe fishery. History of the 1973-1975 seasons is found in previous Washington Dept. of Fisheries' documents.

-2550-
AUTHOR(S): TRUMBLE, R.
YEAR: 1978
TITLE: Summary of the 1977 Herring Fisheries for Sac Roe in Northern Puget Sound
PUB: Washington Dept. of Fisheries, Seattle, WA, Prog. Rep. No. 34
ABSTRACT:

Sac-roe herring fishing takes place in the Strait of Georgia and Hale Passage during April and May. Herring roe (egg skein) is a highly prized delicacy in the Orient if herring are captured at the proper maturity and the roe is correctly processed. The fishery, which exploits the largest known herring population in Washington state, started in 1973 after large amounts of herring spawn had been washed up on beaches in the Strait of Georgia the previous 2 years. The heavy intensity and thickness of the spawn deposition appeared to reduce survival of the eggs. A fishery to harvest the apparent surplus followed success of the Canadian sac-roe fishery. Under the Boldt Decision, treaty Indians and non-treaty fisherymen divide the off-reservation portion of the harvestable quantity, and Lummi Indians have an additional fishery on their reservation.

-2551-
AUTHOR(S): TRUMBLE, R., D. PENTILLA, D. DAY, P. MCALLISTER, J. BJOETTNER, R. ADAIR AND P. WARES
YEAR: 1977
TITLE: Results of Herring Spawning Ground Surveys in Puget Sound, 1975 and 1976
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 21, Olympia, WA, pp. 1-4
ABSTRACT:

Pacific herring are abundant in Washington state waters. They are caught commercially by several different fisheries, and provide a major source of food for many commercial and sport fish species, sea birds, and mammals. Herring lay adhesive eggs on intertidal and shallow subtidal marine vegetation throughout Puget Sound. The eggs hatch approximately 2 weeks after being deposited. This spawning behavior offers fishery biologists a unique opportunity to monitor changes in herring population size by regularly measuring amounts of eggs deposited on the beaches.

-2552-
AUTHOR(S): TRUMBLE, R.J.
YEAR: 1979
TITLE: Summary of the 1978 Herring Fishery for Sac Roe in Northern Puget Sound
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 83, pp. 1-3
ABSTRACT:

Sac-roe herring fishing in Washington state takes place in the Strait of Georgia and Hale Passage during April and May. Herring roe (egg skein) is a highly prized delicacy in the Orient if herring are captured at the proper stage of maturity and if the roe is correctly processed. The fishery, which exploits the largest known herring population in Washington state, started in 1973. Large amounts of herring spawn had been washed up on beaches in the Strait of Georgia the previous 2 years, and the heavy intensity and thickness of spawn deposition appeared to reduce survival of the eggs. A fishery to harvest the apparent surplus followed success of the Canadian sac-roe fishery. Under guidelines developed through the Boldt Decision, four treaty Indian

tribes and non-treaty purse seine and gill net fishermen fish in-common for an off-reservation portion of the harvestable quantity, and Lummi Indians fish separately on their reservation.

-2553-
AUTHOR(S): TRUMBLE, R.J.
YEAR: 1981
TITLE: Summary of the 1981 Sac-Roe Herring Populations in Northern Puget Sound
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 152
ABSTRACT:
Sac-roe herring fishing in Washington state is authorized in the Strait of Georgia and Hale Passage during April and May. For the first time since the fishery began in 1973, the season did not open in 1981. Declining biomass, younger age composition, and a declining catch trend since the beginning of the fishery combined to cause managers to impose opening criteria more restrictive than in past years.

-2554-
AUTHOR(S): TRUMBLE, R.J.
YEAR: 1982
TITLE: Summary of the 1982 Sac-Roe Herring Fishery in Northern Puget Sound
PUB: Washington Dept. of Fisheries, Prog. Rep. No. 171, 32 pp.
ABSTRACT:
Sac-roe herring fishing in Washington takes place only in the Strait of Georgia and Hale Passage during April and May. Under guidelines developed through the Boldt Decision, four treaty Indian tribes and the Washington Department of Fisheries jointly manage the fishery. A management plan developed prior to the season governs conduct of the fishery. The Department and tribes conduct extensive stock assessment surveys to document the abundance of herring prior to a fishery opening, and subsequently through the season. Data include hydroacoustic estimates, spawning escapement estimates, and daily catch records if fishing occurs. The data are combined through the season for an estimate of total biomass of available herring.

-2555-
AUTHOR(S): TRUMBLE, R.J.
YEAR: 1983
TITLE: Management Plan for Baitfish Species in Washington State
PUB: Washington Dept. of Fisheries, Prog. Rep. 195
ABSTRACT:
Baitfish species in Washington state include Pacific herring (Clupea harengus pallasi), surf smelt (Hypomesus pretiosus), northern anchovy (Engraulis mordax), sandlance, also called candlefish (Ammodytes hexapterus), and Pacific sardine, also called pilchard (Sardinops sagax). Active management for baitfish emphasizes herring because the great majority of landings, effort, and participating fishermen involve herring.

-2556-
AUTHOR(S): TRUMBLE, R.J. AND R.D. HUMPHREYS
YEAR: 1985
TITLE: Management of Pacific Herring (Clupea harengus pallasi) in the Eastern Pacific Ocean
PUB: Can. J. Fish. Aquat. Sci. 42(S1):230-244

ABSTRACT:

Pacific herring fishery management in the eastern Pacific Ocean is under jurisdiction of the Federal government of the U.S. and Canada and the states of Alaska, Washington, Oregon, and California. In Canada, the Dept. of Fisheries and Ocean is responsible for all Canadian marine fisheries. U.S. fisheries management is Federal responsibility in waters beyond 5.6 km (3 nautical miles), provided that a fishery management plan is in effect. As no such plan currently exists for herring in the eastern Pacific, individual states manage offshore waters as well as territorial waters. The dominant product from herring fishing on the West Coast of the U.S. and Canada is "sac-roe," or mature egg skeins, which are used as a caviar product.

-2557-
AUTHOR(S): TRUMBLE, R.J., R.E. THORNE AND N.A. LEMBERG
YEAR: 1982
TITLE: The Strait of Georgia Herring Fishery: A Case History of Timely Management Aided by Hydroacoustic Surveys
PUB: Fish. Bull. 80(2):381-388
ABSTRACT:

A stock assessment program which combines hydroacoustic biomass estimates with midwater trawl sampling, spawning escapement, and daily catch reporting has provided a timely method of managing an intensively fished, Pacific herring population in Puget Sound, Washington. Since 1976, these techniques have been implemented through the spawning season to estimate adult herring biomass, and to set quotas consistent with the biomass. The estimates become available for management use less than a day following completion of an acoustic-trawl survey, which allows for in-season adjustments in fishing.

Acoustic-trawl surveys carried out at regular intervals during the spawning season monitored declines of prespawning adult herring biomass; the declines corresponded to cumulative increases of catch and spawning escapement. After full recruitment to the fishery, the sum of catch, escapement, and acoustic-trawl estimates provided a point estimate of total available adult herring. Within a season, these point estimates varied less than 15%. This stability is a check on the accuracy of acoustic surveys, and confirms that accuracy is sufficient for management purposes.

-2558-
AUTHOR(S): TRW SYSTEMS GROUP
YEAR: 1973
TITLE: MARMAP System Description, Description of the Marine Resources Monitoring Assessment and Prediction (MARMAP) System
PUB: Report No. TRW-22095-6001-TUOO, NOAA-7432014, 205 pp.
ABSTRACT:

The MARMAP program is responsive to a national need for information upon which to base critical decisions concerning wise and rational use of living marine resources. The program will acquire, process, analyze, and disseminate information of importance pertaining to living marine resources in which the U.S. has commercial, recreational, or aesthetic interest; particularly, those resources contiguous to U.S. national boundaries. The document describes the physical resources which comprise a system for implementation of the program. It defines the basic system configuration, the states, and physical and functional requirements of system elements.

-2559-
AUTHOR(S): TUCKER, W.H.
YEAR: 1978
TITLE: Mobile Delta Is a Major Fishing Area in Southwest Alabama
PUB: Ala. Conserv. 48(2):16-17
ABSTRACT:
The major fishing area in this district is the Mobile Delta. The second largest river delta in the U.S., the Mobile Delta, is composed of rivers. lakes, bayous, and marshes. The delta is approximately 40 miles long and 10 miles wide, and includes land in Baldwin, Mobile, Clarke, and Washington Counties.

Fishing is outstanding in delta waters. Sportfish occurring in the delta include largemouth bass, blue-gill, redear sunfish, black and white crappie, warmouth, catfish, pickerel, yellow bass, white bass, striped bass, alligator gar, and mullet.

-2560-
AUTHOR(S): TURNER, C.H. AND E.E. EBERT
YEAR: 1966
TITLE: The Marine Environment Offshore from Point Loma, San Diego County
PUB: Calif. Dept. Fish and Game, Fish Bull. No. 140, 85 pp.
ABSTRACT:
This study compared pre- and post-sewage outfall effects on benthic communities in the subtidal zone west of Point Loma, San Diego County, during Feb.-March 1965. "Capitella capitat" was found near the outfall terminus suggesting adverse environmental changes. Further studies should include chemical analysis of sediment and biotic samples.

-2561-
AUTHOR(S): TURNER, J.L. AND H.K. CHADWICK
YEAR: 1972
TITLE: Distribution and Abundance of Young-of-the-year Striped Bass, Morone saxatilis, in Relation to River Flow in the Sacramento-San Joaquin Estuary
PUB: Trans. Am. Fish. Soc. 101(3):442-452
ABSTRACT:
Annual distribution and abundance of young-of-the-year striped bass were measured from 1959 to 1970 in the Sacramento-San Joaquin estuary. Annual abundance of young bass in late summer was closely related to the amount of river flow in June-July into the estuary ($r = 0.89$). Highly significant correlations existed between striped bass abundance and salinity and water diverted from the estuary, both of which were mutually related to the amount of river flow. Six mechanisms which may control these relationships are discussed. Annual striped bass distribution in the estuary was also related to river flow ($r = 0.93$) salinity ($r = 0.88$), with bass being farther upstream in years of low runoff and high salinity.

-2562-
AUTHOR(S): TURNER, J.T., S.F. BRUNO, R.J. LARSON, R.S. STAKER AND G.M. SHARMA
YEAR: 1983
TITLE: Seasonality of Plankton Assemblages in a Temperate Estuary
PUB: Mar. Ecol. 4(1):81-99

ABSTRACT:
Synoptic measurements of temperature, salinity, nutrients, primary productivity, chlorophyll a, and abundance and composition of phytoplankton, zooplankton, and ichthyoplankton were made over an annual cycle of the Peconic Bay estuary (Long Island, New York).

-2563-
AUTHOR(S): TURNER, S.C., C.B. GRIMES AND W. ABLE
YEAR: 1983
TITLE: Growth, Mortality, and Age/Size Structure of the Fisheries for Tilefish, Lopholatilus chamaelonticeps, in the Middle Atlantic-Southern New England Region
PUB: Fish. Bull. 81(4):751-763
ABSTRACT:
Otoliths of tilefish taken in 1978 from the Middle Atlantic Bight and Southern New England region were used to determine length at age and growth rates. Marginal increment analysis revealed that annuli were formed once each year between March and May, and modes in the length-frequency histogram for small tilefish (<31 cm FL) in March-May agreed with back-calculated lengths at ages 1-3. Length-frequency histograms of tilefish from the longline fishery in 1974-80 showed truncation of the size structure accompanied by a decrease in the size at full recruitment in more recent years. The recreational and longline fisheries caught larger fish (37 and 53%, respectively, between 56 and 75 cm FL) than the foreign trawl fishery (17% at 56-57 cm FL and 51% at 26-50 cm FL). The catch curve for the longline fishery was concave, probably the result of increased fishing pressure in recent years. Estimates of the instantaneous rate of total mortality were 0.46 for the more linear portion of the longline catch curve and 0.60 for the catch curve from the foreign trawl fishery.

-2564-
AUTHOR(S): TURNER, S.C., E.D. ANDERSON AND S.J. WILK
YEAR: 1981
TITLE: A Preliminary Analysis of the Status of the Tilefish Population in the Southern New England-Middle Atlantic Region
PUB: NMFS/Northeast Fisheries Center (NEFC), Woods Hole, MA, Woods Hole Lab. Ref. No. 81-03, 18 pp.
ABSTRACT:
The purpose of this paper is to review the available biological data and fishery statistics and to offer some general comments and conclusions concerning the current status of the tilefish population in the Southern New England-Middle Atlantic region.

-2565-
AUTHOR(S): TURNER, W.R.
YEAR: 1969
TITLE: Life History of Menhadens in the Eastern Gulf of Mexico
PUB: Trans. Am. Fish. Soc. 98(2):216-24
ABSTRACT:
Biological material collected with plankton and gill nets during cruises of the R/V George M. Bowers in the eastern Gulf of Mexico indicated that menhadens spawned principally near shore from Nov. through March. Two species of menhaden--Gulf menhaden (Brevoortia patronus) and yellowfin menhaden (B. smithi)--and their hybrid abounded in collections during the winters of 1964-1967. Gulf menhaden, the most important commercial species, occurred throughout the study area, but its numbers decreased to the east and south.

Yellowfin menhaden were confined to the coastal region of peninsular Florida, whereas hybirds were taken only from Tampa Bay south to Cape Sable.

Hybrid menhaden apparently backcross freely with the parental species, but the extremely high percentage of hybrid males (> 99%) assures against establishment of a hybrid population. The likehood of natural hybridization and introgression was substantiated by artificial fertilization experiments.

-2566-
AUTHOR(S): TWEEDY, J.H.
YEAR: 1970
TITLE: Distribution of Early Developmental Stages of Pink Shrimp, Penaeus duorarum, in Florida Waters
PUB: Bull. of Mar. Sci. 20(3):634-66
ABSTRACT:

Larval stages of pink shrimp were collected by plankton nets from the Tortugas Shelf and Florida Bay off southwest Fla. from 1959-1962. Protozoeae and myses were distributed on the shelf mainly between the 8- and 30-fathom-depth contours. Postlarvae were found both on the shelf and also in the shallower waters of Florida Bay. Older postlarval stages were almost entirely restricted to inshore waters. Pink shrimp spawned throughout the year in this area, but the intensity of spawning in winter was low. Variability of the net catches and vertical migration are discussed, and migration routes of the larvae to inshore areas are hypothesized.

-2567-
AUTHOR(S): TYLER, A.V. AND M.W. SAUNDERS, EDS.
YEAR: 1987
TITLE: Groundfish Stock Assessments for the West Coast of Canada in 1986 and Recommended Yield Options for 1987
PUB: Can. Manuscr. Rep. Fish. Aquat. Sci., No. 1930, 161 pp.
ABSTRACT:

Stock assessments and yield options are developed for the Pacific coast of Canada for the following species: lingcod, Pacific code, Dover sole, rock sole, English sole, sablefish, Pacific hake, spiny dogfish, walleye pollock, Pacific ocean perch, yellowmouth rockfish, rougheye rockfish, silvergray rockfish, yellowtail rockfish, and canary rockfish.

-2568-
AUTHOR(S): U.S. COAST GUARD OCEANOGRAPHIC UNIT
YEAR: 1969
TITLE: Specifications for Coast Guard-Bureau of Commercial Fisheries ICNAF Research Cruise 69-1, Nova Scotia to Cape Hatteras, 27 January - 24 February 1969, BCFR/V Albatross IV
PUB: NMFS/NEFC, Woods Hole, MA. Unpublished; cruise prospectus
ABSTRACT:

This will be the sixth in a series of Coast Guard-Bureau of Commercial Fisheries cooperative cruises in support of an oceanographic research program planned by the International Commission for the Northwest Atlantic Fisheries (ICNAF). This cooperative undertaking involves a study of the offshore fishery resources which are fished by the U.S. and other member nations. The aim of the international program is to seek an understanding of natural fluctuations in abundance of commercial fishes in the area and to assess the effects of fishing. The purpose of Cruise No. 69-1 is to collect data on the vertical distribution of temperature, salinity, dissolved oxygen, chlorophyll, phosphates, nitrate, and silicate in the coastal and slope water regime bounded by latitudes 35 degrees 00 minutes N to 44 degrees 30 minutes N and by

longitudes 64 degrees 30 minutes W to 76 degrees 00 minutes W. These data will supplement data previously collected in the area during a series of environmental survey cruises by both BCF R/V ALBATROSS IV and CGC EVERGREEN. The Soviet Union has been cooperating in this program, and tentatively will be operating two fishery research vessels in the area during early spring 1969.

-2569-
AUTHOR(S): U.S. DEPARTMENT OF COMMERCE AND LABOR
YEAR: 1911
TITLE: Fisheries of the United States: 1908
PUB: U.S. Dept. of Commerce, Bureau of the Census, U.S. Government Printing Office, Washington, DC, pp. 211-217
ABSTRACT:
This report contains the fishery statistics for the state of North Carolina during 1908. Included in the report is a comparison of these statistics with previous canvasses, a discussion of the persons employed and the equipment and other capital used, the products by species and class of fisheries, and products by the apparatus of capture. A discussion of the leading commercial species is included, these being shad, oysters, squeteague, mullet, alewives, and menhaden.

-2570-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE
YEAR: 1970
TITLE: Fisheries of the United States....1969
PUB: U.S. Department of the Interior/USFWS, Washington, DC, 87 pp.
ABSTRACT:
U.S. fishermen caught 4,292 million pounds of fish and shellfish in 1969 that sold for $518 million--the highest dollar value in history. There were record landings of Gulf menhaden, Pacific anchovies, yellowfin tuna, shrimp, spiny lobsters, tanner crabs, Dungeness crabs, and surf clam meats in 1969, and sharp increases in the catches of Atlantic cod, Pacific halibut, and blue crabs. Landings of Atlantic flounders, pollock, and soft clams were also higher in 1969 than in 1968. On the other side of the ledger, offsetting any large gain in the overall productivity of the domestic fisheries, were serious declines in landings of haddock, Atlantic sea herring, Pacific salmon, whiting, otter trawl-caught industrial fish, sea scallop meats, and king crab. Production of jack mackerel, Atlantic ocean perch, and oyster meats was also below the 1968 levels.

-2571-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1955
TITLE: North Carolina Landing: June 1955
PUB: Current Fisheries Statistics No. 1193, North Carolina DCD/DCF, Morehead City, NC, 2 pp.
ABSTRACT:
This report contains the data on landings of fishery products in North Carolina by counties for June 1955. This report is one in a series to be issued monthly by the U.S. Fish and Wildlife Service (USFWS) in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries.

-2572-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1955
TITLE: North Carolina Landing: July 1955
PUB: Current Fisheries Statistics No. 1206, North Carolina DCD/DCF, Morehead City, NC, 2 pp.
ABSTRACT:
This report contains the data on landings of fishery products in North Carolina by counties for July 1955. This report is one in a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries.

-2573-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1955
TITLE: North Carolina Landing: November 1955
PUB: Current Fisheries Statistics No. 1252, North Carolina DCD/DCF, Morehead City, NC, 2 pp.
ABSTRACT:
This report contains the data on landings of fishery products in North Carolina by counties for November 1955. This report is one in a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries.

-2574-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1955
TITLE: North Carolina Landing: November 1955
PUB: Current Fisheries Statistics No. 1244, North Carolina DCD/DCF, Morehead City, NC, 2 pp.
ABSTRACT:
This report contains the data on landings of fishery products in North Carolina by counties for October 1955. This report is one in a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries.

-2575-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1955
TITLE: North Carolina Landing: October 1955
PUB: Current Fisheries Statistics No. 1229, North Carolina DCD/DCF, Morehead City, NC, 2 pp.
ABSTRACT:
This report contains the data on landings of fishery products in North Carolina by counties for October 1955. This report is one in a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries.

-2576-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1955
TITLE: North Carolina Landing: September 1955
PUB: Current Fisheries Statistics No. 1229, North Carolina DCD/DCF, Morehead City, NC, 2 pp.
ABSTRACT:
This report contains the data on landings of fishery products in North Carolina by counties for September 1955. This report is one in a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries.

-2577-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1955
TITLE: North Carolina Landing: August 1955
PUB: Current Fisheries Statistics No. 1217, North Carolina DCD/DCF, Morehead City, NC, 2 pp.
ABSTRACT:
This report contains the data on landings of fishery products in North Carolina by counties for August 1955. This report is one in a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries.

-2578-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1955
TITLE: North Carolina Landing: December 1955
PUB: Current Fisheries Statistics No. 1274, North Carolina DCD/DCF, Morehead City, Morehead, NC, 2 pp.
ABSTRACT:
This report contains the data on landings of fishery products in North Carolina by counties for December 1955. This report is one in a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries.

-2579-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1956
TITLE: North Carolina Landing: 1956
PUB: Current Fisheries Statistics No. 1492, North Carolina DCD/DCF, Morehead City, Morehead, NC, 5 pp.
ABSTRACT:
This report contains the data on landings of fishery products in North Carolina by counties for 1956. This report is one in a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries.

-2580-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1957
TITLE: North Carolina Landings - 1957
PUB: Current Statistics No. 1742, North Carolina DCD/DCF, Morehead City, NC, 5 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1957. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2581-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1958
TITLE: North Carolina Landings - 1958
PUB: Current Fisheries Statistics No. 1991, North Carolina DCD/DCF, Morehead City, NC, 7 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1958. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2582-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1959
TITLE: North Carolina Landings - 1959
PUB: Current Fisheries Statistics No. 2247, North Carolina DCD/DCF, Morehead City, NC, 6 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1959. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2583-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1960
TITLE: North Carolina Landings - 1960
PUB: Current Fisheries Statistics No. 2516, North Carolina DCD/DCF, Morehead City, NC, 6 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1960. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department

of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2584-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1961
TITLE: North Carolina Landings - 1961
PUB: Current Fisheries Statistics No. 2832, North Carolina DCD/DCF, Morehead City, NC, 6 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1961. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2585-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1962
TITLE: North Carolina Landings - 1962
PUB: Current Fisheries Statistics No. 3159, North Carolina DCD/DCF, Morehead City, NC, 8 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1962. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2586-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1963
TITLE: North Carolina Landings - 1963
PUB: Current Fisheries Statistics No. 3481, North Carolina DCD/DCF, Morehead City, NC, 9 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1963. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2587-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1964
TITLE: The Commercial Fisheries of the Gulf and South Atlantic Region and Their Needs
PUB: U.S. Fish. Wildl. Serv., Circ. 181, Washington, DC, 37 pp.

ABSTRACT:
The fishing industry of the Gulf and South Atlantic States has an interest in a tremendous expanse of water. From Cape Hatteras on the north, these waters extend hundreds of miles seaward and thousands of miles southward to encompass the waters off our own South Atlantic coast, those surrounding the Bahamas, the Gulf of Mexico, the Carribean Sea, and the high seas off the northeast coast of South America to Natal, Brazil, where the South Equatorial Current strikes the coast. Included in this interest are the bordering mainland and insular land masses, and especially the coastal estuarine and shelf areas.

-2588-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1965
TITLE: North Carolina Landings - 1965
PUB: Current Fisheries Statistics No. 4126, North Carolina DCD/DCF, Morehead City, NC, 10 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1965. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commerical Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2589-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1966
TITLE: North Carolina Landings - 1966
PUB: Current Fisheries Statistics No. 4513, North Carolina DCD/DCF, Morehead City, NC, 8 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1966. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2590-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1967
TITLE: North Carolina Landings - 1967
PUB: Current Fisheries Statistics No. 4665, North Carolina DCD/DCF, Morehead City, NC, 8 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1967. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2591-
AUTHOR(S): U.S. DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, BRANCH OF COMMERCIAL FISHERIES
YEAR: 1968
TITLE: North Carolina Landings - 1968
PUB: Current Fisheries Statistics No. 4922, North Carolina DCD/DCF, Morehead City, NC, 10 pp.
ABSTRACT:
This report contains the summary statistics, by county, for fishery products in North Carolina in 1968. This bulletin is one of a series to be issued monthly by the USFWS in cooperation with the North Carolina Department of Conservation and Development, Division of Commercial Fisheries. A comparison of landings with those of previous years is given when the data are available.

-2592-
AUTHOR(S): UCHIDA, R.N., S. HAYASI AND G.W. BOEHLERT, EDS.
YEAR: 1984
TITLE: Environment and Resources of Seamounts in the North Pacific
PUB: Proceedings of a Workshop, Mar. 21-23, '84, Shimizu, Japan. DOC/NOAA/NMFS, NOAA Tech. Rep. NMFS 43, 105 pp.
ABSTRACT:
The objectives of the workshop were to review (1) what is known of the oceanography in the vicinity of seamounts, (2) the various fisheries associated with seamounts, and (3) the population characteristics and biology of seamount species (including a preliminary assessment of the stocks), and to develop hypotheses and models to guide the direction of future research. This report includes the papers presented as well as summaries of each session prepared by the workshop co-chairmen.

-2593-
AUTHOR(S): ULRICH, G.F. AND R.J. RHODES
YEAR: 1977
TITLE: Status Report on the Commercial Snapper-Grouper Fisheries off South Carolina
PUB: In: Proc. 29th Ann. Sess., Gulf Caribb. Fish. Inst., pp. 102-125
ABSTRACT:
Shrimp trawlers utilizing roller-rigged trawls fished for snappers and groupers during the closed season for shrimping (January-April) on the continental shelf of South Carolina. A trawler, participating in a S. Carolina Marine Advisory Program demonstration of commercial feasibility, produced 35,979 lbs of fish from nine trips in 1976. Average catch per vessel-day was 2,106 lbs. Species taken and percent of total catch by weight were red snapper, 31.0%; vermilion snapper, 25.0%; groupers, 14.0%; red porgy, 17.0%; whitebone porgy, 10.0%; and black sea bass, 3.0%.
The majority of commercial hook and line vessels fishing S. Carolina offshore waters were based in Charleston, SC. Average catch per vessel-day for the May through September 1976 period was 719 lbs. The catches taken by commercial hook-line fishermen weredominated by the groupers, primarily the gag and scamp, with 43% of the catch by weight comprised of these species.

-2594-
AUTHOR(S): UMEDA, Y. AND R. BAKKALA
YEAR: 1983
TITLE: 1985 Data Report: 1979 Demersal Trawl Survey of the Eastern Bering Sea Continental Shelf
PUB: DOC/NOAA, NOAA Tech. Memo., NMFS F/NWC-49
ABSTRACT:
This data report is one of a planned series to describe results of resource assessment surveys for groundfish in the eastern Bering Sea. The report describes methods used and summarizes results of the 1980 survey in the form of a series of tables and figures and in data appendices. Summarized in the results section are a list of species taken during the survey, abundance estimates of major taxonomic groups of fish, and rankings of individual species of groundfish in terms of relative abundance. For principal species of groundfish, geographic distributions and size and age composition are illustrated and abundance estimates given. The appendices contain detailed station and catch data and computer listings of abundance estimates and biological characteristics of the sampled populations of principal species of groundfish.

-2595-
AUTHOR(S): UNIVERSITY OF ALASKA
YEAR: 1985
TITLE: Symposium on Dungeness Crab Biology and Management, October 7-11, 1984, Anchorage, AK
PUB: Brenda R. Melteff, Symposium Coordinator, University of Alaska, Alaska Sea Grant College Program, Fairbanks, AK, Lowel Wakefield Fisheries, Symposia Series, Alaska Sea Grant Report No. 85-3. 419 pp.
ABSTRACT:
The Conference (27 contributions) discusses history and management issues of the Pacific Coast dungeness crab fishery, life history requirements of the dungeness crab, population dynamics, causes of mortality, habitat requirements, and various other topics.

-2596-
AUTHOR(S): UNIVERSITY OF NORTH CAROLINA
YEAR: 1948
TITLE: Shrimp Survey in North Carolina Waters
PUB: University of North Carolina-CH/IFR, Morehead City, NC, Publication No. 5, 10 pp.
ABSTRACT:
In 1947 a Shrimp Commission was appointed and $50,000 appropriated for finding and developing new shrimping grounds in North Carolina. This report discusses the goals of this study. They were: 1) to make a fishing chart of the offshore fishing grounds of North Carolina from Cape Hatteras to South Carolina. The object of this was to locate on the existing navigation charts any hazards to trawling that prevent fishermen from operating in an area; 2) simultaneously with this topographical survey try nets would be employed to determine the presence or absence of shrimp on the offshore grounds.

-2597-
AUTHOR(S): UNIVERSITY OF RHODE ISLAND
YEAR: 1973
TITLE: Coastal and Offshore Environmental Inventory: Cape Hatteras to Nantucket Shoals
PUB: University of Rhode Island, Kingston, RI, Marine Publication Series No. 2, Vols.
ABSTRACT:
The geographic area covered in this study corresponds roughly to the Middle Atlantic Bight, which includes the coastal and shelf areas between Nantucket Shoals, off the Massachusetts coast, to Cape Hatteras, North Carolina. The highly productive Georges Bank-Browns Bank region falls outside the study area of this report. Such arbitrary definition of limits presents certain obvious difficulties. Many mobile organisms are distributed over a range wider than the bounds of the study area. Furthermore, certain physical and chemical phenomena occurring in the Middle Atlantic Bight are the result of conditions that have developed outside the study area.

-2598-
AUTHOR(S): UTTER, F., P. AEBERSOLD, M. GRISWOLD, G. MILNER, N. PUTAS, J. SZELES, D. TEEL AND G. WINANS
YEAR: 1987
TITLE: Biochemical Genetic Variation of Chinook Salmon Stocks of the Mid-Columbia River
PUB: University of Washington, submitted to the Northwest and Alaska Fisheries Center, Coastal Zone and Estuarine Studies Division, Seattle, WA. 22 pp.
ABSTRACT:
Chinook salmon from 19 locations within the Mid-Columbia River drainage area, from Priest Rapids through the Methow River, were tested for biochemical genetic variation using starch gel electrophoresis. Genetic polymorphism was detected at 30 of 40 loci examined. Considerable genetic heterogeneity was observed. Two distinct groupings were apparent by cluster analysis based on polymorphic loci. Although no clear geographic patterns were apparent, all of the samples could be related to hatchery stocks known to contribute to runs of this area.

-2599-
AUTHOR(S): UZMANN, J.R., R.A. COOPER AND K.J. PECCI
YEAR: 1977
TITLE: Migration and Dispersion of Tagged Lobster (Homarus americanus) on the Southern New England Continental Shelf
PUB: DOC/NOAA/NMFS, NMFS Tech. Rep. SSRF-705, 92 pp.
ABSTRACT:
From the track analyses it is concluded that at least 25% of the offshore lobsters annually engage in directed shoalward migrations in spring and summer with return to the shelf margin and slope in fall and winter. The conclusion is reinforced by independent analysis of the time/depth/temperature association of tagged lobsters at recapture which, of itself, suggests that an even larger proportion of the offshore lobsters annually effect directed migrations in response to seasonal temperature variations.

-2600-
AUTHOR(S): UZMANN, J.R., R.A. COOPER, R.B. THEROUX AND R.L. WIGLEY
YEAR: 1977
TITLE: Synoptic Comparison of Three Sampling Techniques for Estimating Abundance and Distribution of Selected Megafauna: Submersible vs. Camera Sled vs. OtterTrawl
PUB: Mar. Fish. Rev. 39(12):11-19
ABSTRACT:
A multiship survey of the megafauna in the Veatch Canyon region was undertaken in June 1973. The survey was designed to obtain detailed information on the distribution, abundance, and ecology of selected megafauna, particularly lobsters, Homarus americanus, red crabs, Geryon quinquedens, and Jonah crabs, Cancer borealis, and to compare simultaneously the relative efficiency of three bottom-oriented quantitative survey techniques, namely, manned submersible, towed camera sled, and a standardized otter trawl. These primary techniques were reinforced by followup sampling with multiple plot trawls of standard baited lobster pots.

-2601-
AUTHOR(S): VALENTI, R.J. AND S.J. PETERS
YEAR: 1977
TITLE: Stock Distribution and Rate of Exploitation of the American Lobster in Eastern Long Island Sound
PUB: NY Division of Marine and Coastal Resources, 39 pp.
ABSTRACT:
A total of 990 lobsters was collected during 17 monthly samplings over a 3-year period. Females outnumbered males and represented 58.6% and 41.4% of the catch, respectively. Pre-recruits greatly outnumbered recruits at percentages of 88.5 and 11.5, respectively. Seasonal lobster abundance was found to be closely related to demersal water temperatures. Lobsters collected during the 3-year sampling period ranged in size from 20.8 mm to 102 mm.

-2602-
AUTHOR(S): VALENTINE, J.W.
YEAR: 1966
TITLE: Numerical Analysis of Marine Molluscan Ranges on the Extratropical Northeastern Pacific Shelf
PUB: Limnol. Oceanogr. 11:198-211
ABSTRACT:
The ranges of shelled Pelecypoda and Gastropoda living on the continental shelf between Point Barrow, Alaska, and Cabo San Lucas, Baja California, have been investigated by computer techniques. Species present within every degree of latitude are compared to those present within every other degree of latitude, and a coefficient of similarity calculated for each latitude pair. Coefficients are then clustered by the weighted pair-group method. Distributional boundaries considered as provincial boundaries are clearly defined and other distributional regions emerge in the analysis. The species range patterns correspond to those displayed by some older studies based on somewhat different data and appear to be real. They evidently reflect the hydrographic patterns governing temperature regime on the shelf.

-2603-
AUTHOR(S): VALLIAN, A.C.
YEAR: 1981
TITLE: Summary of Data and Research Pertaining to the Pink Salmon Population at Little Port Walter, AK, 1964-1980
PUB: NOAA/NMFS, Northwest and Alaska Fisheries Center, Processed Rep. 81-10, 102 pp.
ABSTRACT:
Since 1934, there has been a fisheries research station at Sashin Creek on Little Port Walter Bay, southeastern Alaska. This report, which updates a previous data report (Olson and McNeil 1967), summarizes in tables the data collected at the station between 1964 and 1980 on the freshwater ecology of pink salmon, Oncorhynchus gorbuscha. Also included is a list of published and unpublished reports that describe research on pink salmon at Little Port Walter since 1964.

-2604-
AUTHOR(S): VAN BEEK, J.L., D.J. DAVIS, R.E. EMMER, S.A. HSU AND I.A. MENDELSSOHN
YEAR: 1981
TITLE: An Introduction to the Environmental Literature of the Mississippi Deltaic Plain Region
PUB: Office of Biological Services, U.S. Fish and Wildlife Service, Washington, DC, and Bureau of Land Management, Washington, DC, FWS/OBS-79/30, 213 pp.
ABSTRACT:
This report is a review of selected environmental literature of the Mississippi Deltaic Plain Region. This review introduces some of the major ecosystem components and processes, describes oil and gas production activities, and guides the reader to available literature.

-2605-
AUTHOR(S): VAN DEN AVYLE, M.J. AND D.L. FOWLER
YEAR: 1984
TITLE: Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (South Atlantic) - Blue Crab
PUB: National Coastal Ecosystems Team/FWS/U.S. DOI, FWS/DBS-82/11.19, and Central Ecology Group/WES/COE, 16 pp.
ABSTRACT:
Species profiles are summaries of the literature on taxonomy, life history and environmental requirements of coastal fishes and aquatic invertebrates. The blue crab, Callinectes sapidus, occurs in lower reaches of freshwater rivers, estuaries, and coastal waters along the Atlantic seaboard and Gulf of Mexico, and the species supports the largest crab fishery in the U.S. The blue crab's high abundance in estuaries, diverse feeding habits, and importance as prey for other marine animals indicate its important role in the structure and function of estuarine communities. Female blue crabs spawn in high-salinity lower estuaries or coastal areas where the resulting larvae are planktonic and develop into juveniles at 5 to 10 weeks of age. Larvae require temperatures of 20-30 degree C and salinities of 10-30 ppt for proper development, but salinity and temperature tolerances are broad for advanced juveniles and adults.

-2606-
AUTHOR(S): VAN DEN BERGJE, E.P. AND M.R. GROSS
YEAR: 1986
TITLE: Length of Breeding Life of Coho Salmon (Oncorhynchus kisutch)
PUB: Can. J. Zool. 64(7):1482-1486
ABSTRACT:
The authors examined the contributions of body size, population density, water level, season, and year to length of breeding life in individual coho salmon. Density of adults made a significant negative contribution to life-span, while water levels, season, and year were insignificant. Body size was the most important variable in explaining breeding life-span, being positively related and accounting for 10% and 36% of the variance in 3-year-old males and females, respectively.

-2607-
AUTHOR(S): VAN DOLAH, R., H. ANSLEY AND W. KIRBY-SMITH
YEAR:
TITLE: South Atlantic OCS Area Living Marine Resources Study
PUB: South Carolina Marine Resources Center, Charleston, SC, Unpublished Summary of Research
ABSTRACT:
The primary objectives of this BLM-funded study are to describe the fish and invertebrate assemblages inhabiting representative live bottom areas and evaluate the interrelationships between these trophic groups. Potential effects of offshore energy exploration on these communities are also considered.

-2608-
AUTHOR(S): VAN ENGEL, W.A.
YEAR: 1958
TITLE: The Blue Crab and Its Fishery in Chesapeake Bay. Part I. Reproduction, Early Development, Growth and Migration
PUB: Comm. Fish. Rev. 20(6):6-17
ABSTRACT:
Blue crabs are abundant on the East and Gulf Coast of North America, on the East Coast of South America, and have been reported from France, Holland, and Denmark, and the East Coast of the Mediterranean. In Chesapeake Bay, fishing has been intensive for over 80 years; in the last 10 years they have brought in three milion dollars, approx. 2/3 of the entire U.S. blue crab harvest.

Mating of blue crabs begins in early May and continues into October; sperm lives in the female receptables for at least a year, and may be used as often as the female spawns--twice or more. After mating, females migrate to the saltier waters of the Southern end of the bay, some passing into the ocean. Spawning is delayed at least two months after mating, and occurs from early May-September. Eggs are carried on the abdomen of the female for about 2 weeks before hatching.

There are two larval stages--four or five zoeal molts and the megalops--lasting about a month. Large numbers of crabs reach the first crab stage early in August and begin migrating into the rivers and to the upper bay. Adult size may be reached in 1 year and a half, shedding 18 or more times after the last larval stage.

-2609-
AUTHOR(S): VAN ENGEL, W.A.
YEAR: 1979
TITLE: Climatological Effects on Distribution Catch and Abundance of the Blue Crab
PUB: Presented at Annual Meeting of the National Shellfisheries Assoc., June 19, 1978, New Orleans, LA, Proc. Natl. Shellfish. Assoc. Md., No. 69, pp. 200.
ABSTRACT:
Large fluctuations in the Chesapeake Bay blue crab catch have occurred over the last 100 years. Abundance and distribution are believed to be dependent largely on environmental factors, such as temperature, salinity, dissolved oxygen, predation, disease, and food supply. Spawning stocks are believed to have been adequate to maintain the population. The Chesapeake Bay is an area of large seasonal and annual environmental changes, in particular in temperature and in rainfall and consequent runoff. An attempt is made to describe in broad terms the natural environmental boundaries of spawning grounds and nursery grounds, the theoretical displacement of these grounds in extremely wet and dry seasons, and to explore the influence these variations have on year-class strength of the blue crab.

-2610-
AUTHOR(S): VAN HEUKELEM, W.F. AND S.D. SULKIN
YEAR: 1983
TITLE: The Behavioral Basis of Larval Dispersal and Recruitment in the Blue Crab, Callinectes sapidus Rathbun
PUB: J. Shellfish Res. 3(1):103
ABSTRACT:
Laboratory experiments have demonstrated that Stage I blue crab (C. sapidus) zoeae exhibit a number of behavioral traits which should result in distribution high in the water column. Because it is known that female blue crabs migrate to the mouth of the Chesapeake Bay to spawn, these behavioral traits should result in massive export of virtually all Stage I zoeae in surface waters. Megalops possess behavioral traits that differ from late zoeal stages, chiefly, a highly sensitive pressure response, faster swimming speeds, negative geotaxis, and possibly locomotor rhythms that may enhance their transport back into estuaries.

-2611-
AUTHOR(S): VAN HYNING, J.M.
YEAR: 1951
TITLE: The Ocean Salmon Troll Fishery of Oregon
PUB: Pac. Mar. Fish. Comm. Bull. 2:44-76
ABSTRACT:
An historical overview of the ocean salmon troll fishery of Oregon. The discussion includes landings, gear, number and types of boats employed, competition with other fisheries and the effect on the Oregon troll fishery, number of participants, trends, and much more.

-2612-
AUTHOR(S): VAUGHAN, D.L. AND C.W. RECKLSEIK
YEAR: 1979
TITLE: Detection of Market Squid, Loligo opalescens, with Echo Sounders
PUB: Calif. Coop. Oceanic Fish. Invet. Rep. 20:40-50

ABSTRACT:

Low (38 kHz) and high (200 kHz) frequency echo sounders were used simultaneously to locate schools of market squid, Loligo opalescens, in Monterey Bay. The tracings were verified by visual observations, jigging, and midwater trawls. Two distinct behaviors were recorded with the echo sounders. A continuous bottom trace was seen typically during the day. Plumes, and often "speckle" traces, were observed at night. These probably represented small schools and individuals. The performance of both echo sounders, in relation to imagery, was considered.

-2613-
AUTHOR(S): VAUGHAN, D.S.
YEAR: 1987
TITLE: Stock Assessment of the Gulf Menhaden, Brevoortia patronus, Fishery
PUB: U.S. DOC/NOAA/NMFS, NOAA Tech. Rep. NMFS 58, 18 pp.
ABSTRACT:

A stock assessment of the Gulf menhaden, Brevoortia patronus, fishery was conducted with data on purse-seine landings from 1946 to 1985 and port sampling data from 1964 to 1985. These data were analyzed to determine growth rates, yield-per-recruit, spawner-recruit relationships, and maximum sustainable yield (MSY). Virtual population analysis was used to estimate stock size, year-class size, and fishing mortality rates. Recent harvests in excess of the historical MSY may not be detrimental to the Gulf menhaden stock. However, one should not expect long-term harvesting above the historical MSY because of the short life span of Gulf menhaden and possible changes from currently favorable environmental conditions supporting high recruitment.

-2614-
AUTHOR(S): VAUGHAN, D.S., J.V. MERRINER, D.W. AHRENHOLZ AND R.B. CHAPOTON
YEAR: 1986
TITLE: Stock Assessment of Menhaden and Coastal Herrings
PUB: DOC/NOAA/NMFS, NOAA Tech. Mem. NOAA-TM-NMFS-SEFC-178, 60 pp.
ABSTRACT:

The report contains summary information on menhaden and coastal herrings made available during a stock assessment workshop held in 1984. Separate sections are included for Atlantic and Gulf of Mexico menhaden. The coastal herrings section describes information available on several species of engraulids, clupeids, and carangids. Each section includes description of the fish, stock structure, stock status, effect of current management practices, and recommendations.

-2615-
AUTHOR(S): VAUGHAN, D.S., J.V. MERRINER, D.W. AHRENHOLZ AND R.B. CHAPOTON
YEAR: 1986
TITLE: Stock Assessment of Menhaden and Coastal Herrings
PUB: U.S. DOC, NOAA, NMFS, NOAA Tech. Memo. NMFS-SEFC-178, 50 pp.
ABSTRACT:

Summary information on menhaden and coastal herrings was made available at the Second Southeast Fisheries Center Stock Assessment Workshop held in Miami, FL, June 4-8, 1984. This information is divided into three parts in this report: 1) Atlantic menhaden, 2) Gulf menhaden, and 3) coastal herrings. For each of these, descriptions of the fishery, stock status, effect of current management practices, and recommendations are summarized, updating material in Powers (1983).

-2616-
AUTHOR(S): VERRILL, A.E.
YEAR: 1885
TITLE: Results of the Exploration Made by the Steamer Albatross, off the Northern Coast of the United States in 1883
PUB: Report of the Commissioner for 1883. Bull. U.S. Comm. Fish, pp. 503-590
ABSTRACT:
During the summer of 1883, the new U.S. Fish Commission Steamer ALBATROSS, Lieut. Z.L. Tanner, commander, continued the work of dredging in the region of the Gulf Stream, along the U.S. coast, from off Cape Hatteras to Nova Scotia. She is, in construction, well adapted to do deep-sea work, and fully equipped with improved apparatus, and therefore was able to carry the dredgings much further out to sea than the FISH HAWK had been able to in previous years. The stations most distant from the coast were more than a third of the way to the Bermudas.

-2617-
AUTHOR(S): VINOGRADOV, M.E., N.V. PARIN AND V.P. SHUNTOV, EDS.
YEAR: 1986
TITLE: Biological Resources of the Pacific Ocean
PUB: Nauka, Moskva, USSR, 586 pp.
ABSTRACT:
Chapter 1 deals with bio-oceanological characteristics of the Pacific Ocean, its bioproductivity and biogeography. Chapter 2 gives a brief characterization of commercial species including microphytes, invertebrates, sharks, salmons, capelin, anchovy, pollack, blue whiting, Pacific saury, hake, halibuts, chub and jack mackerels, rockfishes, sculpins, flatfishes, and marine mammals. Chapter 3 provides a review of the the major fishing grounds in the Pacific Ocean.

-2618-
AUTHOR(S): VITTOR, B.A. AND ASSOCIATES
YEAR: 1985
TITLE: Tuscaloosa Trend Regional Data Search and Synthesis Study. Vol. 2, Supplemental Reports
PUB: U.S. DOI, MMS, OCS Study, MMS 85-0057, 236 pp.
ABSTRACT:
The first appendix contains an analysis of benthic samples collected in the 1970's from the Breton-Chandeleur Sound. The second appendix analyzes existing trawl data in the study area to provide insight into the seasonal dynamics of key shrimp and fish species. The third appendix presents a quantitative characterization of demersal finfish and shellfish populations and communities in the study area.

-2619-
AUTHOR(S): VITTOR, B.A. AND ASSOCIATES
YEAR: 1985
TITLE: Tuscaloosa Trend Regional Data Search and Synthesis Study. Vol. 1., Synthesis Report
PUB: U.S. DOI, MMS, OCS Study, MMS 85-0056, 398 pp.
ABSTRACT:
The report identifies and summarizes important information pertaining to the environmental and socioeconomic characteristics of this area of the Gulf of Mexico. Information on the natural resources of the Tuscaloosa Trend OCS from coastal marshes to a depth of 200 m was collected, annotated, and synthesized. A conceptual ecosystem model was developed representing the OCS

region. Synthesis report chapters characterize the ecosystem model, physiography and geology, physical and chemical oceanography, ecological resources, and socioeconomic features of the region.

-2620-
AUTHOR(S): VRONSKIJ, B.B. AND M.Y. KAZARNOVSKIJ
YEAR: 1986
TITLE: Fishery Impact on Population Structure of Pacific Salmons
PUB: Rybn. Khoz, USSR, pp. 21-24
ABSTRACT:
A detailed analysis is made of dramatic change in age composition and abundance of species of the genus Oncorhynchus due to high exploitation rates shown by Japan since 1952. A complete ban of sea fishery for Pacific salmons is recommended to provide restoration of micropopulations and stock replenishment.

-2621-
AUTHOR(S): VROOMAN, A.M. AND P.E. SMITH
YEAR: 1971
TITLE: Biomass of the Subpopulations of Northern Anchovy (Engraulis mordax) Girard
PUB: Calif. Coop. Oceanic Fish Invest. Rep. 15:49-51
ABSTRACT:
The number of northern anchovy (Engraulis mordax) larvae and spawning biomass is reported for the three subpopulations off the West Coast of North America from 1951-1966. Total numbers of larvae for all areas combined ranged from a low of 6,504 x 10E12 in 1951 to 79,292 x 10E12 in 1965. The greatest increase has taken place in the central subpopulation. Spawning biomass increased from 639,000 tons in 1951 to 6,260,000 tons in 1962, after which it fluctuated from 5 and 8 million tons. During 1960-66, the southern subpopulation biomass was on the average twice as great as during 1951-59, while the ratios in the central and northern subpopulations were three and a half and intermediate, respectively. The mean total biomass from 1962-66 was 6.1 million tons, with the central, southern, and northern subpopulations contributing 77.3, 18.5, and 4.2% of the total, respectively.

-2622-
AUTHOR(S): WAHLE, R.J., E. CHANEY AND R.E. PEARSON
YEAR: 1981
TITLE: Area Distribution of Marked Columbia River Basin Spring Chinook Salmon Recovered in Fisheries and at Parent Hatcheries
PUB: Mar. Fish. Rev. 43(12):1-9
ABSTRACT:
In 1971-73 approximately 4.1 million juvenile anadromous spring chinook salmon, Oncorhynchus tshawytscha, of the 1970 and 1971 broods of 21 Columbia River Basin hatchery facilities were marked and released. Sampling for marked fish was conducted in 1972-77 in all major fisheries from Monterey, Calif., north along the Pacific coast of North America to Pelican, Alaska; in main-stem Columbia River fisheries; and at parent hatcheries.

-2623-
AUTHOR(S): WAKABAYASHI, K., R. PAYNE, K. TESHIMA AND T. WILDERBUER
YEAR: 1987
TITLE: Fishing Log: U.S.-Japan Cooperative Bottom Trawl Survey of the Groundfish Resources of the Aleutian Islands, July-October, 1983
PUB: DOC, NOAA, NMFS, NWAFC, NWAFC, Proc. Rep. 87-16, 78 pp.

ABSTRACT:

The Northwest and Alaska Fisheries Center, Seattle, WA, National Marine Fisheries Service, and the Far Seas Fisheries Research Laboratory, Shimizu, Japan, Fisheries Agency of Japan, conducted the second comprehensive resource assessment survey of the Aleutian Island during June - November 1983. The primary objectives were to: (1) define the distribution and relative abundance of the principal groundfish species, (2) estimate the absolute abundance of the principal groundfish species, (3) collect biological data sets on commercially important species, (4) compare the fishing power of the Miller Freeman using the Northeastern trawl with the Daito Maru No. 38 using a Japanese commercial flatfish trawl, (5) tag trawl caught Pacific cod and Atka mackerel to study movements and growth and, (6) to obtain temperature profiles of the water at selected sampling sites.

-2624-
AUTHOR(S): WALDRON, K.D. AND B.M. VINTER
YEAR: 1978
TITLE: Ichthyoplankton of the Eastern Bering Sea
PUB: In: Environmental Assessment of the Alaskan Continental Shelf., Final Reports of Principal Investigators, Vol. 1., Biological Studies pp. 237-237
ABSTRACT:

Report analyzes abundance, density, and distribution of fish eggs and larvae collected with bongo and neuston nets in the eastern Bering Sea from mid-April to mid-May, 1977. Distribution and relative abundance of pollock eggs and larvae are shown for 1976 and 1977 as well as length frequencies of collected pollock larvae. Distributions and relative abundances of other species are also illustrated.

-2625-
AUTHOR(S): WALDRON, K.D. AND F. FAVORITE
YEAR: 1977
TITLE: Ichthyoplankton of the Eastern Bering Sea
PUB: Environmental Assessment of the Alaskan Continental Shelf, Annual Reports 9:628-682
ABSTRACT:

A preliminary, present-day assessment showed that pollock (Theragra chalcogramma) eggs and larvae were present in an area generally between the 75 to 1,000 m isobaths along the outer edge of the continental shelf and the continental slope from the Alaska Peninsula to as far northward as sampling was conducted, about 268 km northwest of the Pribilof Islands. Within this area, eggs and larvae were most abundant between the Alaska Peninsula and the Pribilof Islands, though the peak abundance of eggs and of larvae did not occur at the same station. The implications of this assessment with respect to oil and gas development are that environmental changes or catastrophes caused by such activity in the area between the Alaska Peninsula and the Pribilof Islands, and occurring during spring, would be potentially damaging to the pollock eggs and larvae in the eastern Bering Sea. Environmental changes limited to the surface layer would be most damaging to pollock eggs, and changes extending to deeper layers would have a greater effect on pollock larvae.

-2626-
AUTHOR(S): WALES, J.H.
YEAR: 1952
TITLE: Life History of the Blue Rockfish (Sebastodes mystinus)
PUB: Calif. Dept. of Fish and Game 38(4):485-498
ABSTRACT:

This study was carried out at Hopkins Marine Station of Stanford University, Pacific Grove, Calif. Work began in the summer of 1929, at which time 280 fish were tagged. Nothing more was done until June, 1930, when tagging was resumed for a few months along with regular sampling, which was continued for an entire year.

When the investigation was started, no work had been carried out on the life histories of the fishers of the Monterey Bay region and there was little or no knowledge of the seasonal changes in the physiochemical conditions of the waters. As a consequence, the investigators had no idea in regard to the difficulties inherent in the problem. As the work progressed and as the data of the hydrobiological survey of Hopkins Marine Station increased in number, the true problem began to be realized. The hydrographical work dislcosed that while the deeper waters of this region were characterized by a very distinct rhythm, the superficial waters were distinguished by the apparent lack of regularity in their changes.

-2627-
AUTHOR(S): WALL, J., R. FRENCH AND R. NELSON, JR.
YEAR: 1981
TITLE: Foreign Fisheries in the Gulf of Alaska, 1977-78
PUB: Mar. Fish. Rev. 43(5):20-35
ABSTRACT:

During 1977-78, 50 U.S. observers sampled on 61 foreign vessels in the Gulf of Alaska, covering 8.3% of the foreign effort in 1977 and 14.7% in 1978. Observer data were used in estimating a total foreign groundfish catch of nearly 200,000 tons in 1977 and about 165,000 tons in 1978. The predominant species caught both years and by all nations was walleye pollock, Theragra chalcogramma, wich made up 58-59 percent of the total foreign catch. In 1977, catch estimates of halibut and salmon were 413,000 and 5,270, respectively. The 1978 estimates were 293,000 halibut, 45,600 salmon, 94,000 king crab, and 24,000 snow crab.

-2628-
AUTHOR(S): WALLACE, M.M., C.J. PERTUIT AND A.R. HVATUM
YEAR: 1949
TITLE: Contribution to the Biology of the King Crab (Paralithodes camtschatica Tilesius)
PUB: US DOI FWS Leaflet 340, Washington, DC, 500 pp.
ABSTRACT:

The foregoing report gives the distribution of the King crabs, as encountered in the Alaska King crab investigations of 1940-41. Observations made on the general biology of P. camtschatica during this time are presented, including mating and molting habits, egg laying methods and frequency, development, size at sexual maturity, size occurrences, and migratory, habitat, and food studies. In addition, a brief statistical analysis of the relative growth of the crab as a part to part relationship is made. It is emphasized that the King crab fishery as a potential industry should have certain definite restrictive protection because of inherent biological reasons.

-2629-
AUTHOR(S): WALLACE, R.
YEAR: 1986
TITLE: Shrimp in Alabama
PUB: Alabama Sea Grant Advisory Service, Mobile, AL. Rep. Miss.-Ala. Sea Grant Consort., Grant No. NASGP-86-012, 6 pp.
ABSTRACT:
Alabama water contains 15 to 22 species of shrimp; but only three--the brown shrimp, the white shrimp, and the pink shrimp--are eaten and found in commercial quantities. The brown shrimp is by far the most abundant, the white shrimp less so, and the pink shrimp much less than the other two. Approximately 20.1 million pounds of the three shrimp were landed in Alabama in 1985 with an estimated dockside value of 35.8 million dollars.

-2630-
AUTHOR(S): WALLER, R.S.
YEAR: 1982
TITLE: Fishery Monitoring and Assessment: Other Target Species Monitoring and Assessment. Completion Report
PUB: Gulf Coast Research Laboratory, Ocean Springs, MS, Project No. 2-296-R, pp. V-1-1 through V-1-83
ABSTRACT:
Analysis was done on 13 additional species that were considered to be of importance in the commercial catch as forage species, sport fish, or as potentially exploitable species. This group contained Arius felis, Brevoortia patronus, Callinectes similis, Chloroscombrus chrysurus, Cynoscion nebulosus, Cynoscion nothus, Harenugula jaguana, Lolliguncula brevis, Menticirrhus americanus, Mugil cephalus, Peprilus burti, Trachypenaeus similis, and Trichiurus lepturus. In-depth discussion of these species was not undertaken as data analysis showed no appreciable differences in the general biology of these species over the last 5 years of the study as discussed in the first comprehensive report. This then should be considered as an update of that discussion. Presented with this data review are length-frequency determinations, temperature and salinity relationships, size and abundance as related to physical parameters and yearly catch variations.

-2631-
AUTHOR(S): WALLINE, P.D.
YEAR: 1981
TITLE: Distribution of Ichthyoplankton in the Eastern Bering Sea during June and July 1979
PUB: MNFS/NWAFC, Proc. Rep. 81-03
ABSTRACT:
Over the past several years ichthyoplankton surveys have been made in the eastern Bering Sea by the Northwest and Alaska Fisheries Center (NWAFC) for a variety of purposes (Waldron and Favorite, 1977; Waldron and Viner, 1978; Waldron, 1978). The main objective in these studies was to assess walleye pollock (Theragra chalcogramma) eggs and larvae to determine spawning times and location and to identify areas of high walleye pollock larval abundances. During the 1979 trawl and hydroacoustic survey of the adult walleye pollock population in the eastern Bering Sea, ichthyoplankton samples were taken to measure growth rates of field-caught larval walleye pollock by enumerating daily growth elsewhere (Walline, 1980). This report describes the distribution and abundance of the ichthyoplankton caught on the 1979 trawl and hydroacoustic survey of the eastern Bering Sea.

-2632-
AUTHOR(S): WALLINE, P.D.
YEAR: 1981
TITLE: Hatching Dates of Walleye Pollock (Theragra chalcogramma) and Vertical Distribution of Ichthyoplankton from the Eastern Bering Sea, June-July 1979
PUB: USDOC, NMFS/NWAFC, NWAFC, Proc. Rep. 81-05
ABSTRACT:
It has been suggested that larval fish survival depends on the availability of adequate food when larval yolk supply had been exhausted. To evaluate food availability, the spatial distribution of both food and larvae must be determined. In the Bering Sea quite a few cruises of varying quality have been made to determine seasonal and area distribution of ichthyoplankton (Waldron, 1979), but closing nets were almost never used, so with the exception of walleye pollock, information on the vertical distribution of fish larvae is lacking.

-2633-
AUTHOR(S): WALLINE, P.D.
YEAR: 1982
TITLE: Early Life History of Walleye Pollock in Eastern Bering Sea: A Summary and Reference List
PUB: NWAFC Proc. Rep. 82-09, 29 pp.
ABSTRACT:
This report surveys the current state of knowledge of the early life history of walleye pollock (Theragra chalcogramma) in the eastern Bering Sea. It is essentially a brief description of the topics for which some information is available, together with the list of references from which this summary was compiled.

-2634-
AUTHOR(S): WALSH, J.J.
YEAR: 1981
TITLE: Shelf-Sea Ecosystem
PUB: In: A.R. Longhurst, ed. Analysis of Marine Ecosystems. Academic Press, New York, pp. 159-196
ABSTRACT:
The author provides an overview of continental shelf ecosystems in a comparison of Oregon and New York - Georges Banks continental shelves. Carbon flux through both the pelagic and demersal food webs and the coupling of the two systems are discussed.

-2635-
AUTHOR(S): WALSH, J.J., C.D. WIRICK, D.A. DIETERLE AND A.G. TINGLE
YEAR: 1981
TITLE: Environmental Constraints on Larval Fish Survival in the Bering Sea
PUB: In: R. Lasker and K. Sherman, eds. The Early Life History of Fish: Recent Studies. Conseil Int. Explor. Mer, Copenhagen, pp. 24-27
ABSTRACT:
The critical period hypothesis assumes that many larvae die either directly from starvation or from other associated ills, such as increased vulnerability to predation. Since overall larval survivorship is so low, it is apparent that the survivors are selected individuals that have travelled exceptionally favorable paths through the resources and hazards of their environment. Extrapolating this hypothesis to real populations is difficult because larval metabolism, as well as distribution of resources and hazards

and the exact manner in which larvae encountered them, must all be described. Simulation models appear to be the most appropriate way to make this extrapolation to field studies. As an example of this approach, a numerical experiment is presented to illustrate the effect of advection and sub-grid scale diffusion on the distribution of eggs and larvae of Alaska pollock (Theragra chalcogramma), simulating 1) the drift of larvae mortality spawned at the proposed site; 2) the growth of these larvae; 3) the mortality processes acting upon them; and 4) their distribution, length, frequency, etc., which were to be observed in field investigations. Correspondingly, the simulation model consists of: 1) a circulation submodel, 2) a submodel to simulate the distribution of larvae within the flow field, and 3) a biological processes model for individual pollock larvae.

-2636-
AUTHOR(S): WALTERS, G.E.
YEAR: 1983
TITLE: An Atlas of Demersal Fish and Invertebrate Community Structure in the Eastern Bering Sea, Part 2, 1971-77
PUB: NOAA/NMFS/NWAFC, Seattle, WA. NOAA Tech. Memo. F/NWC-40, 152 pp.
ABSTRACT:

This report presents results from the second of two studies using cluster analysis techniques to investigate the community structure of demersal fish and invertebrates in the eastern Bering Sea. Annual summer trawl survey data for the years 1971-77 were used to describe apparent habitat areas and species associations, and to examine interannual variability.

-2637-
AUTHOR(S): WALTERS, G.E., ET AL.
YEAR: 1982
TITLE: An Atlas of Demersal Fish and Invertebrate Community Structure in the Eastern Bering Sea, Part 1, 1978-81
PUB: NOAA/NMFS/NWAFC, Seattle, WA. NOAA Tech. Memo. NMFS/NWC-35, 122 pp.
ABSTRACT:

This report presents the results of using numerical classification, i.e., "cluster analysis," techniques to investigate some of the qualitative characteristics of demersal fish and invertebrate community structure in the eastern Bering Sea. Summer trawl survey data from the 4 years, 1978-81, were used to examine relationships between species, describe apparent habitat areas, and measure the extent of interannual variability.

-2638-

AUTHOR(S): WALTERS, G.E., G.B. SMITH, P.A. RAYNORE, JR. AND W. HIRSCHBERGER
YEAR: 1985
TITLE: Studies of the Distribution and Abundance of Juvenile Groundfish in the Northwest Gulf of Alaska, 1980-82: Part II, Biological Characteristics in the Extended Region
PUB: NOAA/NMFS/NWAFC, Seattle, WA. NOAA Tech. Memo. NMFS F/NWC-77
ABSTRACT:

Juvenile groundfish were studied in the northwestern Gulf of Alaska to determine interannual variations in distribution and abundance, evaluate the feasibility of measuring year-class strengths, and obtain other information on this poorly understood life history stage. Bottom trawl data were collected in the late summer periods of 1980-82. This report describes results from the entire sampling coverage in each of the 3 years, including information on the

juvenile biology of fishes not discussed in the first report, and from other data collections and analyses.

-2639-
AUTHOR(S): WALTERS, V.
YEAR: 1955
TITLE: Fishes of Western Arctic America and Eastern Arctic Siberia
PUB: Bull. Amer. Mus. Nat. Hist. 106:255-368
ABSTRACT:
The ichthyofauna of western Arctic America has been studied the least of any major sectors of the northern polar regions, and that of Arctic Alaska the least of any equally great area of North America. Arctic Alaska is here considered to incude all land drained by streams flowing into the Arctic Ocean from Cape Prince of Wales on Bering Strait north and east to the Canadian border, and all coastal salt waters north of Cape Prince of Wales from longtitude 169 deg. W. east to 141 deg. W.

-2640-
AUTHOR(S): WALTZ, W., W.A. ROUMILLAT AND P.K. ASHE
YEAR:
TITLE: Distribution, Age Structure, and Sex Composition of the Black Sea Bass, Centropristis striata, Sampled Along the Southeastern Coast of the U.S.
PUB: South Carolina Wildl. and Mar. Res. Cent., Tech. Rep. No. 43, 18 pp.
ABSTRACT:
This study has provided back-calculated lengths at various ages using correction factors derived from functional and predictive regressions. Previous study statistics show that back-calculated lengths, using a predictive correction factor, are progressively too large at younger ages. In this study the use of functionally derived correction factors did reduce the back-calculated lengths for the young age groups. However, back-calculated lengths for age group 1 are probably too low to be considered realistic. Thirty-seven C. striata ranging in size from 45 mm SL (average x = 71 mm SL) sampled subsequent to this study revealed that the first annulus had not yet formed. Therefore, it is concluded that the use of a functionally derived correction factor in this study underestimated the back-calculated length in the younger age groups. Back-calculated lengths previously reported are larger than those reported here, especially for ages 1 and 2. The sampling design employed in this study provided a very representative picture of the black sea bass population in the South Atlantic Bight. Therefore, back-calculated lengths given here are probably a much closer approximation of the average size at age for black sea bass in this area than those of other studies.

-2641-
AUTHOR(S): WARD, D., R.S. ROBINSON AND G. NYE
YEAR: 1975
TITLE: 1975 Fisheries Statistical Report
PUB: Washington Dept. of Fisheries, Olympia, WA, 115 pp.
ABSTRACT:
This statistical report includes fish and shellfish landings and values by species, district, year, pounds, numbers, etc. Statistical trends for the last 40 years are discussed generally.

-2642-
AUTHOR(S): WARD, G.H. JR. AND N.E. ARMSTRONG
YEAR: 1980
TITLE: Matagorda Bay, Texas: Its Hydrography, Ecology and Fishery Resources
PUB: USFWS, FWS/OBS 81/52
ABSTRACT:
This report is a synthesis of the literature; it provides comprehensive descriptions of hydrology; marshes; seagrasses; lower food chains; fisheries; water quality; location, quantity, and quality of return flows; quantity and quality of ungaged inflows; and tabulation of commercial-recreational yield of fish and wildlife resources in the study area.

-2643-
AUTHOR(S): WARD, W.D. AND L.J. HAINES
YEAR: 1984
TITLE: 1984 Fisheries Statistical Report
PUB: Washington Dept. of Fisheries
ABSTRACT:
In 1984, Washington State commercial fishermen and growers landed 180 million pounds of fish and shellfish valued at 81.3 million dollars at ex-vessel prices, and 202.8 million dollars at wholesale. This poundage figure is the third highest on record for the State of Washington, having been exceeded only by the 1979 and 1982 harvests. Nationally, Washington ranked tenth among the states in pounds landed with 2.4% of the total. In value of fish products landed, Washington ranked ninth with 3.2% of the national total.

-2644-
AUTHOR(S): WARE, D.M.
YEAR: 1980
TITLE: Bioenergetics of Stock and Recruitment
PUB: Can. J. Fish. Aquat. Sci. 37(6):1012-1024
ABSTRACT:
A recruitment mechanism is proposed that two components, a stock-dependent process where individual reproductive effort is a decreasing function of the abundance of the mature stock, and a density-dependent mortality process which operates during the prerecruit stage. A generalized equation describing these processes yields a family of recruitment curves which vary from being asymptotic to dome-shaped, depending on the parameter values. The theory suggests that species like Atlantic herring (Clupea harengus harengus), which tend to have small density-dependent growth coefficients and which allocate most of their surplus energy to reproduction, should have a small terminal body size, a high length at maturity to L ratio, and a nearly asymptotic recruitment curve. By contrast, gadoids follow a different life history strategy and therefore should have a higher L and more convex recruitment function. These consequences are shown to be in accord with observed differences in L and with the graded series of recruitment curves found in a wide range of marine fish stocks. From a more general viewpoint, analysis of the energy dynamics of natural populations suggests that 1) there is a real as opposed to inferred limit to growth, L, which in many species is probably determined by their reproductive effort; 2) the increase in surplus energy with body size can be linked to the theory of optimal foraging; and 3) the intensity of density-dependent growth, which influences the shape of the recruitment curve, is an increasing function of the generation time of the prey organisms of different species.

-2645-
AUTHOR(S): WARNER, I.M. AND P. SHAFFORD
YEAR: 1981
TITLE: Forage Fish Spawning Surveys-Southern Bering Sea, Biological Studies, Vol. 10.
PUB: In: Environmental Assessment of the Alaskan Continental Shelf, Final Reports of Principal Investigators, US DOC/NOAA/OCSEAP, pp. 1-64
ABSTRACT:
Forage fish research in the Bering Sea was initiated in fiscal year 1976 under the auspices of Research Unit 19 as part of the Outer Continental Shelf Environmental Assessment Program, of the National Oceanographic and Atmospheric Administration. During that year field work began in May and continued until October. Field work consisted of aerial and ground truth investigations. Over a dozen temporary and permanent biological investigators were utilized by the Alaska Dept. of Fish and Game to carry on all activities under the overall project guidance of the Principle Investigator, Mr. Louis Barton, ADF&G, Anchorage.

-2646-
AUTHOR(S): WARREN, J.R.
YEAR: 1982
TITLE: Fishery Monitoring and Assessment: Industrial Bottomfish By-Catch Studies. Completion Report
PUB: Gulf Coast Research Laboratory, Ocean Springs, MS, Project No. 2-296-R, pp. II-2-1 through II-2-113
ABSTRACT:
Sampling was conducted on the traditional shrimping grounds in Mississippi Sound during the spring and summer of 1979, 1980, and 1981 (See Chapter I, Section 2). Sampling embraced periods both before and after the opening of the shrimp season in each year. Fish from those samples were utilized to ascertain the possible effects of shrimping activities on the principal groundfish species that are caught concurrently with commercial shrimp species. Those species included croaker, Micropogonias undulatus; spot, Leiostomus xanthurus; sand seatrout, Cynoscion arenarius, and silver seatrout, Cynoscion nothus, for the 1979 study and only croaker for the 1980 and 1981 study.

-2647-
AUTHOR(S): WARREN, J.R. AND F.C. SUTTER
YEAR: 1982
TITLE: Fishery Monitoring and Assessment: Industrial Bottomfish Monitoring and Assessment. Completion Report
PUB: Gulf Coast Research Laboratory, Ocean Springs, MS, Project No. 2-296-R, pp. II-1-1 through II-1-69
ABSTRACT:
The paper presents life history reviews for three species of industrial bottomfish, including: Micropogonias undulatus, Leiostomus xanthurus, and Cynoscion arenarium. Each review contains information on abundance, distribution, growth, and length-weight relationships.

-2648-
AUTHOR(S): WASHINGTON DEPARTMENT OF FISHERIES
YEAR: 1984
TITLE: 1983 Fisheries Statistical Report
PUB: Washington State Dept. of Fisheries, Olympia, WA, 99 pp.

ABSTRACT:
This booklet represents a statistical compilation of data summarizing Washington State's commercial fisheries for the year 1983. Pounds landed and their corresponding dollar values are listed for salmon, marine fish, and shellfish.

-2649-
AUTHOR(S): WASHINGTON, P.M.
YEAR: 1977
TITLE: West Coast Recreational Fisheries for Salmon
PUB: NOAA/NMFS/NWAFC, Seattle, WA
ABSTRACT:
Recreational or sport fisheries for Pacific salmon are conducted along the West Coast of North America from central California north to Alaska's Arctic region. Salmon angling along the West Coast has increased in magnitude and stature since the early 1880's. The sport has grown from a few trollers off Monterey, California to over 4 million angler days of effort annually in Washington-Oregon alone.

-2650-
AUTHOR(S): WATHNE, F. AND H.C. JOHNSON
YEAR: 1959
TITLE: Shrimp Exploration in Central Alaskan Waters by M/V John N. Cobb, Oct.-Nov., 1959
PUB: Comm. Fish. Rev. 23(1):1-8
ABSTRACT:
To assess the commercial potential of the shrimp populations of central Alaska during the fall season, the U.S. Bureau of Commercial Fisheries research vessel John N. Cobb conducted exploratory fishing operations in that area from Oct. 14-Nov. 13, 1959. During the cruise, 101 shrimp-trawl drags were made using a 40/43-foot Gulf of Mexico type shrimp trawl. Shrimp catches were poor throughout the area investigated. A commercial potential was uncovered only in a few drags--west of Seal Rocks, along the western shore of the outer portion of Day Harbor, and outside Whidbey Bay--where catch rates of from 550 to 660 pounds of heads on shrimp per hour were acheived.

-2651-
AUTHOR(S): WATSON, J.W., JR. AND I.K. WORKMAN
YEAR: 1984
TITLE: Configurations and Relative Efficiencies of Shrimp Trawls Employed in Southeastern U.S. Waters
PUB: NOAA/NMFS/NOAA Tech. Rep. NMFS 3, 12 pp.
ABSTRACT:
A description of the construction techniques for the different designs indicate differences that affect gear performance. Measurements of horizontal spread and vertical opening for 76 trawl configurations indicate the relative efficiencies of the different designs.

-2652-
AUTHOR(S): WATTS, N.H. AND G.J. PELLEGRIN
YEAR: 1982
TITLE: Comparison of Shrimp and Finfish Catch Rates and Ratios for Texas and Louisiana
PUB: Mar. Fish. Rev. 44(9-10):44-49

ABSTRACT:

A comparsion was made between 1980 and 1981 commercial fishing to judge the effects of the 1981 Texas closure on shrimp and finfish catches off Texas and Louisiana. Historical data (1973-78) for the two areas were made as baselines, and comparisons were made of finfish/shrimp catch ratios and species composition. Mean shrimp catch rates (head-on) standarized to 100-foot trawls for Texas and Louisiana in 1980 were 42.56 pounds/hr. and 42.53 pounds/hr., respectively, and in 1981 were 89.03 pounds/hr. and 62.20 pounds /hr. Mean finfish catch rates for Texas and Louisiana in 1980 were 333.90 pounds/hr. and 242.84 pounds/hr., respectively, and in 1981 were 156.19 pounds/hr. and 408.88 pounds/hr. Average finfish/shrimp ratios for Texas were 12.94 in 1980 and 2.55 in 1981. For Louisiana, the average finfish/shrimp ratios were 22.15 in 1980 and 37.23 in 1981.

-2653-
AUTHOR(S): WEBER, D.D. AND H.H. SHIPPEN
YEAR: 1975
TITLE: Age, Length, Weight and Distribution of Alaska Plaice Rock Sole and Yellowfin Sole Collected from the Southeastern Bering Sea in 1961
PUB: U.S. Natl. Mar. Fish. Serv. Fish. Bull. 73(4):919-924
ABSTRACT:

In July-Aug. 1961, personnel of the Bureau of Commercial Fisheries (now NMFS) conducted a trawl survey of the southeastern Bering Sea. This survey, although conducted principally to estimate the abundance of Alaska king crab, Paralithodes spp., provided an opportunity to sample several flatfish species. Biological information on the distribution, age, length, and weight by sex are presented for commercially important species of Bering Sea flatfish: yellowfin sole, Limanda aspera (Pallas); rock sole, Lepidopsetta bilineata (Ayres); and Alaska plaice, Pleuronectes quadrituberculatus Pallas.

-2654-
AUTHOR(S): WEINBERG, K.L., M.E. WILKINS AND T.A. DARK
YEAR: 1984
TITLE: The 1983 Pacific West Coast Bottom Trawl Survey of Groundfish Resources: Estimates of Distribution, Abundance, Age and Length Composition
PUB: NOAA/NMFS, NOAA Tech. Memo. NMFS-F/NWC-70, 376 pp.
ABSTRACT:

The Northwest and Alaska Fisheries Center conducted a bottom trawl survey during July-Oct., 1983, the third in a series of triennial assessment surveys of Pacific whiting and important continental shelf rockfish species. Two chartered bottom trawl vessels were developed in the area from Monterey Bay, Calif., to Estevan Point on Vancouver Island, British Columbia. This report describes the sampling and analytical methods used and summarizes the data collected during the bottom trawl survey.

-2655-
AUTHOR(S): WEINSTEIN, M.P.
YEAR: 1978
TITLE: Larval Retention Study, Cape Fear River - 1978
PUB: Carolina Power And Light Company, North Carolina, Brunswick Steam Electric Plant Cape Fear Studies, (Unpublished Tech. Rep.)
ABSTRACT:

Data are presented which demonstrate that the headwaters of the Cape Fear River estuary (CFE) is a zone of accumulation for postlarval fishes of several species. Apparently the salt boundary delineates this zone, albeit certain

species (e.g., flounder) are capable of penetrating freshwater in large numbers. By exhibiting behavioral patterns with respect to photoperiod and tide, these organisms are able to: 1) rapidly accumulate in upstream nurseries by utilizing net nontidal flows in the lower layer of the water column, 2) make strong lateral movements into the marsh nurseries by migrating to the surface on flood tide at night, and 3) stay in both of these primary nurseries by dropping lower in or effectively out of the water column on ebb. The tidal response may be particularly important in well-mixed estuaries where upstream drift in the lower layers is negligible. In fact, it might be the primary mechanism employed by postlarvae to penetrate estuaries and reach suitable nursery habitats.

-2656-
AUTHOR(S): WEINSTEIN, M.P.
YEAR: 1979
TITLE: Shallow Marsh Habitats as Primary Nurseries for Fishes and Shellfish, Cape Fear River, North Carolina
PUB: U.S. Nat. Mar. Fish. Serv. Fish. Bull. 77(2):339-335
ABSTRACT:

Seine and rotenone collections taken in 1977 from the upper reaches of tidal creeks and along the marsh fringe near the Cape Fear River indicated that these areas serve as primary nursery habitats for postlarval and juvenile fish and shellfish. Average densities (number/400 m2) for the following ocean-spawned species at the peak of postlarval or early juvenile recruitment were high: spot, Leiostomus xanthurus, 3,099; Atlantic menhaden, Brevoortia tyrannus, 839; striped mullet, Mugil cephalus, 711; white mullet, Mugil curema, 525; and brown shrimp, Penaeus aztecus, 329. Standing crops for the majority of species studied further indicated that lower productivity per unit area occurred in high salinity marshes closest to the ocean. Distribution patterns for several species were significantly correlated with salinity and substrate characteristics or combinations of them, and seasonal effects also were evident so that related and potentially competing species were separated temporally. Community analyses demonstrated that each marsh complex was unique; however, overall similarity for the most abundant species was high. The differences were related to salinity gradients and to the presence of an "edge effect" where marshes closest to the river mouth were species rich due to seasonal invasion by low densities of reef, nearshore, and shelf marine species. Similarly, freshwater fish invaded brackish marshes during periods of high river flow.

-2657-
AUTHOR(S): WEINSTEIN, M.P.
YEAR: 1981
TITLE: Plankton Productivity and the Distribution of Fishes on Southeastern U.S. Continental Shelf
PUB: Science 214:351-352
ABSTRACT:

In the South Atlantic Bight there are generally two periods of annual abundance of phytoplankton associated with the spawning of nearshore marine and estuarine species. A summer and early fall peak is associated with the presence of primarily anchovies and gobies. A second peak normally occurs in winter and early spring and is coincident with the spawning of spot, menhaden, pinfish, striped mullet, Atlantic croaker, and flounder. This phenomenon regarding the winter peak of primary productivity and zooplankton abundance seems to correlate well with the seasonal abundance of winter-spawned larvae and may afford survival value during their initial period of critical feeding.

Of particular interest for future research efforts is the role winter storms play as density-independent regulators of larval fish populations and ultimate year-class success.

-2658-
AUTHOR(S): WEINSTEIN, M.P. AND H.A. BROOKS
YEAR: 1983
TITLE: Comparative Ecology of Nekton Residing in a Tidal Creek and Adjacent Seagrass Meadow Community Composition and Structure
PUB: Mar. Ecol. Prog. Ser. 12(1):15-28
ABSTRACT:

A structural analysis of the nekton communities occupying a tidal creek and adjacent seagrass meadow at Vaucluse Shores, Virginia (Delmarva Peninsula) is presented along with a comparison of the relative value of each habitat to the early life stages of marine and estuarine species. Seagrass meadows were characterized by significantly greater richness and diversity of constituent taxa; both areas contained mixtures of habitat specialists and wide-ranging (ubiquitous) species that displayed no areal preferences. Except for a few resident forms, much of the nekton community in the grassbed was comprised of less abundant southern species that entered the Chesapeake Bay in late summer and fall. Reciprocal averaging and numerical classification procedures applied to pooled station collections further indicated the clinical nature of species distributions among habitats, and also clearly demonstrated several microhabitat associations for either the Zostera marina or Ruppia maritima portions of the grassbed. The sciaenid, Leiostomus xanthurus, dominated the nekton in both habitats, with > 80% of all individuals but were nearly 4 times as abundant in the tidal creek. Abundance distribution and length frequency anlayses for this species indicated that the marsh is the preferred habitat and also that larger individuals in the population continuously bled off into downstream areas. Two other species of regional importance, Callinectes sapidus and Paralichthys dentatus, also utilized both habitats extensively. Late in summer and early fall, juveniles of both species were more abundant in the grassbed; earlier in the year, they were randomly dispersed. The apparently limited dependence on both the grassbed and tidal creek by the young of local taxa is strikingly different when compared to similar habitats at lower latitudes. In light of the differences established between these habitats and their utilization by different species, an attempt is made to identify potentially important determinants of community structure and relate these to the success of individual populations in both areas. Because few experimental data are available, this presentation, by necessity, is hypothetical.

-2659-
AUTHOR(S): WEINSTEIN, M.P., S.L. WEISS, R.G. HODSON AND L.R. GERRY
YEAR: 1980
TITLE: Retention of Three Taxa of Postlarval Fishes in an Intensively Flushed Tidal Estuary, Cape Fear River, North Carolina
PUB: Fish. Bull. 78(2):419-436
ABSTRACT:

Fixed nets were used to sample postlarvae of spot, Leiostomus xanthurus, Atlantic croaker, Micropogonias undulatus, and lefteye flounders, Paralichthys spp., over several 24-hour periods in the Cape Fear River, near Wilmington, North Carolina. Results of analyses of variance on abundance data collected at two locations indicated that these taxa exhibit distinct

behavioral responses, primarily to photoperiod and tide, which allow them to maintain a selected position in the estuary and avoid being flushed seaward.

-2660-
AUTHOR(S): WEIXELMAN, M.G.
YEAR: 1981
TITLE: The Spotted Seatrout (Cynoscion nebulosus) Winter Wade/Bank Fishery in Selected Areas of Galveston, Matagorda and Aransas Bays, Texas, December 1980-February 1981
PUB: Texas Parks and Wildlife Dept. and U.S. Dept. of Commerce, NOAA/NMFS under PL 88-309, Project No. 2-310-R-4, 22 pp.
ABSTRACT:
From December 1980 through February 1981, six deep and/or warm water sites were surveyed in Galveston, Matagorda, and Aransas Bays to determine the harvest and catch rates for spotted seatrout (Cynoscion nebulosus). The estimated harvest ranged from 382 fish in Matagorda Bay to 6,265 fish in Aransas Bay. Catch rates ranged from 0.10 spotted seatrout/manhour in Matagorda Bay to 0.80 spotted seatrout/manhour in Aransas Bay. The majority of the fishermen in this survey were specifically fishing for spotted seatrout, and their catch rate of spotted seatrout was greater (0.1-0.26 fish/manhour) than that of wade/bank fishermen as reported in other Texas Parks and Wildlife Department surveys. Almost all spotted seatrout were caught on artificial baits and live shrimp.

-2661-
AUTHOR(S): WELLER, G.
YEAR: 1976
TITLE: Outer Continental Shelf Enivronmental Assessment Program in the Beaufort Sea
PUB: Arct. Bull. 2(9):125-142
ABSTRACT:
Objectives of the research program are outlined. Topography, biotic resources, and human occupancy of the area are also outlined. Areas of investigation include marine mammals, birds, fish, benthos, littoral biota, plankton, microbiology, the sea ice habitat, chemistry, water mass movement, ice dynamics, etc. Results will be integrated to provide a picture of the marine ecosystem in this area.

-2662-
AUTHOR(S): WELSH, W.W. AND C.M. BREDER
YEAR: 1924
TITLE: Contributions to the Life Histories of Sciaenidae of the Eastern U.S. Coast
PUB: Bull. U.S. Bur. Fish. 39:141-201
ABSTRACT:
This paper attempts to bring together facts concerning the life histories of the family Sciaenidae found on the Atlantic coast of the U.S. The greater part of the material upon which this paper is based consists of collections and records made by the vessels and stations of the Bureau of Fisheries, and the acquisition of most of it was incidental to other work.

-2663-
AUTHOR(S): WENNER, C.A. AND T.H. READ
YEAR: 1979
TITLE: Cluster Analysis of Trawl Collected Depacod Crustacea from the South Atlantic Bight
PUB: South Carolina Wildl and Mar. Res. Center, Tech. Rep. No. 5, 26 pp.
ABSTRACT:
The decapod Crustacea of the Carolinian shelf province, extending from Cape Hatteras, North Carolina, to Cape Canaveral, Florida, have been the subject of numerous systematic and ecological accounts, although few species have been studied in detail and information on the spatial and temporal distributional patterns of multispecies assemblages of Decapoda from the South Atlantic Bight is lacking. This is not surprising in view of the extensive collecting efforts needed to reveal latitudinal as well as bathymetric patterns of distribution on a seasonal basis within such a large geographic area. Through samples collected as part of the Marine Resources Monitoring Assessment and Prediction Program (MARMAP), it was possible to collect data to supplement previously published information about the ecology of decapod Crustacea from the South Atlantic Bight.

-2664-
AUTHOR(S): WENNER, C.A., C.A. BARANS, B.W STENDER AND F.H. BERRY
YEAR: 1979
TITLE: Results of MARMAP Otter Trawl Investigations in the South Atlantic Bight. I Fall 1973
PUB: Wildl. Mar. Resour. Dept., Charleston, SC, Tech. Rep. No. 33, 79 pp.
ABSTRACT:
Numbers and biomass of individual species of fish by depth zones and stations are reported.

-2665-
AUTHOR(S): WENNER, C.A., W.A. ROUMILLAT AND C.W. WALTZ
YEAR: 1986
TITLE: Contributions to the Life History of Black Sea Bass, Centropristis striata, off the Southeastern U.S.
PUB: Fish. Bull. 84(3):723-742
ABSTRACT:
Ages of black sea bass, Centropristis striata, from the South Atlantic Bight were determined from otoliths. Analysis of marginal increments showed that annulus formation occurred in April-May. The von Bertalanffy growth equation derived back-calculated mean standard lengths at age was $l_t = 341$ where t is age in years and l = standard length at age. The oldest fish was age 10.

-2666-
AUTHOR(S): WENNER, E.L., M.H. SHEALY, JR. AND P.A. SANDIFER
YEAR: 1982
TITLE: A Profile of the Fish and Decapod Crustacean Community in a South Carolina USA Estuarine System Prior to Flow Alteration
PUB: NOAA/NMFS, NOAA Tech. Rep., NMFS SSRF 0 (757), pp. 1-17
ABSTRACT:
The seasonal distribution and abundance of fishes and decapod Crustacea collected by 6-m otter trawl from the North and South Santee Rivers, South Carolina, were examined over a 2-year sampling period. Species richness was greatest during summer and at stations located in proximity to the river mouths. Although species richness was found to be related to salinity,

temperature, depth, and dissolved oxygen, it was most noticeably affected by a spring freshnet which considerably lowered richness of abundance. Eleven species that accounted for 93% of the number and approx. 70% of the total fish biomass taken in both rivers were Micropogonias undulatus, Anchoa mitchilli, Bairdiella chrysoura, Stellifer lanceolatus, Ictalurus catus, Cynoscion regalis, Dorosoma petenense, Leiostomus xanthurus, Trinectes maculatus, Brevoortia tyrannus and Symphurus plagiusa. White shrimp, Penaeus setiferus, brown shrimp, P. aztecus, and blue crabs, Callinectes sapidus, comprised over 96% by number and weight of the decapod fauna collected in both rivers. Dominant fishes were present in fairly equal abundance throughout the year and utilized the Santee system as either a residential or nursery area, while P. setiferus and P. aztecus were more seasonal in their pattern of appearance and abundance. Length-frequency analysis showed the Santee system fish fauna to be composed mostly of juvenile specimens. Their presence throughout the year indicated that the Santee is a temporally stable and relatively nonstressed system and an important nursery area. The predominance of juveniles accounted for lower biomass (kg/ha) of fishes in the Santee system compared to values for other estuaries along the Atlantic coast of the U.S. The continued importance of juvenile fishes and shrimp in the Santee system is questionable in view of salinity changes in the nursery habitat following proposed river rediversion.

-2667-
AUTHOR(S): WESPESTAD, V.G.
YEAR: 1978
TITLE: Exploitation, Distribution, and Life History Features of Pacific Herring in the Bering Sea
PUB: NMFS, NW and Alaska Fish. Center, Seattle, WA, Processed Report
ABSTRACT:

Herring in the eastern Bering Sea winter in the continental slope northwest of the Pribilof Islands and migrate to the Alaska coast in spring. During the summer, herring either remain inshore or are widely scattered in small schools. In the autumn, larger schools form and move to the continental slope. The herring appear to be divided into four major spawning groups: Norton Sound, Nelson Island, Togiak, and Alaska Peninsula. Within these groups there may be one to several spawning stocks. The Togiak group appears to be the largest of the four groups in terms of biomass.

-2668-
AUTHOR(S): WESPESTAD, V.G.
YEAR: 1982
TITLE: Cohort Analysis of Catch Data on Pacific Herring in the Eastern Bering Sea, 1959-81
PUB: NMFS, NOAA Tech. Memo., Seattle, WA, 21 pp.
ABSTRACT:

Cohort analysis (Pope 1972) was used to examine the abundance of Pacific herring (Clupea harengus pallasi) in the eastern Bering Sea between 1959 and 1981. The results of the analysis show that herring abundance declined through the 1960's, going from a high of 1.7 million tons in 1962 to 153 thousand tons in 1973. Since 1973, herring abundance has been increasing.

-2669-
AUTHOR(S): WESPESTAD, V.G. AND J.M. TERRY
YEAR: 1984
TITLE: Biological and Economic Yields for Eastern Bering Sea Walleye Pollock Under Differing Fishing Regimes
PUB: N. Am. J. Fish. Manage. 4(2):204-215
ABSTRACT:
The commercial fishery for walleye pollock (Theragra chalcogramma) in the eastern Bering Sea is the most productive fishery in the U.S. fishery conservation zone; the total catch exceeded 1 million tons in 1982. A bioeconomic simulation was conducted to evaluate the alternative management strategies. The simulation model was an age-structured population model to which economic functions were added. The fishery regime that the simulations indicated provides the greatest cumulative discounted profit is the current fishing regime at a harvest of 1.9 million tons, followed by the surimi and small fillet fisheries at 1.7 million tons, and lastly the large fillet fishery at 1.2 million tons.

-2670-
AUTHOR(S): WESPESTAD, V.G. AND L.H. BARTON
YEAR: 1981
TITLE: Distribution, Migration and Status of Pacific Herring
PUB: In: The Eastern Bering Sea Shelf: Oceanography and Resources, Vol. 1, pp. 509-525
ABSTRACT:
Pacific herring are an important part of the Bering Sea food web and form the basis of a major commercial fishery. Until recently Japan and the USSR have been major exploiters of herring. Catch peaked in the early 1970's at 145,579 mt and then declined in response to overfishing and poor recruitment. Recently herring abundance has increased, and the U.S. has become the dominant exploiter.

-2671-
AUTHOR(S): WESPESTAD, V.G., R. NELSON AND B. GIBBS
YEAR: 1982
TITLE: Distribution of Groundfish Catches of the Foreign Trawl and Longline Fisheries in the Eastern Bering Sea and Gulf of Alaska, 1977-80
PUB: NOAA/NMFS, NOAA Tech. Memo., NMFS F/NWC-31
ABSTRACT:
This report summarizes the foreign reported catch from the Bering Sea and Gulf of Alaska for 1977-81. Annual catches are presented in maps which give catch by species for trawl or longline gear. Catch data are also contained in tables which present catch position, and annual and quarterly catch by species.

-2672-
AUTHOR(S): WESTIN, D.T., K.J. ABERNETHY, L.E. MELLER AND B.A. ROGERS
YEAR: 1979
TITLE: Some Aspects of Biology of the American Sand Lance, Ammodytes americanus
PUB: Trans. Am. Fish. Soc. 108:328-331
ABSTRACT:
The length-weight relationship for Ammodytes americanus sampled from the New England Coast was determined and compared to the reationship for five other sand lance species available from the literature. Postspawning A. americanus females weighed up to 45% less than prespawning females of the same

length. The relationship between fecendity (F, number of eggs/female) and fork length (L, cm) is log 10 F = 3.857 log 10 L-0.484. Ovarian egg diameters were unimodal, which suggests once a year spawning for this species.

-2673-
AUTHOR(S): WESTRHEIM, S.J.
YEAR: 1970
TITLE: Survey of Rockfishes, Especially Pacific Ocean Perch in the Northeast Pacific Ocean, 1963-1966
PUB: J. Fish. Res. Bd. Can. 27(10):1781-1809
ABSTRACT:

During 1963-66 a trawl and echo-sounder survey was conducted in the northeast Pacific Ocean to investigate the distribution and abundance of rockfish species, particularly Pacific ocean perch, inhabiting the outer continental shelf and upper continental slope from Cape Blanco, Oregon, to Unalaska Island, Alaska. Rockfish predominated in most trawl catches. Among areas, numbers of rockfish species declined 80-139 fath (146-254 m). With rare exceptions, Pacific ocean perch was the predominant rockfish species in the trawl catches throughout the study area, although its relative abundance declined from north to south.

-2674-
AUTHOR(S): WESTRHEIM, S.J. AND A.R. MORGAN.
YEAR: 1963
TITLE: Results from Tagging a Spawning Stock of Dover Sole, Microstomus pacificus
PUB: Pac. Mar. Fish. Comm. Bull. 6:13-21
ABSTRACT:

The purpose of this study was to tag a spawning stock of Dover sole, Microstomus pacificus, to obtain information on seasonal migrations (if any). This study was conducted in Willapa Deep of Willapa Bay, Washington. Tagging was conducted on two discrete fishing grounds about 10 miles apart. In Area A, 1,559 Dover sole were tagged and 206 (13.2%) were recovered; whereas in Area B, 847 were tagged and 54 (6.4%) were recaptured. Tagging revealed that most fish did not migrate extensively away from the tagging area throughout a 7-year period of recapture. Most fish (97.3%) were captured less than 30 miles from the tagging area. Maximum migrations were 110 miles north to southern Vancouver Island and 360 miles south to northern California. Tagged fish did exhibit a seasonal offshore-inshore migration. Fish were caught inshore at 30-60 fathoms during June-September and offshore at 180-300 fathoms during Nov.-April. For Area A, the mean size at tagging was 420 mm and 422 mm at recovery. For Area B, the mean size at tagging was 427 mm and 434 mm for recovered fish. Offshore areas recovered a high percentage of males (76-86%), whereas inshore areas recovered only 44-49% males. The high ratio of males is probably due to the fact that tagging took place late in the spawning season, since they tend to linger on in the spawning area after the females have left.

-2675-
AUTHOR(S): WESTRHEIM, S.J., D.R. GUNDERSON AND J.M. MEEHAN
YEAR: 1972
TITLE: On the Status of Pacific Ocean Perch (Sebastes alutus) Stocks off British Columbia, Washington, and Oregon in 1970
PUB: Fish. Res. Bd. Can., Tech. Rep. 326, 48 pp.
ABSTRACT:

The fishery for Sebastes alutus was initiated in 1946 by U.S. trawlers operating off central Oregon. By 1953, the fishing area of Canadian and U.S.

vessels extended from Oregon to British Columbia. Through 1965, United States trawlers accounted for the bulk of the production. About 1960, the Japanese and Soviet trawl fisheries for Pacific ocean perch began in the Bering Sea. By 1963, they had expanded southward and eastward into the Gulf of Alaska, and by 1966 they were operating off British Columbia, Washington, and Oregon. Since 1966, Pacific ocean perch production has fallen disastrously in two of the three major fishing areas. The purpose of this report is to assess the status of the Pacific ocean perch stocks occupying the British Columbia-Oregon region.

-2676-
AUTHOR(S): WHALE, R.J. AND R.E. PEARSON
YEAR: 1987
TITLE: A Listing of Pacific Coast Spawning Streams and Hatcheries Producing Chinook and Coho Salmon with Estimates on Numbers of Spawners and Data on Hatchery Releases
PUB: Pacific Marine Fisheries Commission, Portland, OR, 109 pp.
ABSTRACT:

Information on chinook, Oncorhynchus tshawytscha, and coho, O. kisutch, salmon spawning streams and hatcheries along the West Coast of North America was compiled following extensive consultations with fishery managers and biologists and thorough review of published and unpublished information. Included are a listing of all spawning streams known as of 1984-85, estimates of the annual number of spawners observed in the streams, and data on the annual production of juvenile chinook and coho salmon at all hatcheries.

-2677-
AUTHOR(S): WHEATLAND, S.B.
YEAR: 1956
TITLE: Oceanography of Long Island Sound, 1952-1954. VII. Pelagic Fish Eggs and Larvae
PUB: Bull. Bingham Oceanogr. Collect. Yale Univ. 15:234-314
ABSTRACT:

The pelagic fish eggs and larvae of Long Island Sound, obtained in weekly oblique plankton tows from March 1952 until March 1954, are discussed in detail. An annotated list of 23 spawning identifiable species, plus an unidentifiable one, contains pertinent information on spawning seasons, identification and measurements of eggs and larvae, their distribution, etc. Information derived from previous surveys is compared with that from 1952-1954. The physical and biological factors that may influence the abundance of eggs and larvae as well as a variety of explanations for the decrease in egg diameter of species with long spawning seasons are also presented.

-2678-
AUTHOR(S): WHEELER, J.P. AND G.H. WINTERS
YEAR: 1984
TITLE: Homing of Atlantic Herring (Clupea harengus harengus) in Newfoundland Waters as Indicated by Tagging Data
PUB: Can. J. Fish. Aquat. Sci. 41(1):108-117
ABSTRACT:

An extensive tagging program was carried out on the herring populations along the east coast of Newfoundland during the 1970's as a basis for defining stock management units. The resulting tag recapture data have been examined in relation to the hypothesis that the majority of Atlantic herring (Clupea, harengus harengus) return to the same area to spawn in successive

years. The authors analyses support this hypothesis and indicate that homing rates for Atlantic herring are high (approximately 90%). They concluded that herring fisheries restricted to spawning fish would allow a more rational distribution of fishing effort such that individual spawning stocks could be exploited in varying fashion according to the desired management objectives.

-2679-
AUTHOR(S): WHITAKER, J.D.
YEAR: 1984
TITLE: Effect of Severe Winter Weather on White Shrimp Stocks in the Atlantic Ocean off the Southeastern United States
PUB: J. Shellfish Res. 4(1):103-104
ABSTRACT:
The winter's effect on the shrimp population appears to be related to duration of cold temperatures, lowest temperature, and salinity. The lowest landings since 1950 have followed the severe winters of 1963 and 1977, while above average landings have followed mild winters. Subadult white shrimp, 80-110 mm total length, remain in the estuarine and nearshore waters during mild winters and make up the bulk of the spring spawning population. When severe winters cause mass mortalities of overwintering shrimp, the Carolinas are dependent on spawning by large shrimp that migrate north from the warmer waters of southern Georgia and northeastern Florida.

-2680-
AUTHOR(S): WHITE, J.R.
YEAR: 1986
TITLE: The Striped Bass Sport Fishery in the Sacramento-San Joaquin Estuary, 1969-1979
PUB: Calif. Fish Game 72(1):17-37
ABSTRACT:
The fishery for striped bass in the Sacramento-San Joaquin Estuary is described from tag returns and a bay-area creel census. Annual harvest averaged 18% and was higher for bass > age 5. Annual catch ranged from about 100,000 to 400,000 fish and declined after 1976. Angler effort and success (catch/ang h) also declined in the late 1970's. The catch varied both seasonally and geographically; 80% of the catch occurred from May through November, mostly in San Francisco Bay. Private boat anglers took 65% of the catch, shore/pier anglers took 21%, and charter boat anglers 14%. Fork length of bass in the catch averaged 65.1 cm, but exhibited a downward trend and varied among segments of the fishery. Age 3, 4, and 5 bass comprised two-thirds of the catch; age 4 typically was the most numerous group. Female bass were more numerous than males in the bay area catch in 10 of 11 years. Trends and anomalies in these data are discussed in relation to striped bass population characteristics, environmental factors, and methodological bias.

-2681-
AUTHOR(S): WHITE, M.L. AND M.E. CHITTENDEN, JR.
YEAR: 1976
TITLE: Aspects of the Life History of the Atlantic Croaker, Micropogon undulatus
PUB: Texas A&M, Sea Grant Publ. No. TAMU-SG-76-205, College Station, TX, 55 pp.
ABSTRACT:
A validated scale method of age determination is described for the Atlantic croaker, Micropogonias undulatus. Two age classes were generally observed, but one was abundant. Mean total lengths were 155-165 mm at age 1

and 270-280 mm at age 2 based on 3 months of growth estimation. Fish matured near the end of their first year of life when they were about 140-170 mm in total length. Spawning occurred from at least September through March but reached a peak in October. Somatic weight-length relationships varied monthly, and changes appeared to be associated with maturation and spawning. Somatic weight reached a maximum in June, and the minimum was observed in March. Maximum somatic weight loss (24%) occurred in March, but no data were obtained from December through February. In estuaries, age 0 croaker appeared to occupy soft-substrate habitat and older fish occurred near oyster reefs. Life spans were only 1 or 2 years, and the total annual mortality rate was 96%. The above life history pattern appears similar for croaker found throughout the Carolinian Province. Contrasts are presented to illustrate differences in the life histories of croaker found north and south of Cape Hatteras, NC.

-2682-
AUTHOR(S): WHITE, M.L. AND M.E. CHITTENDEN, JR.
YEAR: 1977
TITLE: Age Determination, Reproduction and Population Dynamics of the Atlantic Croaker, Microponias undulatus
PUB: NMFS Fish Bull. 75:109-123
ABSTRACT:

A validated scale method of age determination is described for the Atlantic croaker. Two age-classes were usually observed, but only one was abundant. Mean total lengths were 155-165 mm at age 1 and 270-280 mm at age 2 based on three methods of growth estimation. Fish matured near the end of their first year of life when they were about 140-170 mm total length. Spawning occurred from at least Sept.-March, but there was a distinct peak about Oct. Somatic weight-length relationship varied monthly, and changes appeared to be associated with maturation and spawning. Somatic weight reached a maximum in June, and the minimum was observed in March. Maximum somatic weight loss (24%) occurred in March, but no data were obtained from Dec.-Feb.

-2683-
AUTHOR(S): WHITEHEAD, P.J.P.
YEAR: 1985
TITLE: King Herring: His Place Amongst the Clupeoids
PUB: Can. J. Fish. Aquat. Sci. 42(suppl. 1):3-20
ABSTRACT:

Modern taxonomy, fishery science, and biology were born in Europe. This, together with the long-standing economic importance of the herring, has given Clupea harengus (and its close relative C. pallasi) a prestige and literature that quite outshadows those of any other clupeoid species. In fact, the two species of Clupea contribute about 9% to world clupeoid catches, coming forth in the 20 economically important clupeoid genera. They belong to a group, the suborder Clupeoidei, with about 80 genera and over 330 species, with a long evolutionary history reaching back to the Cretaceous. The majority of these clupeoid species live in tropical or subtropical waters, where their fisheries are extensive; in total, the clupeoids are economically the most important single fish group, contributing up to one-third of all fish catches.

-2684-
AUTHOR(S): WHITEHEAD, P.J.P.
YEAR: 1985
TITLE: FAO Species Catalogue. Vol. 7. Clupeoid Fishes of the World (suborder Clupeoidei)
PUB: FAO/UNDP, Rome, Italy, FAO Fish. Synopses, Vol. 7, 303 pp.
ABSTRACT:

This is the seventh in the FAO series of worldwide illustrated catalogues (synposes) of major groups of organisms that enter marine fisheries. The present catalogue includes all clupeoid fishes (suborder Clupeoidei--herrings, sardines, pilchards, sprats, shads, anchovies, and wolf-herrings), comprising four families, subfamilies, and genera, with a glossary of technical terms and measurements, and a review of major literature sources within each FAO fishing area. Genera and species are diagnosed, with drawings, scientific and vernacular names, information on habitat, biology, fisheries, and distribution (with map); reference is also made to subspecies and to any taxonomic or other problems. The occurrence of the species within the FAO fishing areas is tabulated. All scientific names applied to clupeoid species are given in the synonymies, and these as well as the vernacular names are indexed; there is also a complete bibliography of all literature cited.

-2685-
AUTHOR(S): WHITEHURST, J.H.
YEAR:
TITLE: The Menhaden Fishing Industry in North Carolina
PUB: East Carolina Univ., Greenville, NC, Unpublished Master's thesis, 101 pp.
ABSTRACT:

The purpose of this study to to present an analysis of the North Carolina menhaden fishing industry, which exemplifies to a high degree the menhaden industry as practiced along both the Atlantic and Gulf coasts of the U.S. The approach is geographical; that is, the paper concerns mainly the spatial distribution and interrelationships of certain, selected aspects of the industry. Major emphasis is placed on the locational factors associated with the resource base, and the early and contemporary fisheries.

-2686-
AUTHOR(S): WICKHAM, D.E.
YEAR: 1976
TITLE: Observations on the Inshore Population of Dungeness Crabs in Bodega Bay
PUB: Calif. Fish Game 62(1):89-92
ABSTRACT:

Sampling by the Calif. Fish and Game Dept. of the Dungeness crab, Cancer magister Dana, population in Bodega Bay, Calif., indicates that the bay is an important nursery area for newly settled postlarvae and juvenile crabs (Dahlstrom 1956; Poole 1965). The crab population was sampled on three different occasions during summer and early fall of 1973 to investigate its status.

Trawls were taken in Bodega Bay with a 7.6 m (25 ft) otter trawl on August 7 and 27, and Oct. 16, 1973. The first of two trawls taken on Aug. 7 was approximately 300 m (1, 00 ft) off Doran Beach at a depth of 6 m (20 ft) for 15 min. The second was about 2.0 km (1.2 miles) southeast of Doran Beach at a depth of 21 m (70 ft) for 15 min. The Aug. 27 trawls were taken at approximately the same locations and of similar duration as those Aug. 7.

-2687-
AUTHOR(S): WICKHAM, D.E.
YEAR: 1979
TITLE: The Relationship Between Megalopae of the Dungeness Crab, Cancer magister, and the Hydroid, Velella velella, and Its Influence on Abundance Estimates of C.Magister Megalopae
PUB: Calif. Fish Game 65(3):184-186
ABSTRACT:
V. velella appears to provide several benefits to megalopae of C. magister. It provides 1) an abundant source of food, 2) shelter from predatory pelagic fish, and 3) possible transportation into nearshore juvenile crab habitats. C. magister megalopae were not present in the surface waters or in net samples when V. velella was abundant, even though the crabs were abundant on the hydroids. Most surveys conducted to assess crab larval abundance rely on sampling with plankton nets. Several million V. velella were present in the coastal waters near Bodega Bay in 1975, so the total number of crab megalopae associated with this hydroid could have been very high. The presence of V. velella, therefore, must be accounted for in any attempt to estimate C. magister megalopal abundance.

-2688-
AUTHOR(S): WICKSTEN, M.K.
YEAR: 1984
TITLE: Distribution of Some Common Decapod Crustaceans and a Pycnogonid from the Continental Shelf of Northern California
PUB: Calif. Fish Game 70(3):132-139
ABSTRACT:
Ten decapods and the pycnogonid Nymphon pixellae were taken at more than three stations by otter trawl from off Trinidad Head to off Bodega Bay.

-2689-
AUTHOR(S): WIGLEY, R.L. AND A.D. MCINTYRE
YEAR: 1964
TITLE: Some Quantitative Comparisons of Offshore Meiobenthos and Macrobenthos South of Martha's Vineyard
PUB: Limnol. Oceanogr. 9:485-493
ABSTRACT:
This paper is an outdated but still interesting presentation of benthic community structure. It is not comprehensive in spatial or temporal coverage, but it is valuable for attempts to address meiobenthos.

-2690-
AUTHOR(S): WIGLEY, R.L. AND R.B. THEROUX
YEAR: 1981
TITLE: Macrobenthic Invertebrate Fauna of the Middle Alantic Bight Region--Faunal Composition and Quantitative Distribution, Atlantic Continental Shelf and Slope of the United States
PUB: U.S. Geological Survey Professional Paper 529, pp. 1-198
ABSTRACT:
The report quantitatively describes the macrobenthic inverterate fauna found in the Middle Atlantic Bight in terms of faunal composition, geographic distribution, and relationships to depth, bottom sediment composition, sediment organic carbon, and water temperature.

-2691-
AUTHOR(S): WIGLEY, R.L., R.B. THEROUX AND H.E. MURRAY
YEAR: 1975
TITLE: Deep-Sea Red Crab (Geryon quinquedens), Survey off Northeastern U.S.
PUB: Mar. Fish. Rev. 37(8):1-21
ABSTRACT:
A quantiative survey of the deep-sea red crab, Geryon quinquedens, was conducted in continental slope waters off the northeastern U.S. in June-July 1974. Red crabs were present in all geographic areas sampled, between offshore Maryland and eastern Georges Bank. They were found at water depths ranging from 274 to 1,463 m, but there were striking differences in size and number of red crabs related to death. The estimated number of red crabs of commercial size, 114 mm (4.5 in) or larger in carapace width, in the survey area was 43 milion and the standing crop biomass 27 million kg.

-2692-
AUTHOR(S): WILD, P.W., P.M.W. LAW AND D.R. MCLAIN
YEAR: 1983
TITLE: Variations in Ocean Climate and the Dungeness Crab Fishery in California
PUB: Calif. Dept. Fish Game Fish Bull. 172:175-188
ABSTRACT:
The purpose of this study was to determine the part that environmental factors may have played in the long-term decline of the central California Dungeness crab (Cancer magister) fishery. Refer to paper for detailed discussion on historical yearly and seasonal fluctuations of the ocean climate off central California. Mean monthly values of a variety of environmental parameters were correlated. Most of the correlations between crab landings and environmental variables were statistically insignificant, although a few were marginally significant. Further analysis suggests that there is a relationship between ocean climate and the Dungeness crab fishery in central California. It must be cautioned that these correlations do not necessarily reflect a cause and effect relationship. Furthermore, the changes in ocean conditions examined in the study probably have less impact on adult crabs than earlier life stages. In conclusion, the evidence for the major cause of the decline in fishery landings in the San Francisco area points strongly to a major, long-term fluctuation in the ocean climate.

-2693-
AUTHOR(S): WILDERBUER, T.K., ET AL.
YEAR: 1985
TITLE: Survey Report: Cooperative U.S.-Japan Aleutian Islands Groundfish Trawl Survey--1980
PUB: NOAA/NMFS/NOAA Tech. Memo., NMFS F/NWC-93
ABSTRACT:
The results of the first comprehensive resource assessment survey of groundfish stocks in the Aleutian Island region is presented. Information on the principal species occurring in the catches includes biomass estimates, catch rates, distribution and abundance, individual haul and catch listings, and size composition. Age composition is also presented for four species where age information is available.

-2694-
AUTHOR(S): WILK, S.J.
YEAR: 1977
TITLE: Biological and Fisheries Data on Bluefish, Promatomus saltatrix (Linnaeus)
PUB: NMFS, Tech. Ser. Rep., No. 11, 56 pp.
ABSTRACT:
The synopsis of biological and fisheries data on the bluefish, P. saltatrix, is based on existing literature. Information is given on the nomenclature, taxonomy, morphology, distribution, bionomics and life history, population structure, exploitation, protection, and management of these fish which are found in two major areas along the U.S. East Coast: one offshore near the inner edge of the Gulf Stream from southern Florida to North Carolina, the other in the Middle Atlantic Bight (i.e., Cape Hatteras to Cape Cod).

-2695-
AUTHOR(S): WILK, S.J.
YEAR: 1979
TITLE: Biological and Fisheries Data on Weakfish, Cynoscion regalis (Bloch and Schneider)
PUB: NOAA/NMFS/NFC, Tech. Ser. Rep., 59 pp.
ABSTRACT:
Approximately 100 years of literature and raw data files are reviewed and synthesized on the weakfish, C. regalis. Information is given on nomenclature, taxonomy, morphology, distribution, bionomics, life history, population, exploitation, and protection and management.

-2696-
AUTHOR(S): WILK, S.J.
YEAR: 1980
TITLE: Biology and Ecology of the Weakfish, Cynoscion regalis (Bloch and Schneider)
PUB: NOAA/NMFS/NFC, Tech. Ser. Rep. No. 11, Highlands, NJ, 64 pp.
ABSTRACT:
A review of the biology and ecology of the weakfish is presented. Included are sections pertinent to taxonomy, morphology, distribution, life history, age composition, growth rate, behavior, and population structure. The paper attempts to review and synthesize approximately 100 years of existing literature, as well as NMFS raw data files, and personal communications and observations.

-2697-
AUTHOR(S): WILK, S.J.
YEAR: 1981
TITLE: The Fisheries for Atlantic Croaker, Spot, and Weakfish
PUB: Marine Recreational Fisheries, Sport Fishing Inst., Washington, DC, pp. 15-27
ABSTRACT:
The fisheries for Atlantic croaker, spot, and weakfish which take place along the Atlantic and Gulf coasts of the United States are described in depth. Detailed graphical and tabular data and a review of existing literature are presented for each fishery relative to defining user groups, fishing methods, trends in total catch, and distribution of total catch by area and gear during the 30-year period, 1940-1979.

-2698-
AUTHOR(S): WILK, S.J.
YEAR: 1982
TITLE: Weakfish, Cynoscion regalis
PUB: In: Fish Distribution MESA New York Bight Atlas, Monograph 15. New York Sea Grant Institute, Albany, New York, pp. 91-93
ABSTRACT:
The Middle Atlantic Bight is a complex ecosystem characterized by rapid latitudinal changes in water temperatures and associated fauna. Subtropical and boreal fish fauna overlap in the region from Cape Hatteras to Georges Bank, resulting in a highly diverse fish community with large seasonal fluctuations in distributions. The general ecology of Weakfish, Cynoscion regalis, species, fish, and shellfish in the Middle Atlantic Bight is summarized in terms of 1) distribution and seasonal movements, 2) population size and fisheries, 3) reproduction-growth-lifespan, 4) feeding interrelationships, and 5) environmental sensitivity to pollutants and natural environmental factors.

-2699-
AUTHOR(S): WILK, S.J. AND B.E. BROWN
YEAR: 1980
TITLE: A Description of Those Fisheries, Which Take Place in Western N. Atlantic Between US-Canadian Border/N. Carolina, that Presently Have or Potentially Could Have User Group Allocation Conflicts
PUB: In: J.H. Grover (ed.). Allocation of Fishery Resources, Proceedings of the Technical Consultation on Allocation of Fishery Resources, Vichy, France, 20-23 April, 1980. pp. 502-518
ABSTRACT:
This paper describes, in depth, 10 major fisheries, which take place in the western North Atlantic between the U.S.-Canadian border and North Carolina, that presently have or potentially could have user group allocation conflicts. Detailed data and a review of existing literature are presented for each fishery relative to the basic biology and ecology of component species, as well as a description of the fishery. In addition, each fishery is reviewed in terms of present and potential user group allocation conflicts. The fisheries and their components species described include: groundfish, summer flounder, scup, Atlantic mackerel, black sea bass, winter flounder, bluefish, weakfish, silver hake, and red hake.

-2700-
AUTHOR(S): WILK, S.J. AND M.J. SILVERMAN
YEAR: 1976
TITLE: Fish and Hydrographic Collections Made by the Research Vessels DOLPHIN and DELAWARE II during 1968-72 from New York to Florida
PUB: NOAA/NMFS, NOAA Tech. Rep. NMFS/SSRF NO. 697, 3 pp.
ABSTRACT:
Information is given in tabular form for fish and hydrographic observations collected during 18 cruises made by the research vessels DOLPHIN and DELAWARE II from New York to Florida during 1968-72. Tables include station locations with related hydrographic observations and number, weight, and size range of fish species caught.

-2701-
AUTHOR(S): WILK, S.J., W.G. SMITH, D.E. RALPH, AND J. SIBUNKA
YEAR: 1980
TITLE: Population Structure of Summer Flounder Between New York and Florida Based on Linear Discriminant Analysis
PUB: Trans. Am. Fish. Soc. 109(3):265-271
ABSTRACT:
The authors used a stepwise linear discriminant analysis to investigate the population structure of summer flounder, Paralichthys dentatus. Analysis was based on 18 morphometric and meristic variables taken from 1,214 specimens collected in coastal water between Montauk Point, New York, and Cape Canaveral, Florida. Two populations were identified: one in the Middle Atlantic Bight, or between New York and Cape Hatteras, North Carolina, the other in the South Atlantic Bight, or between Cape Hatteras and Florida. Discriminant analysis coefficients, based on five morphometric variables taken from specimens collected at geographic extremes of the survey area, provide a mathematical means for classifying summer flounder into either the northern or southern population with an accuracy of 93%.

-2702-
AUTHOR(S): WILKENS, E.P.H. AND R.M. LEWIS
YEAR: 1971
TITLE: Abundance and Distribution of Young Atlantic Menhaden, Brevoortia patronus, in the White Oak River Estuary, North Carolina
PUB: Fish. Bull. (U.S.) 69(4):783-789
ABSTRACT:
The effect of salinity, temperature, tide, turbidity and illumination on the distribution of larval, prejuvenile, and juvenile menhaden in an estuary was investigated. Most menhaden larvae entered the estuary in March after the water had warmed to about 10 degree C. and moved upstream to the low-salinity freshwater zone where they transformed into juveniles. Most larvae were caught in the lower estuary on flood tide. After transformation to juveniles, they were caught in schools throughout the estuary. Turbidity and illumination did not affect the distribution of menhaden, but illumination affected catchability, since more illuminated menhaden were collected during the night tows.

-2703-
AUTHOR(S): WILKINS, M.E. AND J.T. GOLDEN
YEAR: 1983
TITLE: Condition of the Pacific Ocean Perch Resource off Washington and Oregon During 1979: Results of a Cooperative Trawl Survey
PUB: N. Am. J. Fish. Manage. 3(2):103-122
ABSTRACT:
The survey was designed and conducted with the primary objective of obtaining information needed for improved management of this species. Review of the survey data indicated that (1) these stocks remain in serious condition despite an apparent increase in abundance attributable to the strong 1970 year class, and (2) the stock north of the Columbia River was composed of a wider range of sizes and ages than the stock off the coast of Oregon.

-2704-
AUTHOR(S): WILLIAM, A.B.
YEAR: 1958
TITLE: Substrates as a Factor in Shrimp Distribution
PUB: Limnol. Ocean. 3:283-290

ABSTRACT:

Three species of Western Atlantic penaeid shrimps--Penaeus setiferus, P. aztecus, and P. duorarum--were allowed a free choice among five types of substrates in partitioned experimental troughs. The substrates used were beach sand, shell sand, muddy sand, sandy mud, and loose peat. Each species was tested separately and each experiment was replicated once. Results of the experiments showed that distribution of the shrimps on the different substrates was not random. In each experiment departures from the expected distribution were statistically significant. P. duorarum occurred most often on shell sand. P. aztecus and P. setiferus were found most frequently on the softer, muddier substrates--loose peat, sandy mud, and muddy sand. Food content in the bottom materials may have been a confounding factor, but the results indicate attraction to substrate aside from the possible attraction to food. Water volume, or pore space, and the compaction of bottom materials, may influence the degree of burrowing.

-2705-

AUTHOR(S): WILLIAM, M.L., H.A. BRUSHER AND L. TENT

YEAR: 1984

TITLE: Catch and Effort Data from a Pilot Survey of Charterboat Captains in the Southeastern United States, 1982

PUB: DOC/NOAA/NMFS, Panama City, FL, NOAA Tech. Memo. NMFS-SEFC-129, 25 pp.

ABSTRACT:

A pilot study to evaluate the feasibility of obtaining recreational fishing data under contract with charterboat captains was conducted by personnel of the National Marine Fisheries Service, Southeast Fisheries Center, Panama City Lab., during 1982. Captains who conducted chartered fishing trips off the southeast United States coast were contracted to provide daily records of their catch and effort. The purpose of this report is to make available the detailed data provided by each of the survey participants.

-2706-

AUTHOR(S): WILLIAMS, A.B.

YEAR: 1955

TITLE: A Contribution to the Life Histories of Commercial Shrimps (Penaeidae) in North Carolina

PUB: Bull. Mar. Sci. Gulf. Caribb. 5:116-146

ABSTRACT:

This paper reviews the estuarine portion of the life histories of Penaeus setiferus, P. duorarum, and P. aztecus in North Carolina. After larval migrations from spawning places at sea, the young enter estuaries as benthonic postlarvae. P. setiferus is judged to grow 36 mm, P. duorarum 52 mm, and P. aztecus 46 mm per month in brackish nursery areas during the warmer months. Juveniles gradually move toward the sea as they approach mature sizes. P. aztecus recruitment is greatest in May. The earliest recruits reach commercial size by July. No juveniles and few adults overwinter in North Carolina. P. duorarum recruitment extends from June to October. The earliest recruits reach commercial size in autumn, but the remainder overwinter and attain commercial size in spring. Mature adults occur in the littoral zone. These are sexually mature in spring.

A number of ecological factors in the nursery areas are discussed. The role of interspecific competition for nursery areas is considered. P. aztecus and P. duorarum occupy these areas at different times. P. setiferus may compete with both of these species for nursery ground.

-2707-
AUTHOR(S): WILLIAMS, A.B.
YEAR: 1955
TITLE: A Survey of the North Carolina Shrimp Nursery Grounds
PUB: J. Elisha Mitchell Sci. Soc. 71:200-207
ABSTRACT:

The penaeid shrimp nursery ground in North Carolina can be divided into four areas on the basis of juvenile population densities and specific composition. In general, the highest concentration of juveniles occurs in the shallow portions of estuaries from Brunswick County northeastward through the seaward side of Carteret County, and in the shoal parts of northern Pamlico Sound. The role of channels and tidal currents in concentrating populations is considered. With one exception, sparse populations occur in regions of weak current and no perceptible tide. The fisheries for adult P. duorarum and P. setiferus may occur near the nursery grounds for the species. The relationship of the adult P. aztecus population to its nursery ground is obscure.

-2708-
AUTHOR(S): WILLIAMS, A.B.
YEAR: 1959
TITLE: Spotted and Brown Shrimp Postlarvae (Penaeus) in North Carolina
PUB: Bull. Mar. Sci. Gulf. Caribb. 9(3):281-290
ABSTRACT:

Diagnostic characters for the postlarvae of Penaeus setiferus and P. brazilinesis (as understood prior to 1939) are reviewed. Differentiating characteristics for P. duorarum and P. aztecus postlarvae are given. The determinations, based on plankton tows, include body size, rostral proportions, relative length of the third pereiopod, and shape of the antennal scale. The determinations are confirmed by rearing experiments.

-2709-
AUTHOR(S): WILLIAMS, A.B.
YEAR: 1964
TITLE: A Postlarval Shrimp Survey in North Carolina
PUB: North Carolina, DNRCD/DMF, Morehead City, NC, SSR No. 3
ABSTRACT:

The numbers of shrimp postlarvae entering the sounds vary tremendously from year to year. The time of appearance of brown and brown-spotted shrimp postlarvae and the duration of recruitment period for these species occur with predictable regularity each year. (White shrimp postlarvae cannot be distinguished from brown-spotted postlarvae by criteria currently in use.)

Recruitment time for postlarvae of brown shrimp extends from November to May, but is concentrated in February, March, and April, with the peak occurring in March. Recruitment time for postlarvae of spotted shrimp extends from May to November with the peak occurring in August and early September. Although there are differences in the samples taken at the three stations, the patterns of recruitment are essentially the same at each place. (Here the confusion of white and spotted postlarvae may be obscuring the picture at Lockwoods Folly).

The abundance of shrimp postlarvae in North Carolina bears no relation to the amount of commercial catch, as far as the samples indicate. Huge numbers of postlarvae do not necessarily forecast hugh numbers of shrimp available for catch. Conversely, meager numbers of postlarvae do not necessarily forecast a poor commercial catch. There is no evidence that the numbers of postlarval shrimp have declined. Indeed, the numbers of postlarvae have increased in

recent years. More postlarvae shrimp enter the sounds on flood tides at night than on flood tides in daytime. There is evidence that more shrimp postlarvae enter the sounds at new moon than at full moon.

-2710-
AUTHOR(S): WILLIAMS, A.B.
YEAR: 1965
TITLE: Marine Decapod Crustaceans of the Carolinas
PUB: U.S. Fish Wildl. Serv. Fish. Bull. 65(1):1-298
ABSTRACT:
This article is a review of published material concerning the decapod crustaceans of the Carolinas. Important diagnostic characteristics of families and genera have been incorporated in keys and are often reported, in part, in species descriptions. Brief diagnoses of families are included to aid in identification.

-2711-
AUTHOR(S): WILLIAMS, A.B.
YEAR: 1971
TITLE: A Ten-Year Study of Meroplankton in North Carolina Estuaries: Annual Occurrence of Some Brachyuran Developmental Stages
PUB: Chesapeake Sci. 12:53-61
ABSTRACT:
Seasonal occurrence of brachyuran developmental stages is predictable in meroplanton collected inside the barrier islands of North Carolina near inlets and along longitudinal transects of the larger estuaries. Nets of 1 mm mesh employed in the sampling program limited catches to larger zoeae and megalopae, and of these only a fraction can be identified with precision. Callinectes megalopae were taken in every month of the year and through almost the entire length of the estaury. Evidence indicated that this postlarval stage is active in surface waters at night, contributing substantially to dispersal of the species, probably C. sapidus in this case. Megalopae were limited to the warm season in samples from a single station near Beaufort inlet. Zoeae and megalopae were distributed abundantly in olifo-meshaline waters of the Neuse and Pamlico Rivers. Showing no nocturnal stratification, the stages were present continuously from June to Oct. Megalopae of all these species, usually considered benthic in habit, are readily captured in surface waters at night.

-2712-
AUTHOR(S): WILLIAMS, A.B.
YEAR: 1973
TITLE: The Swimming Crabs of the Genus Callinectes (Decapoda: Portunidae)
PUB: Fish. Bull. 72(3):685-798
ABSTRACT:
The genus Callinectes and its 14 species are reevaluated. Keys to identification, descriptions of species, ranges of variation for selected characters, larval distribution, and the fossil record as well as problems in identification are discussed.

-2713-
AUTHOR(S): WILLIAMS, A.B. AND D.M. WILLIAMS
YEAR: 1981
TITLE: Carolinian Records for American Lobster, Homarus americanus, and Tropical Swimming Crab, Callinectes bocourti, Postulated Means of Dispersal
PUB: Fish. Bull. 79(1):192-198
ABSTRACT:
Recent reports of distributional extension for decapod crustaceans occurring along the East Coast of the U.S. include two poorly substantiated records of American lobster, Homarus americanus H. Milne Edwards, and none of the tropical swimming crab, Callinectes bocourti A. Milne Edwards, from the Carolinas south of Cape Hatteras, NC. Occurrences of both species in the Carolinas south of Cape Hatteras are documented here along with discussion of their postulated means of dispersal.

-2714-
AUTHOR(S): WILLIAMS, A.B. AND E.E. DEUBLER
YEAR: 1968
TITLE: A Ten-Year Study of Meroplankton in North Carolina Estuaries: Assessment of Environmental Factors and Sampling Success Among Both Flounders and Penaeid Shrimps
PUB: Chesapeake Sci. 9:27-41
ABSTRACT:
Biweekly nightime samples of macroplankton were collected for a 10-year period (1957-66) from North Carolina estuaries. Establishment of stations, methods of sampling, and hydrographic climates are discussed. Assessment of effects of envrionmental factors (salinity temperature, current velocity, wind direction, mechanical clogging of nets, and lunar phase) on sampling success for postlarvae of shrimps (Penaeus) and flounders (Paralichthys) indicates that current velocity and mechanical clogging of nets can have a pronounced effect on sampling success. Evidence is presented which suggests that lunar phase is associated with sampling success for some species, and it is postulated that differences in light conditions during new-and full-moon periods may be a causal factor. Variation in temperature, salinity, and wind direction at one station had no discernible effect on size of shrimps.

-2715-
AUTHOR(S): WILLIAMS, A.B. AND H.J. PORTER
YEAR: 1971
TITLE: A Ten-Year Study of Meroplankton in North Carolina Estuaries: Occurrence of Postmetamorphal Bivalves
PUB: Chesapeake Sci. 12:26-32
ABSTRACT:
Occurrence of postmetamorphal bivalves known to have swimming stability is seasonally predictable in surface meroplankton in nocturnally flooding tidal currents near inlets inside the barrier islands of North Carolina. Samples from three stations--Institute of Marine Sciences pier near Beaufort Inlet, inside Drum Inlet 20 miles northeast of Cape Lookout, and inside Lockwoods Foly Inlet 10 miles west of Cape Fear River were comparable. Ensis directus occurred abundantly from Dec. to June at each of the stations. Tagelus divisus abundantly from May to Sept. and sparsely in Dec. at the Institutue pier, and sparsely also at Lockwoods Folly Inlet in Sept.; and Solenemya velum regularly from April to August at the Institute pier. Though these species are known to swim, no regularly recorded occurrence has ever been documented. A set of nonswimming molluscan species present in the samples was

perhaps eroded from nearby source beds by strong currents. At Drum Inlet station, Donax variabilis occurred regularly during summer-fall and Petricola pholadiformis during winter-spring. At Lockwood Foly Inlet station, Spisula ravenli occurred regularly during spring-summer. Other species were rare. Seasonal occurrence of these species in the plankton samples remains unexplained.

-2716-
AUTHOR(S): WILLIAMS, A.B., L.R. MCCLOSKEY AND I.E. GRAY
YEAR: 1968
TITLE: New Records of Brachyuran Decapod Crustaceans from the Continental Shelf off North Carolina, USA
PUB: Crustaceana 15:41-66
ABSTRACT:
This report treats additional marine decapod crustacean material form North Carolina not included in the paper on distributional pattern of benthic invertebrates by Canerame-Vivas and Gray (1966) or Williams' (1965) handbook on marine decapod crustaceans in the Carolinas. Collecting was done by L.R. McCloskey and I.E. Gray on the Duke Univ. R/V "Eastward."

-2717-
AUTHOR(S): WILLIAMS, J.G.
YEAR: 1979
TITLE: Estimation of Intertidal Harvest of Dungeness Crab, Cancer magister, on Puget Sound, Washington, Beaches
PUB: U.S. Natl. Mar. Fish. Serv. Fish. Bull. 77(1):287-292
ABSTRACT:
Aerial surveys of Washington beaches were utilized to estimate the availability of crabs, Cancer magister, and the actual harvest by sport fishermen. Interviews with crabbers on a beach during low-tide series provided information on success rates, size and sex of catch and the effort. Only 27% of the 762 crabbers interviewed used the beach from October to February, whereas 96% crabbed from April to August. The interview data suggested that aerial estimates were overcounting by 15.5% total number of crabbers. The recalculated estimates for Puget Sound showed 19,987 crabbers from April to August 1974. The crab catch was highest in May with 5,792 crabs and totaled 15,310 over the 5 months.

-2718-
AUTHOR(S): WILLIAMS, M.L., H.A. BRUSHER, B.J. PALKO AND L. TRENT
YEAR: 1984
TITLE: Catch and Effort Data from a Sample Survey of Charterboat Captains in the Southeastern United States, 1983
PUB: DOC/NOAA/NMFS, Panama City, FL, NOAA Tech. Memo. NMFS-SEFC-139, 170 pp.
ABSTRACT:
A sample survey of recreational fishing catch and effort of charterboats in the southeastern United States was conducted by personnel of the National Marine Fisheries Service, Southeast Fisheries Center, Panama City Lab, during 1983. The purpose of this report is to make the detailed 1983 data available.

-2719-
AUTHOR(S): WILLIAMS, R.W., M. LARAMIE AND J.J. AMES
YEAR: 1975
TITLE: A Catalog of Washington Stream and Salmon Utilization, Volume 1, Puget Sound Region
PUB: State of Washington, Dept. of Fisheries, 1027 pp.

ABSTRACT:

The material contained in Volume I--Puget Sound is the basic skeleton of the catalog for that area. Over 10,000 streams have been measured and numbered. One hundred and seventy-one stream reach maps have been developed to locate and identify the streams, and to provide river mileages, barriers, and useful landmarks. Some of the written materials are an updated and condensed version of the information originally presented in the P.S. & A.W. - Appendix VI, Fish and Wildlife. In addition, more definitive descriptions of each major stream reach are presented. As the more technical information is published in supplement form, the catalog will begin to "flesh out" and will hopefully become a valuable and workable system. No background information on the physical formation and action of rivers is provided, since the primary users of this volume will have some knowledge of river hydrology. For a basic description of the types of rivers and the ways they form, see Wolf Bauer's publication, "Wild, Scenic and Recreational Rivers," State of Washington, Inter-Agency Committee for Outdoor Recreation, Nov. 1972.

-2720-
AUTHOR(S): WILLIAMSON, S.C.
YEAR: 1977
TITLE: Penaeid Shrimp Abundance and Riverine Flow in San Antonio Bay, Texas
PUB: Colorado State Univ., Nat. Resour. Ecol. Lab., 31:522-528
ABSTRACT:

The relationships of abundance of brown shrimp (Penaeus aztecus) and white shrimp (P. setiferus) to spring and fall river flow into San Antonio Bay, Texas, were studied. Standing crop indices determined from trawl sampling and bay commercial landings were poorly correlated; only those indices obtained from trawl samples were deemed valid. Brown shrimp abundance showed no detectable relationship to changes in freshwater inflow; white shrimp abundance, however, showed a significant positive correlation with May-June inflow and with the previous year's Sept.-Oct. inflow.

-2721-
AUTHOR(S): WILLIS, C. AND E.A. JOYCE, JR.
YEAR: 1973
TITLE: Summary of Florida Commercial Marine Landings, 1973
PUB: Florida Dept. of Natural Resources, Div. of Marine Resources, 64 pp.
ABSTRACT:

Commercial landings of fish and shellfish at ports in Florida during 1973 were 164.5 million pounds, worth $62.5 million at dockside. Compared to 1972, the volume declined 2% but the value increased 14%. The decrease in volume was due mainly to lower landings of menhaden and blue crabs. The gain in value was caused by moderate-to-strong price increases for almost all species of food fish and shellfish. In quantity, black mullet and menhaden were the leading finfish. Shrimp continued to be the leading shellfish in volume as well as the most valuable species at dockside.

-2722-
AUTHOR(S): WILLIS, J.M.
YEAR: 1984
TITLE: Mesopelagic Fish Faunal Regions of the Northeast Pacific
PUB: Biol. Oceanogr. 3(2):167-185
ABSTRACT:

Fishes from 57 Isaacs-Kidd midwater trawl collections were identified and analyzed to determine the characteristics and limits of faunal regions in the Northeast Pacific Ocean. Cluster analyses of station and species group showed

three faunal regions (1) Subarctic, the region north of the Subartic front; (2) Central, the region south of the Subarctic front and north of the equatorial front; and (3) Southern, the region near the Hawaiian Islands south of the north equatorial front. Temperature-salinity data show that the geographical limits of the fish faunal regions correspond with most physical boundaries. No association was found between the subtropical front and a faunal boundary. A brief review of plankton studies in the Northeast Pacific shows that the subtropical front may be an important boundary for microplankton groups.

-2723-
AUTHOR(S): WILLIS, J.M. AND W.G. PEARCY
YEAR: 1982
TITLE: Vertical Distribution and Migration of Fishes from the Lower Mesopelagic Zone off Oregon
PUB: Mar. Biol. 70:87-98
ABSTRACT:

An exceptionally large midwater trawl with five opening and closing codends was towed horizontally in the lower Mesopelagic Zone at depths of 500, 650, 800, and 1,000 m off Oregon from Sept. 1-6, 1978. In comparison to more conventional trawls, this trawl collected more fish, including rare species and large individuals of common species. Comparison of collections made by day and night revealed that 12 of the 15 most common species probably migrated vertically. Bathyags milleri evidently migrates from 650 m during the day to 500 m at night. Cyclothone acclinidens and C. ataria were more abundant by night than by day at 800 m, possibly due to an upward migration from deeper depths at night. C. pseudopalida, C. signata, Chauiodus macouni, Tactostoma macropus, and Stenobrachius lecopsars were more abundant by day than by night at 500 m, suggesting that they migrated out of this depth horizon at night.

-2724-
AUTHOR(S): WILSON, C.D. AND W.G. PEARCH
YEAR: 1985
TITLE: The Utilization of Netarts Bay by Juvenile Chum Salmon-1984
PUB: Oreg. State Univ., Sea Grant Coll. Program, 66 pp.
ABSTRACT:

The School of Oceanography, Oregon State University, initiated a study during the spring of 1984 to investigate the utilization of Netarts Bay by juvenile chum salmon. Specific objectives the first year were to determine: the relative numbers of hatchery and wild chum salmon, the residence time of chum salmon, and the size at which the fish emigrated from the bay. This report presents the methods and some preliminary results from the 1984 field season.

-2725-
AUTHOR(S): WILSON, J.G., L.S. INCZE, S.A. MACKLIN, AND J.D. SCHUMACHER
YEAR: 1986
TITLE: Fox 1985--The Northwest Gulf of Alaska Fishery Oceanography Experiment
PUB: NOAA, NOAA Data Rep., Seattle, WA, 133 pp.
ABSTRACT:

The Fishery Oceanography Experiment (FOX), a coordinated investigation by the Pacific Marine Environmental Laboratory (PMEL) and the Northwest and Alaska Fisheries Center (NWAFC), was a 1-year study of the biotic and a biotic environment of the early life stages of pollock (Theragra chalcogramma) spawned in Shelikof Strait, Alaska. The primary objectives of FOX during 1985 were to: elucidate the unique meteorological conditions in Shelikof Strait and

along the coast of Alaska including winds, storm systems; describe currents and water properties; estimate the population of eggs and larvae from the Shelikof spawning event; describe the vertical distribution of eggs and larvae and their planktonic predators and prey; compare the growth rate and birthdate distributions; and describe the seasonal development and spatial distribution of zooplanktonic communities, with particular emphasis on species that may be important predators and prey of pollock.

-2726-
AUTHOR(S): WILSON, R.C.
YEAR: 1948
TITLE: A Review of the Southern California Spiny Lobster Fishery
PUB: Calif. Fish Game 34(2):71-80
ABSTRACT:

California spiny lobster, Panulirus interruptus, ranges from San Luis Obispo County, California, south to the Magdalena Bay, lower California. In the very early fishery lobsters are extremely abundant. At the turn of the century supply fell short of demand. Thus, from that time on various restrictions were imposed on the fishery. At this time minimum and maximum length are 10.5 inches and 16 inches, respectively, and the season is closed from March 15 to October 1. In 1946, the fishery was ranked 11th by value for the state. The three major fishing regions are San Diego, Los Angeles, and Santa Barbara. Two basic types of traps and pots are in general use. Mexican importations are also reported. Lobsters hide in crevices during the day and move about on the bottom at night. Predators include the black seabass, sheepshead, moray eel, octopus, and man, plus they are cannibalistic. Feeding behavior is omnivorous, but they prefer flesh of all kinds. Lobsters move into deeper water during fall and winter, and back to shallower water in spring and summer and early fall. Sizes of over 30 pounds have been reported but most are under 6, with males being larger than females. Males reach maturity at a smaller size than females. Sex ratios are extremely variable. Females spawn each year, with spawning from March to August. Eggs are carried by the females for about 2 months before they hatch into free-swimming larvae.

-2727-
AUTHOR(S): WING, B.L., ET AL.
YEAR: 1977
TITLE: Midwater Invertebrates from the Southeastern Chukchi Sea: Species and Abundance in Catches Incidental to Midwater Trawling Survey of Fishes
PUB: NOAA/NMFS, NOAA Tech. Rep. NMFS SSRF-710, 43 pp.
ABSTRACT:

Midwater invertebrates were collected in the southeastern Chukchi Sea. A 1.8-m Isaacs-Kidd midwater trawl was used at 20 stations to collect 81 semiquantitative samples; a 3-m otter trawl was used at one station to collect two qualitative samples. Data tables list the species collected and their numbers, size range, and displacement volumes for the midwater trawl stations and a species list only for the otter trawl station. One hundred three species of invertebrates were identified from the midwater trawl samples, and 33 species were identified from the otter trawl samples. Amphipods were the most diverse group (40 species) and decapod shrimps the next most diverse (14 species). Numbers of species in a sample varied 4 to 40 (mean 17). After removal of jellyfishes, the most important contributors in numbers and volume to the catches were euphausiids and mysids.

-2728-
AUTHOR(S): WINTERS, G.H. AND J.E. CARSCADDEN
YEAR: 1978
TITLE: Review of Capelin Ecology and Estimation of Surplus Yield from Predator Dynamics
PUB: Int. Comm. Northwest Atl. Fish. Res. Bull 13:21-30
ABSTRACT:

Information on the general ecology of capelin (Mallotus villosus) in ICNAF Subareas 2 and 3 is reviewed. Because of declines in the stock of several major predators, it is hypothesized that there is a surplus of capelin available for exploitation by man. On the basis of feeding dynamics of cod, seals, and whales, it is estimated that there are 1.25 million metric tons of capelin available annually as surplus to the maintenance of these predators. If information on Barents Sea capelin is taken as indicative of conditions in the Northwest Atlantic, variations in recruitment and spawning stock size may be considerable. It is suggested that, in the absence of data on recruitment fluctuations, the total allowable catch of capelin should not exceed 250,000 tons for the area as a whole, with partitioning into several components for better managment of the resource.

-2729-
AUTHOR(S): WISE, J.P.
YEAR: 1962
TITLE: Cod Groups in the New England Area
PUB: Fish. Bull. 63(1):189-203
ABSTRACT:

Indications from previous tagging experiments since 1897 result from tagging 2,794 cod by the author from 1955 to 1959, and evidence from other sources indicates four groups of cod in the New England area: (1) the cod of the offshore banks, (2) the cod of the Gulf of Maine, (3) the cod of southern New England and the South Channel, and (4) the New Jersey coastal cod which spend the summer in southern New England.

It is suggested that the first three groups are stocks not genetically separate, while the New Jersey fish are a genetic subpopulation. Within all of these groups except the last, there is a tendency for the larger fish to move permanently to the north and east.

-2730-
AUTHOR(S): WISE, J.P.
YEAR: 1963
TITLE: Bibliography of the Cod, Gadus morhua, and Related Species
PUB: Fish. Bull. 62:483-538
ABSTRACT:

This bibliography was first assembled as an aid to biological studies of cod (Gadus morhua) carried on at the Bureau of Commercial Fisheries Biological Lab., Woods Hole, Mass. It was planned to include only papers on the cod of the northwestern Atlantic, but it soon became apparent that such a compilation would have a limited value. Consequently, the bibliography was expanded to include information on the general biology of cod. Papers on Gadus species and closely related forms other than G. morhua of the Atlantic were included, but no special search was made for them.

-2731-
AUTHOR(S): WISE, J.P.
YEAR: 1972
TITLE: U.S. Fisheries: A View of Their Status and Potential
PUB: Mar. Fish. Serv. Mar. Fish. Rev. 34(7-8):9-18
ABSTRACT:
In 1959, the 178 million people of the U.S. used about 3.8 million metric tons (live weight) of commercial fishery products. By 1971, the population had increased to 207 million, and the amount of fishery products used had increased to 5.3 million tons. During those 13 years, population increased 16%, but the amount of fishery products used increased 26%.

-2732-
AUTHOR(S): WISE, J.P.
YEAR: 1986
TITLE: Fisheries Statistics--Boring Stuff Until You Need Them for Monitoring
PUB: Presented at National Symposium on Monitoring Strategies, Ocean '86 "Science - Engineering Adventure", 23-25 September, Washington, DC, IEEE Publishing Serv.,New York, NY (USA), pp. 904-907.
ABSTRACT:
Since wild marine organisms integrate environmental conditions, statistics on their catches can be used, with appropriate precautions, to estimate the state of the ocean or parts of it. Fishery statistics have unfortunately often been used to draw dubious conclusions about the state of the oceans. Factors affecting fishery statistics are discussed. Some advice is offered to those interested in using fishery statistics for monitoring purposes.

-2733-
AUTHOR(S): WISE, JOHN P.
YEAR: 1972
TITLE: Gulf and South Atlantic Fisheries
PUB: Commer. Fish. Rev. 34(3-4):9-12 (U.S. DOC/NOAA/NMFS, Reprint 929)
ABSTRACT:
The commercial fish catches in the Gulf and South Atlantic region have increased 10-fold in the last 40 years, and more than doubled in the last 20. Prospects for even further increases are likely, to a level approaching 3 billion pounds a year.

-2734-
AUTHOR(S): WITHLER, F.C. AND F.Y.C. WONG
YEAR: 1982
TITLE: Catch, Origin, Distribution and Growth of Pacific Salmon in Hecate Strait
PUB: Can. Tech. Rep. Fish. Aquat. Sci. 1173:1-38
ABSTRACT:
Recoveries of chinooks tagged in the Hecate Strait have ranged from S.E. Alaska to the Columbia River. Tagged coho were recovered from S.E. Alaska to southern British Columbia, although the majority were recovered in northern and central British Columbia. Tagged even-year pinks were recovered from northern British Columbia and from the Strait of Georgia and Puget Sound. Tagged sockeye were recovered in northern and central British Columbia coastal areas. Juveniles of all five species are present in the open waters of Hecate Strait from at least mid-July until October, and in the case of chums, pinks, and sockeye, until November. During this period they are feeding and growing. Their abundance and origins are unknown.

-2735-
AUTHOR(S): WOHLFARTH, G.W.
YEAR: 1986
TITLE: Decline in Natural Fisheries--A Genetic Analysis and Suggestion for Recovery
PUB: Can. J. Fish. Aquat. Sci. 43(6):1298-1306
ABSTRACT:
Overfishing and population of the aquatic environment, in addition to their direct effects on natural fisheries, may have also influenced natural fish populations genetically. Overfishing drastically reduces population size; since the larger individuals are selectively removed, it is equivalent to selection for smaller sized fish. Adaption from population and infestation, inbreeding, negative selection, and lack of adaption are here considered as the genetic causes for the decline of natural fisheries and lack of recovery.

-2736-
AUTHOR(S): WOHLSCHLAG, D.E.
YEAR: 1956
TITLE: Information from Studies of Marked Fishes in the Alaskan Arctic
PUB: Copeia 4:237-242
ABSTRACT:
The purpose of this discussion is to call attention to some of the results, possibilities, and technical aspects of ecological studies involving the first mark-and recapture observations on fishes in Alaskan Arctic fresh and coastal marine waters. It is hoped that this report will also serve as a preliminary guide for future work by indicating what difficulties might be expected in similar studies on small and dispersed populations under Arctic conditions.

-2737-
AUTHOR(S): WOHLSCHLAG, D.E.
YEAR: 1977
TITLE: Demersal Fishes
PUB: In: Environmental Studies, South Texas Outer Continental Shelf, Rig Monitoring Program. Final Report to BLM. Univ. of Texas Marine Science Institute, Port Aransas, Texas, pp. 12-1 to 12-18
ABSTRACT:
Analysis of pre- and post-drilling trawl data revealed numerical and biomass declines up to a radius of 1 km about the drill site, in relation to the general trends in the south Texas outer continental shelf (STOCS) study area in 1975 and 1976. The data, however, were not statistically definitive. There were also post-drilling declines in diversity, equitability, and probability of interspecific encounter. The need for additional and more comparable sampling during such surveys is discussed.

-2738-
AUTHOR(S): WOHLSCHLAG, D.E.
YEAR: 1979
TITLE: Demersal Fishes
PUB: In: W.R. Flint and C.W. Griffin (eds.). Environmental Studies, South Texas Outer Continental Shelf, Biology and Chemistry. Vol. II Submitted to the Bureau of Management, pp. 18-1 to 18-100
ABSTRACT:
The collection and analysis of samples of benthic fishes on the South Texas Outer Continental Shelf (STOCS) was continued for the 3rd consecutive

year. The sampling regime consisted of three seasonal surveys (winter, spring, and fall) on all 4 transects used in previous years and 6 monthly surveys on Transect II. Data on relative abundances, gross distribution patterns, and average catches for selected species are summarized.

-2739-
AUTHOR(S): WOHLSCHLAG, D.E. AND J.M. WAKEMAN
YEAR: 1978
TITLE: Salinity Stresses, Metabolic Responses and Distribution of the Coastal Spotted Seatrout, Cynoscion nebulosus
PUB: Contrib. Mar. Sci. Univ. Texas. 2:171-185
ABSTRACT:

Standard routine and maximum sustained respiratory metabolic rates at 28 deg. C, and over a salinity range of 10 to 45 ppt, demonstrated that the optimal salinity was about 20 ppt, for the spotted seatrout, C. nebulosus, in south Texas coastal waters. At about 20 ppt salinity, standard (maintenance) metabolism was at a minimum, while active metabolism, scope for activity, and swimming velocities were at a maximum. Multiple regression equations relating all the variables to metabolic rates could be used to calculate expected active rates that agreed well with active rates actually observed at the different salinities. The metabolic rate equations between successive 5 ppt salinity intervals had a very high statistical precision, the weight-metabolism coefficients were consistently near unity, and the swimming-metabolism coefficients tended to be highest at the optimal salinity of about 20 ppt and lowest at the 10 and 45 ppt swimming rates. The routine (operational) metabolism rates were at a swimming rate of about 1 length sec for all salinities and were about double the corresponding standard rates. The maximum sustained metabolic levels at about 10 and 45 ppt were reduced to the routine level, indicating that the species is operationally limited below 10 ppt and above about 45 ppt, a fact observed from catch data in the widely ranging salinities of various Texas coastal waters. The data agree with zoogeographic salinity optimization and with general population and ecosystem theories of optimization, which are based on emergencies. It is suggested that similar metabolic data over a range of natural stresses like salinity can be used as a baseline to assess stresses in general.

-2740-
AUTHOR(S): WOHLSCHLAG, D.E., R. YOSHIYAMA, J. HOLT, S. HOLD, W. FLINT AND R. GODBOUT
YEAR: 1980
TITLE: Demersal Fishes
PUB: In: R.W. Flint and N. Rabalais (eds.). Environmental Studies, South Texas Outer Continental Shelf, 1975-1977. Vol. III. Study Area Final Rep. Submitted to BLM, Univ. Texas Mar. Sci. Inst., Port Aransas, TX, 591-648
ABSTRACT:

Results from a 3-year trawl survey of benthic fishes and supporting data on benthic macroinvertebrate and physical parameters were used to characterize the south Texas outer continental shelf (STOCS) ecosystem. Numerical classification indicated general similarity in the ichthyofauna at sampling stations of similar depths, but also definite change in character of the ichthyofauna with increasing depth. There were more differences in this depthwise grouping of stations between seasons, years, and day/night periods. Differences betweeen time periods were also evident in the associations of species defined by the numerical classification.

-2741-
AUTHOR(S): WOLFF, M.
YEAR: 1972
TITLE: A Study of North Carolina Scrap Fishery
PUB: North Carolina Dept. of Natural and Economic Resources, Div. of Commercial and Sports Fisheries, Special Scientific Report No. 20, 29 pp.
ABSTRACT:

A total of 18,955 fish were tagged in an effort to obtain movement, growth, and mortality characteristics of young Atlantic croaker (Micropogonias undulatus), spot (Leiostomus xanthurus), and weakfish (Cynoscion regalis). Samples were taken of trawler landed scrapfish. Comparison of landings and discard samples indicated that nearly 100%, 65%, and 43% of landed spot, croaker, and weakfish, respectively, are discarded as scrap. Sample of spot, croaker, and weakfish were retained during tagging operations for age analyses. Forty-one percent of all spot, 49% of all croaker, and 81% of all weakfish discarded as scrap were 0-age.

-2742-
AUTHOR(S): WOLOTIRA, R.J.
YEAR: 1977
TITLE: Demersal Fish and Shellfish Resources of Norton Sound, the Southeastern Chukchi Sea and Adjacent Waters in the Baseline Year 1976
PUB: NOAA/NMFS/NWAFC, Seattle, WA, Proc. Rep., 292 pp.
ABSTRACT:

Report summarizes results of 1976 baseline survey of fish and shellfish of Norton Sound, the northern Bering Sea, and southwestern Chukchi Sea. Extensive data on distribution, relative abundance, standing stocks, and life histories of principal species of demersal fishes, king and Tanner crabs, and snails are included. Report also briefly reviews commercial and subsistence fisheries of the area.

-2743-
AUTHOR(S): WOLOTIRA, R.J.
YEAR: 1984
TITLE: Seasonal Distribution and Abundance of Decapod Larvae for the Kodiak Island reg.
PUB: NOAA/NMFS/NWAFC, Seattle, WA, Proc. Rep. No. 84-01, 167 pp.
ABSTRACT:

Four bays and the continental shelf on the eastern side of the Kodiak Island archipelago were surveyed to establish baseline information on the early life histories of nearshore decapods. Five offshore and 12 inshore cruises were conducted from fall 1977 through winter 1979. Distribution and abundance data were collected to determine the areas where decapod larvae were most abundant, the depths they were found, and the time of year they were present. Ten different taxonomic groups, including 5 commercial species, were tested for significant differences in times of occurrence, distribution, and abundance through a series of analysis of variance on bongo net data. Regionally, crab and shrimp larvae were 2-3 times more abundant inshore than offshore. Vertical distribution studies showed that the 10-50 m strata contained a majority of the larvae encountered. Times of peak abundance varied through spring and summer depending upon the taxonomic group.

-2744-
AUTHOR(S): WOOD, R. AND A.R. STRACHAN
YEAR: 1969
TITLE: A Description of the Northern Anchovy Live-Bait Fishery, and the Age and Length Composition of the Catch During the Seasons 1957-58 Through 1964-65
PUB: Marine Resources Operation, California State Fisheries Lab, Terminal Island, CA, MRO Ref. 69-3
ABSTRACT:
The live-bait fishery for the northern anchovy, Engraulis mordax, is described and the age and length composition reported for the 1957-58 through 1964-65 fishing seasons. Fifty-four tables are presented to report the catches by port. The industry harvests, maintains, and sells live fish to be used as bait and/or chum to fishermen. The 1963-64 season consisted of more than 20 boats, the main fishing gear being lampara nets. The fishery is located primarily in southern California with smaller fisheries to the north. The northern anchovy represents 98% of the live bait sold. The catch is measured by the "scoop" which equals 12.5 pounds. The catch varied little in poundage landed throughout the period. In most seasons the dominant age group was 1 with age group 2 a close second. These two groups generally comprised 75% or greater of the catch. The oldest fish captured were 5-year-olds. The 1959-60 season was an exception with 86.7% of the total catch represented by age group 0. This heavy year class was observed in all 5 years of life. It was determined that larger anchovies prefer colder waters while the smaller younger fish like warmer inshore waters.

-2745-
AUTHOR(S): WOODMANSEE, R.A.
YEAR: 1958
TITLE: The Seasonal Distribution of the Zooplankton off Chicken Bay in Biscayne Bay, Florida
PUB: Ecology 39:257-262
ABSTRACT:
This investigation was undertaken to determine the nature and seasonal distribution of the zooplankton community at a single station off Chicken Key in Biscayne Bay, Fla. Seasonal data on the water temperature, salinity, and rainfall were obtained for comparison to the seasonal distribution of the zooplankton.

The plankton station maintained is located at approximately 25 deg. 37 N, 80 deg 17 W about 1 mile east of the irregular mainland shoreline of mangrove swamps and about one-eighth of a mile east of Chicken Key which is a mangrove island.

-2746-
AUTHOR(S): WOODWARD, G.M.
YEAR: 1956
TITLE: Commercial Fisheries of North Carolina: An Economic Analysis
PUB: University of North Carolina, Bureau of Business Services and Research, School of Business Administration, Chapel Hill, NC, 148 pp.
ABSTRACT:
This book presents a very detailed discussion of North Carolina's commercial fisheries. The finfish, oyster, and shrimp fisheries are discussed in detail. An economic evaluation of many aspects related to each of these various fisheries is given along with recommendations for increasing the profitability of each fishery.

-2747-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1983
TITLE: Southwest Florida Shelf Ecosystems Study, Year 1. Executive Summary
PUB: U.S. DOI/MMS, Gulf of Mexico OCS Regional Office, Metairie, LA, MMS-GM-PT-83-004, 50 pp.
ABSTRACT:
During the first year of the program, a variety of bathymetric, seismic, and side-scan sonar data were collected along with visual bottom data. These data were augmented by analyses of a broad range of hydrographic measurements, water column samples, sediment samples, and benthic biological samples. Sampling stations were established at 30 locations divided among five east-west transects. Biological and hydrographic sampling was completed in the fall and spring. The report highlights results from the first year phase of the study.

-2748-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1983
TITLE: Southwest Florida Shelf Ecosystems Study, Year 1.
PUB: U.S. DOI/MMS, Gulf of Mexico OCS Region, Metairie, LA, Final Report Contract No. 14-12-0001-29142 to MMS, 4 vols.
ABSTRACT:
The southwest Florida continental shelf research program has been designed to obtain basic descriptive and quantitative information on shelf habitats and biotic communities. Special emphasis was placed on the spatial and temporal delineation and description of regions of "live bottom" habitat.

-2749-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1983
TITLE: Southwest Florida Shelf Ecosystems Study, Year 1. Executive Summary and Final Report
PUB: U.S. DOI/MMS, Gulf of Mexico OCS Region Contract 14-12-0001-29142, 50 pp.
ABSTRACT:
Contents: Marine geophysical investigations; Underwater television and still camera observations; Integration of the geophysical and ground-truth data sets; Sampling design for live and soft bottom stations; Water quality; Substrate characteristics; Hydrocarbon analysis of surficial sediments; Trace metals; Soft bottom biota; Live bottom biota; Potential impacts of oil and gas operations on Southwest Florida shelf ecosystems.

-2750-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1985
TITLE: Southwest Florida Shelf Ecosystems Study, Year 2. Vol. 6, Appendix B
PUB: U.S. DOI/MMS, OCS Study, MMS/GM-85/0065, 408 pp.
ABSTRACT:
The final report (Appendix B) presents the master National Oceanographic Data Center taxon code list as well as the raw data for soft bottom trawl and box core biotic collections.

-2751-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1985
TITLE: Southwest Florida Shelf Ecosystems Study, Year 2. Vol. 7, Appendix C
PUB: U.S. DOI/MMS, OCS Study, MMS/GM-85/0066, 328 pp.
ABSTRACT:
The final report provides computer listings of live bottom station data, including otter trawl, triangle dredge, and quantitative slide analysis.

-2752-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1985
TITLE: Southwest Florida Shelf Ecosystems Study, Year 2. Vol. 3, Final Report 2
PUB: U.S. DOI/MMS, OCS Study MMS/GM-85/0062, 413 pp.
ABSTRACT:
The report presents a biological characterization of the southwest Florida shelf, describing shelfwide zonation and biotic distribution patterns, taxonomic composition, seasonality, and relationship between communities and substrate type.

-2753-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1986
TITLE: Southwest Florida Shelf Ecosystem Study, Year 2. Vol. 7, Appendix C
PUB: U.S. DOI/MMS, OCS Study, MMS 85-0066, 331 pp.
ABSTRACT:
The final report (Appendix C) provides computer listings of live bottom station data, including otter trawl, triangle dredge, and quantitative slide analysis.

-2754-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1986
TITLE: Southwest Florida Shelf Ecosystem Study, Year 2. Vol. 1, Executive Summary
PUB: U.S. DOI/MMS, OCS Study, MMS 85-0060, 100 pp.
ABSTRACT:
The study describes the benthic communities and habitats off southwest Florida from Florida Bay northward to Charlotte Harbor and in depths from 20 m to 200 m. Both "live" and soft bottom regions were sampled using conventional trawls, dredges, and grabs. Habitat descriptions were made along six transects using underwater television, still camera side-scan sonar, and shallow subbottom profilers.

-2755-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1986
TITLE: Southwest Florida Shelf Ecosystems Study, Year 2. Final Report 1
PUB: U.S. DOI/MMS, OCS Study, MMS 85-0061, 279 pp.
ABSTRACT:
The final report characterizes major distinguishable types of substrates and biotic communities on the southwest Florida Shelf. It reviews all sampling and analytical methods and the regional hydrography and sediment chemistry. The Southwest Florida Shelf Ecosystem Study was undertaken to

describe the benthic communities and habitats off southwest Florida Bay northward to Charlotte Harbor and in depths from 20 to 200 m.

-2756-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1986
TITLE: Southwest Florida Shelf Ecosystems Study Year 2. Vol. 5, Appendix A
PUB: U.S. DOI/MMS, OCS Study, MMS 85-0064, 496 pp.
ABSTRACT:
The report (Appendix A) presents cruise logs, stations sampling data, and hydrographic and sedimentary data.

-2757-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1986
TITLE: Southwest Florida Shelf Ecosystems Study, Year 2. Vol. 3, Final Report II
PUB: U.S. DOI/MMS, OCS Study, MMS 85-0062, 416 pp.
ABSTRACT:
The report presents a biological characterization of the southwest Florida shelf, describing shelfwide zonation and biotic distribution patterns, taxonomic composition, seasonality, and relationships between communities and substrate type. The study was undertaken to describe the benthic communities and habitats off southwest Florida from Florida Bay northward to Charlotte Harbor and in depths from 20 m to 200 m.

-2758-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1986
TITLE: Southwest Florida Shelf Ecosystem Study, Year 2. Vol. 6, Appendix B
PUB: U.S. DOI/MMS, OCS Study, MMS 85-0065, 410 pp.
ABSTRACT:
The final report (Appendix B) presents the master National Oceanographic Data Center taxon code list as well as the raw data for soft bottom trawl and box core biotic collections.

-2759-
AUTHOR(S): WOODWARD-CLYDE CONSULTANTS
YEAR: 1986
TITLE: Southwest Florida Shelf Ecosystem Study, Year 2. Vol. 4, Final Report III
PUB: U.S. DOI/MMS, OCS Study, MMS 85-0063, 258 pp.
ABSTRACT:
The report summarizes findings on the physical environment and biota of this region and reviews potential OCS development impacts. It reviews oil and gas activities, possible pathways for ecological change, and special regional concerns.

-2760-
AUTHOR(S): WORD, J.Q. AND D.K. CHARWAT
YEAR: 1976
TITLE: Invertebrates off Southern California Coastal Waters. II.
PUB: Southern California Coastal Water Research Project, El Segundo, CA, 238 pp.

ABSTRACT:
This is an illustrated key to eight families of shrimp found in southern California coastal waters. Information on synonyms and distribution of the individual species is also included.

-2761-
AUTHOR(S): WORMUTH, J.H.
YEAR: 1976
TITLE: Determination of Average Dry Weights of Important Neuston Species Collected in 1976
PUB: In: Environmental Studies, South Texas Outer Continental Shelf, Biology and Chemistry--Supplemental Reports to Contract AA550-CT6-17. U.S. DOI/BLM
ABSTRACT:
Dry weights per individual of a number of neuston taxa, considered to be ecologically important, were determined and then used in conjunction with the actual concentrations to give estimates of dry weights of the 1976 winter through April samples. In addition, analyses of variance were run to look at diel, seasonal and spatial variability; factor analysis was used to look at species groupings; comparisons of neuston and zooplankton data were made; and plots of seasonal variation of selected species means along Transect II were made.

Groups of species that respond to the environment in similar ways are defined. The relationships of these groups to other parameters are not apparent in the 1976 data, but most of the other parameters were measured on different cruises than those on which the neuston samples were collected.

-2762-
AUTHOR(S): WORMUTH, J.H.
YEAR: 1979
TITLE: Neuston Project
PUB: In: Environmental Studies, South Texas Outer Continental Shelf, Biology and Chemistry. Vol. II. U.S. DOI/BLM, Texas A & M Univ., Rice Univ. and Univ. ofTexas, Chaps. 11-21
ABSTRACT:
Neuston samples were collected on nine cruises on the south Texas outer continental shelf during 1977. The samples were analyzed taxonomically and for standing crop and tar values. All three of these attributes showed high variability. Seasonal trends in abundance for many groups, both invertebrates and vertebrates, showed good agreement with 1976 patterns. Species groupings for invertebrates also agreed well with 1976 data.

-2763-
AUTHOR(S): WORMUTH, J.H.
YEAR: 1980
TITLE: Analysis of a Two Year Study of Neuston
PUB: In: Environmental Studies, South Texas Outer Continental Shelf, 1975-77. Vol III. Study Area Final Reports. U.S. DOI/BLM, pp. 285-346
ABSTRACT:
The upper 15-20 cm of the water column was sampled during 1976-1977. Biomass and taxonomic studies of these samples revealed generally high variability. Most taxa showed distinct seasonal cycles with peaks in spring-summer samples. A few late fall-winter species were found. These cycles showed good year to year reproducibility. Diel migrations are apparent in most taxa with few truly euneustonic species apparent. Onshore-offshore variation was seen in some taxa, particularly the larval decapods. No

significant correlations of neuston biomass to environmental parameters were found. The concentration of tar showed considerable variation, but in no obvious pattern.

-2764-
AUTHOR(S): WOROBEC, M.N.
YEAR: 1983
TITLE: Field Analysis of Winter Flounder, Pseudopleuronectes americanus, in a Coastal Salt Pong: Abundance, Daily Ration, and Annual Consumption
PUB: Rhode Island Univ., Diss. Abstr. Int. B Sci. and Eng. 43 (11)
ABSTRACT:
The abundance and feeding ecology of adult winter flounder (P. americanus) were studied in a shallow coastal lagoon, Charlestown Pond, Rhode Island. Although winter flounder were found throughout Charlestown Pond, marked fish were recovered in only one area. The mean population estimate applied to the area to which branded fish were restricted yielded a density of 293 + 69 adults/nectare, which was equivalent to 8.8 + 2.1 g/m super. Winter flounder were ommivorous, feeding on crustaceans, polychaetes, tunicates, molluscs, and plant material (macroalgae and eelgrass). Results of the population analysis and field determinations of daily rations were used to determine annual consumption of benthic organisms by winter flounder in Charlestown Pond. It was estimated that adult winter flounder annually remove 11 g dry/m super from the benthos.

-2765-
AUTHOR(S): WRIGHT, S. AND R. BRIX
YEAR: 1972
TITLE: Size and Age Characteristics of Chinook Salmon Taken by Washington's Commercial Troll and Ocean Sport Fisheries, 1963-1969

PUB: Pacific Marine Fisheries Commission, Portland Oregon, Bulletin 8, pp. 37-47
ABSTRACT:
Essential management data concerning biological characteristics of ocean-caught chinook salmon were developed through analysis of a large volume of size-age samples taken over a 7-year period. Magnitude and age composition of commercial and sport catches were presented along with the average length and relative importance of each age group on a monthly basis. Sex ratios by age group and length-weight relationships were also determined.

-2766-
AUTHOR(S): WRIGHT, S. AND R. BRIX
YEAR: 1972
TITLE: Geographical Origin, Trends and Timing of Washington's Troll Salmon (Oncorhynchus) Catches, 1960-1969
PUB: Pacific Marine Fisheries Commission, Portland, OR, Bulletin 8, pp. 31-36
ABSTRACT:
In order to present troll salmon statistics in their most effective format for overall management needs, areas of origin were established in 1970 for ocean catches and past landing statistics were converted to this new area format. Results demonstrated that, during the 1960's, five areas adjacent to Washington's coast ranked as the top producers for chinook and coho, the two species actively sought. A marked decline was noted for numbers of salmon caught off Canada and landed in Washington by U.S. fishermen.

-2767-
AUTHOR(S): WYNNE-EDWARDS, V.C.
YEAR: 1947
TITLE: Northwest Canadian Fisheries Survey
PUB: Bull Fish. Res. Board Can. 72:21-30
ABSTRACT:
A preliminary survey of the fishery resources of the Mackenzie river was made by the writer in the summer of 1944.

-2768-
AUTHOR(S): YAKUPZACK, P.M., HERKE W.H. AND PERRY W.G.
YEAR: 1977
TITLE: Emigration of Juvenile Atlantic Croakers, Micropogonias undulatus, from a Semi-Impounded Marsh in Southwestern Louisiana
PUB: Trans. Am. Fish. Soc. 106:538-544
ABSTRACT:
Descriptions of the emigration patterns of juvenile Atlantic croakers, Micropogonias undulatus, from their nurseries have varied from (1) gradual seaward movements, to (2) mass outward movements, to (3) a bleeding off of the larger individuals. The present study was conducted at a semi-impounded marsh within a few kilometers of the Gulf of Mexico. Emigration patterns were monitored by trawling within the nursery and continuous trapping in the nursery outlet. Early in the year (Feb.-March) croakers were small and tended to move in and out of the nursery with the tide. Thereafter there was an increasing divergence in the size of trawl- and trap-caught croakers; the fish taken in the trap were consistently the larger, indicating that the larger juveniles were continually "bleeding off" and emigrating to the Gulf.

-2769-
AUTHOR(S): YAMAGUCHI, H.
YEAR: 1986
TITLE: Condition of the Pollock Resource in Recent Years in the Eastern Bering Sea Based on the Results of Japanese Mult-Vessel Trawl Surveys
PUB: Int. North Pac. Fish. Comm. Bulls. 45:136-149
ABSTRACT:
According to survey results extending over 7 years, the pollock biomass on the continental shelf of the eastern Bering Sea within the U.S. 200-mile zone was estimated to be around 30 million tons, and there were considerable fluctuations in year class strengths. It is also clear from comparisons of spring and fall survey results that pollock densities were much lower during the post-spawning season (May-June) than during fall. The characteristics of distribution, yearly fluctuations in stock biomass, year class strength, and problems of multivessel trawl surveys using commercial fishing vessels are also described.

-2770-
AUTHOR(S): YANEZ-ARANCIBIA, A., P. SANCHEZGIL, M.T. GARCIA AND M.D. GARCIAABAD
YEAR: 1985
TITLE: Ecology, Community Structure and Evaluation of Tropical Demersal Fishes in the Southern Gulf of Mexico.
PUB: Cah. Biol. Mar. 26(2):137-164
ABSTRACT:
The main goals of this study were: to establish diversity abundance and distribution of demersal fish and to define probable patterns of variation in space and time with respect to significant environmental parameters; to

characterize demersal fish communities by examining correlations with habitat characteristics; to define species related to adjacent estuaries systems; and to comment on the fishery potential of these resources in terms of diversity and catch volume in comparsion to conventional shrimp fisheries in this area.

-2771-
AUTHOR(S): YODER, J.A. AND L.P. ATKINSON
YEAR: 1981
TITLE: Plankton Productivity and the Distribution of Fishes on the Southeastern U.S. Continental Shelf
PUB: Science 214:351-353
ABSTRACT:
This response to a paper by Turner et al. (1979) presents the argument that upwelling is the primary source of nutrients sustaining production on the outer shelf. It is suggested that the influence of river and estuarine output extends only to the inner shelf region.

-2772-
AUTHOR(S): YOSHIHARA, H.T,
YEAR: 1973
TITLE: Monitoring and Evaluation of Arctic Waters with Emphasis on the North Slope Drainages
PUB: Alaska Dept. of Fish and Game, Federal Aid in Fish Restoration, Annual Report of Progress, Project 5-9-5, 14(G-III-A), 83 pp.
ABSTRACT:
1. To continue life history studies on Arctic char of the Sagavanirktok River drainage. 2. To continue assessment of the existing and potential fishery waters on the North Slope adjacent to the proposed Trans-Alaska Oil Pipeline, haul-road and oil drilling sites. 3. To determine present utilization of fishery populations of North Slope waters, especially the Sagavanirktok River drainage. 4. To evaluate development projects involving water use and their effects on North Slope lakes and streams. 5. To continue limnological studies of the Sagavanirktok River drainage.

-2773-
AUTHOR(S): YOSHIHARA, H.T.
YEAR: 1972
TITLE: Monitoring and Evaluation of Arctic Waters with Emphasis on the North Slope Drainages
PUB: Alaska Dept. of Fish and Game, Federal Aid in Fish Restoration, Annual Report of Progress, Project F-9-4, 13(G-III-A), 49 pp.
ABSTRACT:
Data are presented from surveys conducted on waterways scheduled to be traversed by the pipeline and haul-road. Information concerning fish species present, migration timing, survey status, and biological productivity are discussed. Aerial surveys to determine distribution and relative abundance of anadromous Arctic char are included.

-2774-
AUTHOR(S): YOSHIYAMA, R.M., J. HOLT, S. HOLT, R. GODBOUT AND D.E. WOHLSHLAG
YEAR: 1983
TITLE: Abundance and Distribution Patterns of Demersal Fishes on the South Texas USA Outer Continental Shelf. A Statistical Description
PUB: Environ. Sci. Div., Oak Ridge Natl. Lab., Oak Ridge, TN, Contrib. Mar. Sci. 25:61-84

ABSTRACT:
Results from a 3-year trawl survey of benthic fishes, along with supporting data on benthic macroinvertebrates and abiotic parameters, were used in an analysis of temporal and spatial patterns of the benthic ichthyofauna of the southern Texas outer continental shelf.

-2775-
AUTHOR(S): YOUNG, P.H.
YEAR: 1969
TITLE: The California Partyboat Fishery, 1947-1967
PUB: Calif. Dept. Fish Game Fish Bull. 145:1-91
ABSTRACT:
A history of the fishery off the California coast from the early 1900s to the present is discussed with particular emphasis on the partyboat fishery. The regulatory environment as well as the economics of the party boat fleet are analyzed as they pertain to specific areas of the California marine waters. Statewide catch statistics and species accounts are given for the years 1947-1967.

-2776-
AUTHOR(S): ZWEIFEL, J.R., P.E. SMITH, R. LASKER AND K. SHERMAN, EDS.
YEAR: 1981
TITLE: Estimates of Abundance and Mortality of Larval Anchovies (1951-75): Application of a New Method
PUB: In: ICES Symposium on the Early Life History of Fish: Recent Studies, Rapp. P.-V. Reun. Ciem. 178:248-259
ABSTRACT:
A method for analysis of egg and larval survey data based upon the maximum likelihood solution for the parameters of a modified negative binomial frequency model for the observed counts is described.

SECTION 1 INDEX

AMERICAN OYSTER

107	108	210	250	326	399	407	408	409	
448	450	573	589	607	622	640	676	847	853
864	890	987	990	991	996	1008	1023	1026	1046
1047	1077	1079	1099	1100	1101	1102	1103	1104	1105
1106	1107	1108	1109	1110	1111	1112	1113	1288	1306
1325	1389	1474	1531	1544	1606	1649	1659	1665	1828
1831	1832	1833	1836	1878	1936	2182	2282	2283	2329
2344	2409	2435	2475	2604					

SEA SCALLOP

318	413	414	664	669	686	687	852	1237	
1415	1532	1533	1664	1665	1744	1753	1790	1791	1815
1836	1839	1895	1897	2072	2076	2077	2078	2079	2081
2082	2289	2292	2327	2372	2466				

OCEAN QUAHOG

1078	1278	1302	1666	1752	1753	1755	1756	1757	
1897	2205	2206	2291	2293					

BROWN SHRIMP

97	98	100	102	106	110	198	199	212	
213	214	216	217	245	246	248	249	250	323
348	349	350	351	365	371	372	373	374	392
403	418	419	421	445	448	468	482	483	486
490	493	507	510	514	520	521	522	524	525
548	549	550	551	552	557	567	568	589	593
691	707	708	774	807	833	909	920	951	964
966	967	987	988	990	991	996	997	1040	1081
1082	1097	1118	1119	1120	1202	1249	1256	1257	1272
1276	1280	1338	1346	1353	1355	1356	1357	1358	1392
1393	1395	1424	1451	1454	1471	1472	1535	1536	1573
1591	1592	1593	1619	1620	1621	1658	1704	1705	1706
1707	1708	1709	1710	1711	1712	1713	1714	1715	1716
1718	1762	1777	1802	1820	1828	1831	1833	1878	1903
1968	1969	2015	2024	2035	2113	2115	2118	2154	2155
2156	2176	2181	2232	2233	2237	2323	2328	2393	2404
2405	2434	2441	2450	2454	2455	2456	2462	2468	2470
2477	2501	2502	2510	2541	2543	2544	2546	2547	2548
2596	2604	2629	2651	2656	2666	2704	2706	2707	2708
2709	2714	2720	2774						

PINK SHRIMP

48	97	98	100	102	106	110	227	244	
249	250	273	348	349	350	351	365	371	372
389	392	395	403	421	445	482	490	493	514
521	524	549	550	567	568	569	570	589	592
593	615	620	707	774	816	909	951	964	987
988	989	990	991	996	997	1118	1119	1120	1122
1155	1158	1190	1192	1193	1194	1202	1226	1227	1249

PINK SHRIMP (Continued)

1274	1275	1280	1324	1338	1374	1375	1392	1393	1394
1395	1454	1471	1472	1535	1536	1573	1591	1619	1620
1621	1658	1705	1707	1716	1742	1749	1762	1772	1773
1820	1827	1828	1833	1878	1903	2015	2024	2115	2117
2156	2232	2233	2238	2323	2328	2393	2404	2405	2441
2450	2454	2455	2456	2468	2477	2501	2510	2543	2566
2596	2629	2650	2704	2706	2707	2714	2774		

WHITE SHRIMP

96	98	100	101	102	105	106	110	198	
215	216	244	248	249	250	323	348	349	350
351	365	371	372	374	389	392	403	418	421
445	448	468	482	483	486	490	493	507	508
510	514	522	524	548	549	550	551	552	568
589	593	615	707	708	774	863	909	951	964
966	967	987	989	990	991	1081	1098	1118	1119
1120	1122	1202	1249	1256	1257	1280	1338	1352	1353
1355	1357	1358	1391	1392	1393	1395	1452	1453	1454
1464	1471	1472	1511	1535	1536	1545	1573	1591	1593
1621	1658	1704	1705	1706	1707	1708	1709	1710	1711
1712	1715	1716	1718	1745	1762	1820	1831	1833	1878
1903	2001	2015	2024	2113	2115	2116	2154	2156	2181
2232	2237	2323	2328	2393	2404	2434	2450	2454	2455
2468	2477	2501	2502	2510	2543	2546	2548	2596	2604
2629	2651	2666	2679	2704	2706	2707	2714	2720	2774

AMERICAN LOBSTER

116	119	222	223	272	302	340	367	405	
406	430	517	518	519	527	538	564	565	566
665	666	667	716	794	795	798	799	800	801
803	804	908	925	1004	1068	1116	1159	1237	1240
1328	1381	1432	1444	1498	1503	1546	1598	1599	1653
1798	1832	1839	1895	1897	2072	2157	2162	2308	2342
2466	2537	2599	2600	2601	2713				

RED CRAB

974	976	1502	1654	2015	2253	2259	2290	2427	
2443	2600	2691							

BLUE CRAB

27	103	243	249	250	356	409	448	480	
481	495	498	528	568	618	622	623	654	673
674	709	718	719	722	765	775	833	967	987
990	991	993	994	995	996	997	1041	1247	1293
1326	1338	1435	1460	1461	1464	1616	1617	1618	1691
1692	1698	1719	1729	1730	1731	1732	1831	1832	1902
1922	1962	2002	2027	2030	2031	2032	2033	2107	2108
2114	2141	2226	2263	2313	2383	2420	2434	2452	2457
2458	2459	2460	2461	2483	2484	2496	2543	2548	2605
2608	2609	2610	2658	2663	2666	2711	2712		

TARPON

1084 1717

GULF MENHADEN

28 38 448 467 471 472 489 491 494
568 589 637 655 672 681 789 805 808 945
946 947 948 949 950 963 965 1063 1114 1144
1146 1147 1297 1311 1314 1380 1426 1743 1787 1803
1828 1831 1833 1847 1852 1878 1901 1923 2034 2106
2145 2149 2150 2151 2152 2198 2226 2234 2254 2255
2303 2304 2344 2359 2362 2404 2472 2473 2565 2613
2615 2657 2685 2702 2731 2738

ATLANTIC HERRING

30 117 118 271 289 290 361 367 413
476 506 526 545 626 663 796 811 911 913
914 915 916 917 918 934 977 1067 1197 1198
1235 1287 1312 1313 1330 1377 1479 1480 1481 1640
1670 1789 1792 1832 1834 1897 2101 2151 2186 2241
2252 2334 2335 2336 2337 2343 2360 2362 2374 2377
2378 2380 2466 2513 2532 2535 2538 2614 2644 2678
2683

ATLANTIC COD

30 218 361 367 413 591 600 601 806
1067 1076 1377 1478 1671 1832 1834 1836 1839 1895
1897 2109 2318 2335 2376 2381 2382 2699 2729 2730

SILVER HAKE

89 93 506 729 1239 1637 1897 2163 2217
2332 2421 2466 2699

BLACK SEA BASS

339 369 399 477 822 1145 1146 1149 1170
1317 1318 1320 1455 1458 1459 1491 1637 1721 1766
1832 1834 1836 1897 1971 2128 2163 2219 2226 2349
2421 2593 2640 2665 2699

RED GROUPER

2 47 230 233 307 344 484 485 594
596 1146 1169 1170 1175 1273 1308 1354 1702 1768
1843 2098 2180 2185 2349 2354 2394 2395 2451 2593

TILEFISH

387 839 840 896 931 932 933 1173 1307
1492 1832 1834 2563 2564

BLUEFISH

109	190	230	325	369	572	725	772	849	
1296	1319	1321	1419	1423	1497	1562	1564	1832	1836
1897	1899	1927	2102	2106	2169	2235	2421	2542	2604
2694									

COBIA

109	230	341	343	344	631	2161	2421	2604

GREATER AMBERJACK

230	267	343	344	369	784	1146	1308	1433
1434	1457	1564	1769					

RED SNAPPER

2	44	47	50	95	103	109	209	230	
233	307	322	323	343	344	369	395	429	446
448	453	484	485	523	540	541	551	594	595
596	671	723	789	861	930	967	987	1127	1146
1169	1170	1269	1273	1308	1354	1625	1631	1632	1702
1703	1768	1828	1843	1904	2134	2135	2177	2185	2239
2354	2394	2395	2404	2451	2492	2593	2604	2737	2738

SPOTTED SEATROUT

28	103	109	328	329	330	331	332	465	
466	682	763	967	987	989	1048	1049	1050	1085
1097	1146	1225	1228	1248	1311	1338	1378	1425	1475
1587	1588	1590	1625	1626	1630	1631	1661	1727	1728
1763	1767	1831	1843	1953	2028	2085	2100	2112	2132
2434	2480	2481	2490	2511	2514	2630	2660	2739	

WEAKFISH

238	385	389	444	466	528	572	732	849	
869	882	1085	1284	1296	1637	1660	1667	1668	1751
1763	1788	1928	1957	2025	2311	2367	2666	2695	2696
2697	2698	2699	2741						

ATLANTIC CROAKER

101	103	109	192	321	332	369	444	465	
466	467	483	528	554	572	579	650	651	655
687	732	789	869	971	998	1002	1019	1024	1025
1049	1085	1098	1146	1284	1310	1364	1427	1464	1475
1625	1630	1631	1637	1643	1677	1722	1727	1737	1763
1827	1834	1898	1901	1923	1957	1999	2027	2035	2066
2106	2112	2145	2195	2196	2226	2231	2309	2312	2331
2434	2471	2513	2646	2647	2655	2657	2659	2681	2682
2697	2738	2740	2741	2768					

RED DRUM

109	111	328	329	330	331	332	379	465	
523	682	763	967	987	988	989	1049	1085	1338
1567	1585	1586	1587	1588	1589	1590	1626	1630	1727
1728	1763	1828	1878	1942	1954	1999	2028	2034	2085
2112	2132	2136	2403	2507	2511				

STRIPED MULLET

99	128	239	324	448	542	642	643	733	
785	967	1139	1146	1726	1828	2016	2034	2102	2105
2179	2261	2309	2312	2344	2404	2559	2630	2656	2657

AMERICAN SAND LANCE

133	410	572	1675	1736	1900	2158	2163	2164	
2165	2314	2562	2672						

ATLANTIC MACKEREL

45	90	91	264	265	361	506	532	626	
1067	1245	1387	1832	1834	1836	1839	1897	1958	2151
2298	2299	2301	2335	2338	2341	2343	2466	2699	

KING MACKEREL

109	134	228	231	232	262	344	369	532	
534	692	724	725	773	929	1146	1230	1290	1348
1377	1509	1562	1563	1564	1565	1580	1624	1631	1843
1853	1878	2392	2404	2542	2545	2604			

SPANISH MACKEREL

109	134	228	231	261	344	369	448	450	
532	533	534	692	724	773	1230	1348	1377	1509
1565	1624	1631	1843	1878	1904	2086	2106	2340	2392
2404	2542	2604							

GULF BUTTERFISH

423	789	1134	1760	1834	1836	1839	1865	1866	
1871	1872	2015	2036	2630	2737	2738	2740		

SUMMER FLOUNDER

238	411	644	802	880	883	1501	1504	1637	
1897	1971	2083	2084	2147	2194	2251	2373	2379	2655
2658	2699	2714							

SOUTHERN FLOUNDER

109	328	329	330	331	332	394	483	615	
644	713	883	987	1049	1310	1338	1588	1626	1630
1728	1763	2074	2084	2112	2147	2231	2401	2442	2655
2657	2701	2714							

WINTER FLOUNDER

265 375 452 515 572 590 613 1149 1150
1239 1240 1350 1832 1834 1836 1897 1955 2064 2065
2101 2147 2158 2163 2166 2236 2379 2764

RED ABALONE

131 303 400 401 450 563 574 698 740
752 884 1045 1089 1609 1740 2256

OLYMPIC OYSTER

657 1368 1390 1474

LITTLENECK CLAM

79 450 756 898 1148 1368 1805 1989 2044
2184 2262 2307

PACIFIC RAZOR CLAM

79 285 450 756 898 1301 1882 1891 1937
1989 2190 2643

MARKET SQUID

60 137 176 355 361 399 400 416 417
769 770 1005 1095 1195 1305 1309 1408 1522 1549
1635 1638 1654 1662 1991 2137 2138 2139 2322 2410
2411 2412 2524 2612 2648

OPOSSUM SHRIMP

399 1126 1363 1761 1934 1935 2330

NORTHERN PINK SHRIMP

42 120 509 559 668 751 816 837 1031
1128 1179 1204 1207 1223 1224 1236 1806 1862 1883
1891 2051 2202 2326 2437 2438 2500 2641

PACIFIC OCEAN SHRIMP

1 76 399 605 641 815 817 818 870
903 1179 1465 1495 1750 1891 1992 2199 2202 2221
2222 2223 2224 2265 2688 2760

CALIFORNIA SPINNY LOBSTER

46 399 400 450 1258 1259 1700 2264 2294
2306 2688 2726

DUNGENESS CRAB

126	285	310	311	312	313	315	316	427	
428	513	537	606	649	712	740	751	761	868
904	905	906	1020	1021	1131	1156	1179	1201	1232
1370	1371	1477	1485	1529	1530	1607	1642	1674	1891
1907	1929	1930	1973	1990	2046	2050	2059	2075	2141
2148	2190	2203	2265	2390	2424	2425	2493	2494	2499
2519	2555	2595	2648	2686	2687	2688	2692	2717	

RED KING CRAB

127	141	184	185	256	258	283	285	635	
740	749	759	760	779	856	858	859	921	1028
1031	1032	1033	1132	1133	1156	1161	1201	1298	1304
1339	1341	1540	1541	1542	1543	1644	1645	1646	1647
1819	1822	1824	1846	1856	1883	1891	1945	1946	1948
1949	1950	1951	1973	2017	2022	2090	2141	2143	2144
2183	2426	2427	2428	2429	2430	2465	2487	2516	2627
2628	2742								

PACIFIC HERRING

43	202	203	204	282	285	289	290	317	
377	440	632	705	893	894	978	981	999	1015
1178	1179	1277	1368	1390	1398	1404	1406	1442	1467
1681	1683	1696	1697	1750	1767	1775	1882	1973	1995
2012	2109	2127	2190	2202	2212	2227	2228	2252	2270
2271	2345	2366	2370	2436	2497	2504	2526	2549	2550
2551	2552	2553	2554	2555	2556	2557	2641	2645	2667
2668	2670	2683							

NORTHERN ANCHOVY

31	32	33	35	51	52	56	71	186	
197	201	211	266	276	317	333	334	354	355
399	400	417	427	428	450	473	501	705	752
764	768	813	845	924	942	1000	1022	1070	1071
1072	1073	1074	1075	1139	1165	1167	1168	1179	1182
1185	1186	1187	1188	1191	1386	1414	1416	1417	1418
1420	1421	1422	1430	1466	1467	1469	1514	1515	1516
1517	1518	1521	1522	1523	1549	1552	1609	1654	1655
1672	1673	1725	1917	1970	1976	2042	2048	2062	2063
2067	2068	2073	2095	2096	2119	2130	2168	2170	2171
2250	2257	2260	2300	2343	2361	2362	2363	2364	2365
2370	2391	2407	2408	2414	2415	2417	2418	2419	2463
2464	2488	2523	2524	2533	2534	2555	2617	2621	2744
2776									

ARCTIC CISCO

61	138	241	579	581	583	598	599	742
1229	1365	1633	1651	1779	1888	2126	2371	

LEAST CISCO

61 241 579 581 583 587 598 599 1365
1633 2126 2371 2736

PINK SALMON

40 143 195 219 256 280 282 285 355
402 404 469 576 627 688 689 690 702 756
778 844 872 873 875 885 888 889 1017 1039
1053 1056 1060 1062 1069 1178 1179 1209 1210 1233
1260 1261 1264 1266 1267 1268 1300 1340 1367 1493
1601 1610 1648 1733 1771 1819 1931 2056 2057 2190
2191 2192 2193 2230 2347 2446 2486 2518 2603 2617
2620 2627 2641 2643 2648 2649 2734 2766

CHUM SALMON

40 154 195 220 258 280 285 404 469
576 693 694 702 778 780 860 871 872 873
874 875 885 1017 1052 1054 1055 1056 1057 1058
1059 1060 1179 1233 1265 1300 1340 1367 1373 1582
1610 1733 1778 1808 1819 1931 2037 2053 2057 2190
2193 2247 2310 2446 2518 2617 2620 2627 2641 2643
2648 2649 2724 2734

COHO SALMON

40 49 94 186 195 258 285 288 315
336 355 380 402 404 449 450 469 627 653
693 694 702 778 836 838 842 844 860 885
886 887 979 1060 1117 1178 1179 1233 1243 1373
1411 1429 1436 1493 1578 1583 1596 1597 1601 1610
1612 1688 1804 1819 1931 1932 1978 2037 2043 2049
2052 2053 2056 2057 2190 2193 2229 2287 2288 2406
2446 2519 2606 2611 2617 2620 2627 2641 2643 2648
2649 2676 2734 2766

SOCKEYE SALMON

40 155 195 251 258 260 280 285 287
381 388 402 404 450 469 535 602 616 624
627 702 704 739 740 778 841 844 855 857
860 878 885 935 1016 1017 1060 1066 1178 1412
1574 1584 1610 1669 1747 1819 1891 1938 1939 1975
2005 2006 2011 2037 2038 2039 2040 2041 2053 2103
2124 2190 2191 2192 2193 2229 2444 2445 2446 2447
2518 2527 2617 2620 2627 2641 2643 2648 2649 2734

CHINOOK SALMON

40 55 114 191 258 285 314 336 355
449 469 627 777 778 885 886 922 1036 1037
1038 1060 1064 1347 1373 1443 1493 1560 1612 1688
1932 2190 2248 2348 2384 2406 2446 2518 2598 2617
2620 2622 2627 2648 2676 2734 2765 2766

ARCTIC CHAR

40 62 241 242 575 577 579 581 583
598 599 638 919 992 1166 1205 1250 1251 1396
1572 1614 1615 1650 1724 1888 2772 2773

CAPELIN

77 156 203 284 447 811 812 829 830
1238 2189 2190 2202 2617 2645 2728

ARCTIC COD

241 579 583 586 587 647 1445 1494 1888
2121 2240

PACIFIC HAKE

39 72 145 146 147 148 150 196 225
266 270 294 355 530 617 699 703 721 776
823 824 825 827 828 959 1093 1123 1125 1178
1179 1184 1199 1200 1336 1337 1526 1577 1634 1696
1781 1783 1784 1785 1786 2003 2019 2054 2305 2416
2525 2528 2567 2617 2648 2654

WALLEYE POLLOCK

65 66 67 68 69 70 144 149 152
161 163 164 168 169 170 176 177 179 180
182 206 207 208 225 282 284 295 296 297
298 352 363 364 559 560 684 685 727 740
749 762 983 984 1018 1088 1090 1160 1161 1201
1220 1298 1315 1322 1331 1332 1334 1359 1360 1361
1398 1404 1450 1487 1489 1537 1553 1554 1558 1577
1600 1613 1657 1720 1782 1809 1822 1886 1915 1924
1925 1973 2017 2020 2022 2069 2070 2109 2200 2201
2202 2203 2295 2296 2305 2353 2356 2366 2388 2413
2522 2530 2539 2540 2567 2617 2624 2625 2627 2631
2632 2633 2635 2669 2725 2769

STRIPED BASS

113 424 425 463 464 571 736 1678 1741
1801 1933 2133 2370 2431 2432 2433 2561 2680

SHINER PERCH

317 1137

PACIFIC SAND LANCE

282 685 1681 1931 2189 2190 2214

PACIFIC OCEAN PERCH

3	35	123	164	168	176	182	224	298	
376	441	442	575	641	660	661	685	740	749
819	821	892	955	956	957	958	959	1161	1178
1211	1213	1214	1219	1222	1335	1553	1554	1558	1822
1891	1973	2017	2020	2054	2055	2109	2190	2201	2202
2203	2324	2388	2413	2482	2491	2530	2567	2673	2675
2703									

BLUE ROCKFISH

3	292	451	474	475	660	661	819	820	
982	1007	1212	1215	1483	1484	1595	1656	1685	2060
2061	2285	2286	2474	2520	2626	2648			

PACIFIC STAGHORN SCULPIN

126	282	284	399	685	1137	1445	1681	1741	

YELLOWFIN SOLE

161	164	171	172	173	176	181	282	283	
284	295	296	297	450	740	749	984	1161	1298
1331	1332	1489	1553	1613	1822	2017	2069	2070	2109
2536	2653								

DOVER SOLE

36	37	56	57	59	158	162	182	266	
269	441	501	661	867	980	1029	1030	1093	1161
1178	1184	1376	1553	1725	1994	2020	2055	2058	2125
2202	2207	2208	2209	2210	2319	2536	2567	2643	2674

NOT SPECIES SPECIFIC

4	5	6	7	8	9	10	11	12	
13	14	15	16	17	18	19	20	21	22
23	24	25	26	29	34	41	54	58	63
64	73	74	75	78	80	81	82	83	84
85	86	87	88	92	104	112	115	121	122
124	125	129	130	132	135	139	140	142	151
153	157	159	160	165	166	167	174	175	178
183	184	187	188	189	193	194	200	205	221
226	234	235	236	237	240	247	252	253	254
255	256	257	259	263	268	274	275	277	278
279	281	286	291	292	293	299	300	301	304
305	306	308	309	319	320	327	335	337	338
342	345	346	347	353	357	358	359	360	361
362	366	368	370	376	378	382	383	384	386
390	391	393	396	397	398	401	412	420	422
426	431	432	433	434	435	436	437	438	439
443	455	457	458	459	460	461	462	470	478
479	486	487	488	492	496	497	499	500	502
503	504	505	512	516	529	531	536	539	543

NOT SPECIES SPECIFIC (Continued)

544	546	547	553	555	556	558	561	562	578
580	581	582	584	585	589	597	603	604	608
609	610	611	612	614	619	621	625	628	629
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658	659	662	670	675	677	678	679	680	683
695	696	697	700	701	710	711	714	715	717
720	726	728	730	731	734	735	738	740	741
743	744	745	746	747	748	750	753	754	755
757	758	762	766	767	771	781	782	783	786
787	788	789	790	791	793	797	809	810	814
830	831	832	833	834	835	843	846	848	850
851	854	862	865	866	876	877	879	881	891
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928	936	937	938	939	940	941	942	943	944
952	953	954	960	961	962	968	969	970	972
973	975	983	985	986	1001	1003	1006	1009	1010
1011	1012	1013	1014	1027	1034	1035	1042	1043	1044
1045	1051	1061	1065	1080	1083	1086	1087	1091	1092
1094	1119	1121	1124	1129	1130	1135	1136	1138	1140
1141	1142	1143	1151	1152	1153	1154	1157	1162	1163
1164	1167	1171	1172	1174	1176	1177	1180	1181	1183
1189	1196	1203	1206	1208	1217	1218	1221	1230	1231
1234	1241	1242	1244	1246	1252	1253	1254	1255	1262
1263	1270	1271	1279	1281	1282	1283	1285	1286	1289
1291	1292	1294	1295	1299	1303	1316	1323	1327	1333
1342	1343	1344	1345	1349	1351	1366	1369	1372	1379
1382	1384	1385	1388	1390	1397	1399	1400	1401	1402
1403	1405	1407	1409	1410	1413	1428	1431	1437	1438
1440	1441	1445	1446	1447	1448	1449	1455	1456	1462
1463	1468	1470	1473	1476	1482	1486	1488	1490	1496
1505	1506	1507	1508	1510	1512	1513	1519	1520	1524
1525	1527	1528	1534	1538	1539	1548	1550	1551	1555
1556	1557	1559	1561	1566	1568	1569	1570	1571	1575
1576	1579	1581	1594	1602	1603	1604	1605	1608	1611
1622	1623	1627	1628	1629	1636	1641	1652	1654	1663
1676	1678	1679	1680	1681	1682	1684	1685	1686	1687
1689	1690	1693	1694	1695	1699	1701	1702	1703	1721
1722	1723	1734	1735	1738	1739	1743	1746	1748	1754
1758	1759	1764	1765	1770	1774	1776	1780	1793	1794
1795	1796	1797	1799	1807	1810	1811	1812	1813	1814
1816	1817	1818	1821	1823	1825	1826	1829	1830	1835
1837	1838	1840	1841	1842	1844	1845	1848	1849	1850
1851	1854	1855	1857	1858	1859	1860	1861	1863	1864
1867	1868	1869	1870	1873	1874	1875	1876	1877	1879
1880	1881	1882	1884	1885	1887	1889	1890	1892	1893
1894	1896	1905	1906	1908	1909	1910	1911	1912	1913
1914	1916	1918	1919	1920	1921	1926	1928	1940	1941
1943	1944	1952	1955	1956	1959	1960	1961	1963	1964
1965	1966	1967	1971	1972	1974	1977	1979	1980	1981
1982	1983	1984	1985	1986	1987	1988	1993	1996	1998
2000	2004	2007	2008	2009	2010	2013	2014	2015	2018
2021	2023	2026	2029	2044	2045	2047	2071	2080	2087
2088	2089	2091	2092	2093	2094	2097	2099	2104	2110

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2111	2120	2122	2123	2129	2131	2140	2142	2146	2153
2159	2160	2167	2172	2173	2174	2175	2178	2187	2188
2197	2211	2213	2215	2216	2218	2219	2220	2225	2239
2242	2243	2244	2245	2246	2249	2256	2258	2266	2267
2268	2269	2272	2273	2274	2275	2276	2277	2278	2279
2280	2281	2284	2297	2302	2308	2315	2316	2317	2318
2321	2325	2333	2339	2346	2350	2351	2352	2355	2357
2358	2368	2375	2385	2386	2387	2396	2397	2398	2399
2400	2422	2423	2439	2440	2448	2449	2453	2467	2469
2476	2478	2479	2485	2489	2495	2498	2503	2505	2506
2509	2512	2515	2517	2521	2529	2531	2558	2568	2569
2570	2571	2572	2573	2574	2575	2576	2577	2578	2579
2580	2581	2582	2583	2584	2585	2586	2587	2588	2589
2590	2591	2592	2594	2597	2602	2607	2616	2618	2619
2623	2634	2636	2637	2638	2639	2642	2652	2661	2662
2664	2671	2677	2684	2689	2690	2693	2700	2705	2715
2716	2718	2719	2721	2722	2723	2727	2732	2733	2735
2737	2738	2740	2745	2746	2747	2748	2749	2750	2751
2752	2753	2754	2755	2756	2757	2758	2759	2761	2762
2763	2767	2770	2771	2775					

MMS 89-0029

Final Report

Potential Impacts of OCS Oil and Gas Activities on Fisheries

Volume I
Annotated Bibliography and Database Descriptions for Target Species Distribution and Abundance Studies

Section 2

United States Department of the Interior
Minerals Management Service
Atlantic OCS Regional Office
Herndon, Virginia

1989

MMS 89-0029

Final Report
Potential Impacts of OCS Oil and Gas Activities on Fisheries

Volume I - Annotated Bibliography and Database Descriptions for Target Species Distribution and Abundance Studies
Section 2

Project Managers:
Eulalie E. Sullivan
Andrew W. Zacherle

Principal Investigator:
Lucinda M. Tear

Contracting Officer's Technical Representative:
Robert E. Miller, Ph.D.

Prepared for
U.S. Department of the Interior
Minerals Management Service
Atlantic OCS Region
Herndon, Virginia

Under Contract No. 14-12-0001-30336

Technical Resources, Incorporated
3202 Tower Oaks Boulevard
Rockville, Maryland 20852

October 1989

"This report has been reviewed by the Atlantic OCS Region, Minerals Management Service, U.S. Department of the Interior and approved for publication. The opinions, findings, conclusions, or recommendations expressed in the report are those of the authors, and do not necessarily reflect the views of the Minerals Management Service. Mention of trade names or commercial products does not constitute endorsement or recommendation for use."

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5. Report Date October 16, 1989

7. Author(s) Proj. Mgrs. E.E. Sullivan, A. Zacherle
Princ. Invest. L.M. Tear, H. Beadle

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Rockville, MD 20852

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13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstract (Limit: 200 words)

The purpose of this volume is to present an annotated bibliography of unpublished and grey literature related to the distribution and abundance of select species of finfish and shellfish along the coasts of the United States. The volume also includes description of databases that contain information related to target species' distribution and abundance. An index is provided at the end of each section to help the reader locate studies or databases related to a particular species.

17. Document Analysis a. Descriptors

Finfish, Shellfish, Distribution and Abundance

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
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SECTION 2:

DESCRIPTIONS OF DATABASES RELATED TO THE DISTRIBUTION AND ABUNDANCE OF TARGET SPECIES

-1-
DATABASE NAME: A Study of Louisiana's Major Estuaries and Adjacent Offshore Waters
CONTACT NAME: Barney Barrett
ADDRESS: Baton Rouge Office
Louisiana Department of Wildlife and Fisheries
Seafood Division
P.O. Box 145, 26 S.E. Station
Baton Rouge, LA
ABSTRACT:
Seven of Louisiana's major estuaries and adjacent offshore waters were sampled monthly from October 1974 through September 1976. In each of these seven areas, four stations yielded samples that were analyzed in terms of physical properties, water chemistry, nekton, zooplankton, and chlorophyll A. Geographic extent: U.S. North Atlantic, Gulf of Mexico.

-2-
DATABASE NAME: A Checklist of the Biota of Lower Chesapeake Bay
CONTACT NAME: Librarian
ADDRESS: Virginia Institute of Marine Science
Glouchester Point, VA 23062
ABSTRACT:
The distribution of biota was studied in the lower Chesapeake Bay beginning in 1965 through 1972. Taxonomic lists were made for benthic animals, benthic plants, phytoplankton, pelagic and demersal fish, microbiota of the water and sediment, mammals of the water wetlands and barrier islands, birds, and reptiles and amphibians of the coastal plains of Virginia and Maryland. The report included comments on the distribution of each species, literature citations, common names, and an index.

-3-
DATABASE NAME: A Comparative Study of Fish and Shellfish Collected in Gray's Harbor and Willapa Bay, 1974
CONTACT NAME: Erik Tokar, Donald R. Kendall
ADDRESS: ITT Rayonier, Inc.
Research Center
409 E. Haward Ave.
Shelton, WA 98584
ABSTRACT:
CH2M Hill, Inc., conducted a comparative survey of fish and shellfish populations in both Grays Harbor and Willapa Bay, between 4 February and 15 February 1974. The objective of this sampling program was to provide comparative data on the distribution of the species and the diversity of the communities at various locations in the estuaries. Equipment used included beach seines, trawls, and purse seines. Sampling gear used: Beach seines - 70x6x1 net, 1/4" mesh); Trawl - 8m otter trawl, 3m mouth, 1/4" mesh; Purse seine - 200' long, 15' wide, 1/4" mesh.

-4-
DATABASE NAME: A Synthesis of Biological Data from the Strait of Juan de Fuca and Northern Puget Sound
CONTACT NAME: Ed Long
ADDRESS: Pacific Marine Environmental Laboratory
7600 Sand Point Way
Seattle, WA 98125

ABSTRACT:
This report summarizes the biological data collected during a five-year research project, titled "An Environmental Assessment of Northern Puget Sound and the Strait of Juan de Fuca." This Project was funded by the U.S. Environmental Protection Agency and administered by the U.S. National Oceanic and Atmospheric Administration. This report also incorporates biological data collected during a similar program conducted by the Washington Department of Ecology, titled "North Puget Sound Baseline Study." The report provides an overview of the geography, geology, oceanography, and habitat characteristics of the study area. Summarized information on food webs, biological communities, migrations, reproductive processes, and natural stresses is provided.Major habitat types are defined and characterized by physical and biological parameters. Finally, an evaluation of the database is given along with recommendations for strengthening it.

-5-
DATABASE NAME: Access Point Survey of Recreational Finfishermen
CONTACT NAME: Barney Barrett
ADDRESS: Office of Coastal and Marine Resources.
Louisiana Department of Wildlife and Fisheries
P.O. Box 15570
Baton Rouge, LA 70895
ABSTRACT:
This program monitors the species caught, the number of each species of finfish, and size of fish caught by recreational finfishermen fishing in the coastal waters. The survey is an Access Point survey. Employees of the department meet recreational finfishermen exiting at boat launching ramps across coastal Louisiana. The fisherman is questioned as to the length of time spent fishing, which species of fish were sought after and which were caught, and the number of each species caught. If time is available, samples of length frequency are taken. Sampling has been divided into mid week day and weekend day periods.

-6-
DATABASE NAME: Acoustic Assessment of Baitfish Stocks in Puget Sound
CONTACT NAME: Norm Lindberg
ADDRESS: Washington Department of Fisheries
Marine Fish
Bldg. 4, 2129
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
A cooperative program between the Washington Department of Fisheries and the Sea Grant Marine Acoustics Program to assess acoustically baitfish stocks in Puget Sound, this project started in 1973 and is continuing. Data include count, distribution, and biomass of pelagic fish. Sampling gear used: two boats, one with hydroacoustic equipment, and one dragger for population parameters.

-7-
DATABASE NAME: Acoustic Assessment of Herring Stocks in Southeastern Alaska
CONTACT NAME: Richard Thorne
ADDRESS: Fisheries Research Institute
University of Washington
WH-10
Seattle, WA 98125

ABSTRACT:
Acoustic surveys have been conducted annually on the herring populations in southeastern Alaska since 1971 to the present. This project is supported by the Alaska Department of Fish and Game. Data include population, volume, and distribution parameters.

-8-
DATABASE NAME: Acoustic Survey of Hake in Port Susan and Vicinity
CONTACT NAME: Norm Lindberg
ADDRESS: Washington Department of Fisheries
Marine Fish
Bldg. 4, 2129
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
Acoustic surveys have been conducted annually on the hake population in Port Susan and vicinity since 1969 to the present as part of a cooperative program between the Washington State Department of Fisheries and the University of Washington Sea Grant Marine Acoustics Program. Net hauls were also made periodically to serve as a precautionary check on the system's performance. Limitations of data: target strength values from NMFS are being used which may not be correct for Port Susan.

-9-
DATABASE NAME: Adult Gulf Menhaden Tagging
CONTACT NAME: Director, Beaufort Laboratory
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort Laboratory
Beaufort, NC 28516
ABSTRACT:
Adult menhaden from commercial purse seine and pound net catches were tagged annually in the Gulf of Mexico from Texas to the west coast of Florida between 1967 and 1971. Approximately 100 randomly located stations were selected each year. Tagging stations were located within 10-minute square grids of latitude and longitude over the sampling area. Water temperature was also measured once for each group of tagged menhaden.

-10-
DATABASE NAME: Aerial Marine Resources Monitoring Systems Sitings
CONTACT NAME: Cindy Meyer, Susan Iacometti
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Automated Data Processing Division
La Jolla, CA 92038
ABSTRACT:
The pelagic fish aerial monitoring system began in 1962 and is ongoing. Commercial fish spotters are contracted to record the location and abundance of pelagic fishschools. School species identification and tonnage are observed and estimated by the spotter and recorded in pilot observation logs. Emphasis is placed on fish species of commercial importance. The data from these pilot observation logs are used to calculate an annual index of abundance for the important fish species. The data are categorized into two databases: one for effort and the other for sighting. The two databases are interrelated by their first elements. A sighting describes the limits of a group of fish or mammals on a flight log. The sighting data consist of the specific block area, species, tonnage, and number of schools as seen by the pilot. Each record contains the data, pilot, flight, time, plane, the block number where the sighting occurred, species code, schooling, and tonnage information. As of 1982, the Aerial Marine Resources Monitoring System

database utilization includes providing information used in the anchovy biomass estimation.

-11-
DATABASE NAME: Aerial Survey
CONTACT NAME: Director, Middle Atlantic Coastal Fisheries Center
ADDRESS: Middle Atlantic Coastal Fisheries Center
Dept. of Commerce
Sandy Hook Marine Laboratory
Highlands, NJ 07732
ABSTRACT:
Aerial surveys from Rhode Island to Florida were conducted from November 1963 to November 1969. Temperature, wind direction, wind speed, sea state, and counts of animal life were measured.

-12-
DATABASE NAME: Age, Length and Weight in South California Dover Sole
CONTACT NAME: Alan Mearns
ADDRESS: Southern California Coastal Water Research Project
1500 E. Imperial Hwy.
El Segundo, CA 90245
ABSTRACT:
Individuals of Dover sole, Microstomus pacificus, collected from May 1972 to December 1974 were frozen, thawed, measured, and weighed, and age and sex were determined. A total of 681 fish were examined ranging in age from 1 to 8 years and in length (total length) from 30 to 355 mm. The total wet weight of each liver was also recorded.

-13-
DATABASE NAME: Age, Length, Weight, and Dist. of Ak. Plaice, Rock Sole, and Yellowfin Sole Collected from the SE Bering Sea, 1961
CONTACT NAME: Douglas Weber
ADDRESS: Mukilteo Laboratory/NMFS
2725 Montlake Blvd. East
Seattle, WA 98112
ABSTRACT:
The purpose of the study was preparatory work for a future population study of the sole fishes. The study was done in 1961 in the southeastern Bering Sea. Standard measurements of Alaskan plaice, rock sole and yellowfin sole were taken. The project was funded by the National Marine Fisheries Service.

-14-
DATABASE NAME: Alaska Department of Fish and Game Commercial Catch Data/Fish Ticket-Catch Statistics
CONTACT NAME: Mike Dean, Fisheries Information Office
ADDRESS: Commercial Fisheries Division
Alaska Department of Fish and Game
P.O. Box B-2000
Juneau, AK 99802-2000
ABSTRACT:
Commercial catch statistics for domestic fisheries, provided by the Commercial Fish Division of the Alaska Department of Fish and Game. Data are presented by statistical area, and cover a period from 1981-1983. Data provide information on harvest areas of commercially important species of demersal and pelagic fish and invertebrates in Alaskan waters from the Aleutian Islands to Dixon Entrance. Data pertain to adults. Sampling gear used includes trolls, gill nets, seines, and trawls.

-15-
DATABASE NAME: Alaska Department of Fish and Game Trawl Data
CONTACT NAME: Director
ADDRESS: Western Alaska Groundfish Program
Commercial Fisheries Division, ADF&G
211 Mission Road
Kodiak, AL 99615-0686
ABSTRACT:
Database developed from demersal trawl surveys conducted by the Alaska Department of Fish and Game, Western Alaska Groundfish Program in Kodiak, Alaska. Data pertain to demersal species of fish and invertebrates. Data cover period from 1982-1983 and provide information on distribution and abundance of adults along the southwestern Alaskan coast from Kodiak Island to Unimac Island.

-16-
DATABASE NAME: Alaska Marked Salmon Recovery Studies, Coded Wire Tag, and Fin Mark Recovery, 1977
CONTACT NAME: T. Landen, W. Heard
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
Auke Bay Laboratory
P.O. Box 155
Auke Bay, AK 99215
ABSTRACT:
File contains coded wire tag and fin mark recovery information from salmon. Data describe species, mark I.D., recovery date, recovery location, recovery gear, length, weight, sex, age, and page and line number. File to evaluate effectiveness of various aquaculture treatments on ocean survival of juvenile salmon, both wild and hatchery stocks. Also to determine ocean distribution of salmon through marked recovery programs on a coastwide basis.

-17-
DATABASE NAME: Alaska Statewide Sport Fish Harvest Studies
CONTACT NAME: Michael J. Mills
ADDRESS: Sport Fish Division, ADF&G
Anchorage Regional Office
333 Raspberry Road
Anchorage, AK 99518-1599
ABSTRACT:
This report presents 1985 findings from an annual survey providing statewide estimates of Alaska sport fishing effort and harvests by fisheries, areas, regions, and species. The methodology of the survey, based primarily on mail to a sample of licensees, continued to prove effectual.

-18-
DATABASE NAME: Algae Assessment
CONTACT NAME: Nancy Wiley, Edmond Hobson
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Tiburon Fisheries Laboratory
Tiburon, CA 94920
ABSTRACT:
The percentage of algae coverage by taxonomic group was measured and recorded for 50-meter transections in southern California waters near the Catalina Islands. This file, together with others of the Fish Communities Data System, is part of a project to assess the impact of fish predation. Data elements include habitat type, date, algae type, and coverage.

-19-
DATABASE NAME: Apalachicola Bay
CONTACT NAME: Robert J. Livingston
ADDRESS: Department of Biological Science
The Florida State University
Tallahassee, FL 32306
ABSTRACT:
Geographic extent: Within Apalachicola Bay, FL.
Type of sampling gear: 6 ft. otter trawl (1/4 in. mesh liner).
Years collected: 1974 to present.
Apparent limitations of the data: Small trawl and mesh size limits the collections to small and/or less mobile individuals.

-20-
DATABASE NAME: Aransas Area
CONTACT NAME: Donald E. Wohlschlag
ADDRESS: The Marine Science Institute
The University of Texas
Port Aransas, TX 78373-1267
ABSTRACT:
Transect survey of the distribution and ecology of the fish fauna of the lower Texas coast. Gear included seines, trawls, and trammel nets. Regular monthly stations were located throughout Copano Bay, Aransas Bay, and Redfish Bay to a point in the Gulf of Mexico 9 miles offshore (essentially a very long transect). Sampling gear used: 30-ft. otter trawl (1 3/4 in. stretch mesh). Years data collected: 1941 through 1942. Limitations of data: it is not now possible to sort out what was collected by which methods unless Dr. Gunter's original field records are available (at the U.T. Marine Lab in Port Aransas or at the Gulf Coast Research Lab in Ocean Springs, MS). Much of the taxonomy should be updated.

-21-
DATABASE NAME: Arctic and Offshore Research Information System
CONTACT NAME: David L. Chiang, Project Manager
ADDRESS: Science Applications International Corporation
1710 Goodridge Drive
P.O. Box 1303
McLean, VA 22102
ABSTRACT:
The database resides at the Morgantown Energy Technology Center (METC), in Morgantown, West Virginia. The objective of the Arctic and Offshore Research Information System (AORIS) is to make available centralized and computerized bibliographic information and scientific data on the Arctic physical environment and technology, as they relate to Arctic offshore oil and gas activities. It is hoped that the AORIS will enhance the Arctic knowledge base and help reduce the technical uncertainties associated with rational Arctic energy development. This information will appear in the AORIS Road Map. The Road Map is an online directory to sources of Arctic and offshore scientific information and data. This will aid online users in locating data and bibliographic information which are not within the scope of AORIS. Arctic information to be covered is defined by the following major topic areas: Arctic engineering; geology and geophysics; geotechnical; glaciology and hydrology; marine life sciences; meteorology; permafrost; physical and chemical oceanography; terrestrial and fresh water biology; upper atmosphere physics.

-22-
DATABASE NAME: Artificial Reef Study
CONTACT NAME: George F. Crozier
ADDRESS: Dauphin Island Sea Laboratory
University of Alabama
P.O. Box 386
Dauphin Island, AL 36528
ABSTRACT:
The faunal development of three artificial reefs (Wallace, Sparkman, and Allen) off the Alabama coast is being monitored in an effort to describe the factors that influence reef colonization, development, and survival. Year: 1975 to present.

-23-
DATABASE NAME: Assessment and Monitoring of Alabama Marine Fishes
CONTACT NAME: Mark S. Van Hoose
ADDRESS: Marine Resources Division
Alabama Department of Conservation and Natural Resources
P.O. Box 189
Dauphin Island, AL 36528
ABSTRACT:
Monthly trawl, seine, and BPL sampling and a marine recreational creel survey. The object of both efforts is the collection of data to be used in management of finfish and shellfish resources. The sampling gears monitor larval and juvenile fishes, the creel survey adult stocks. The area surveyed includes all territorial waters of Alabama plus fishes from the Gulf encountered in creel surveys at ramps and marinas. Assessment and monitoring data of larval and juvenile fishes have been collected since October 1980, and assessment of adult stocks since October 1984. Limitations of data: those associated with the gears used in the larval juvenile sampling effort include questionable harvest estimates for some species in the creel survey.

-24-
DATABASE NAME: Auke Bay Biological Laboratory Trawl Data
CONTACT NAME: Director
ADDRESS: Auke Bay Biological Laboratory/NMFS/NOAA
12 Mile Glacier Highway
Auke Bay, AK 99215
ABSTRACT:
Database developed mostly from bottom trawl surveys (other gear also used) by the Northwest and Alaska Fisheries Center, Auke Bay Biological Laboratory Groundfish Program. Data pertain to demersal and pelagic species of fish and invertebrates. Data cover period from 1969-1982 and provide information on reproduction, and on distribution of adults and juveniles along the southern Alaskan coast from Cape Ommaney to Lynn Canal.

-25-
DATABASE NAME: BAIT/BAITCE
CONTACT NAME: Ed Klima, Frank Patella
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
Bait shrimp fishing effort data for 1976-1987 on shrimp harvested during beam trawls.

-26-
DATABASE NAME: BAIT/BAITDA
CONTACT NAME: Ed Klima, Frank Patella
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
Bait shrimp data collected on shrimp trawls in the Gulf of Mexico from 1976-1987.

-27-
DATABASE NAME: BAIT/BAITSC
CONTACT NAME: Ed Klima, Frank Patella
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
Bait shrimp species composition data collected from 1976-1987 during shrimp trawls in the Gulf of Mexico.

-28-
DATABASE NAME: Beaufort Sea Fisheries Database
CONTACT NAME: Debra Slaybough
ADDRESS: Standard Alaska Production Company
P.O. Box 196612
900 East Benson Blvd.
Anchorage, AK 99519-6612
ABSTRACT:
The database lists approximately 260 reports and documents containing information on anadromous fish for the region extending across the North Slope from Point Hope, Alaska, to Cape Dalhousie, Canada. Eighty of the references contain substantive original data which were integrated into the data component of the database. The data bank presently includes over 300,000 lines of data. The database contains information on anadromous fish in the Beaufort and northeastern Chukchi seas. The following fish species are emphasized: Arctic char, Arctic cisco, least cisco, broad whitefish, and humpback whitefish in coastal waters, rivers, and some lakes. The database contains information from the literature including species composition, length frequency, age frequency, sexual maturity, reproduction, and physical (including water temperature and salinity) data at sampling sites. Mark-recapture data can be sorted and analyzed to assess the effects of various development-related activities on movement patterns of andromous fish in the nearshore Beaufort Sea.

-29-
DATABASE NAME: Benthic Ecology Data
CONTACT NAME: Reid
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Sandy Hook Laboratory
P.O. Box 428
Highlands, NJ 07732
ABSTRACT:
Benthic ecology data include values necessary for the computation of species abundance and vital statistics for benthic organisms. The key to linking other research data to benthic ecology is cruise. Cruise is a composite of vessel identification, year, cruise-NUM, and cruise-STA. A unique combination

of values for these elements is recorded each time a ship stops to allow sampling. Each cruise is accompanied by one set of BENECO-INFO.

-30-
DATABASE NAME: Benthic Fish Association on the Continental Slope of the Middle Atlantic Bight
CONTACT NAME: Librarian
ADDRESS: Virginia Institute of Marine Science
Glouchester Point, VA 23062
ABSTRACT:
Community structure analysis and benthic fish associations were studied at approximately 900 meters on the continental shelf from Cape Hatteras to Block Canyon. In seven successful trawls on a 40-foot Gulf of Mexico shrimp trawl using 1 1/2-inch mesh, biological measurements were taken. Calculations of species diversity and dominance were made using index of dominance affinity and overlap analysis for community structure, and indexes of equitability and species richness for diversity. An annotated taxonomic list is given, with comments on distribution, morphology, size, morphometrics, and biocondition of the captured fish. Seventeen families, 29 species, and 990 individual fish were sampled. Sampling was conducted during August of 1969.

-31-
DATABASE NAME: Benthic Invertebrates off the North California Coast
CONTACT NAME: Frank Kilmer (Ret.), Milt Boyd (Chairman, Biol. Dept.)
ADDRESS: Department of Geology
Biology Humboldt State University
Arcata, CA 95521
ABSTRACT:
Benthic organisms were collected off the Humboldt County coast during a series of cruises between 1966 and 1976 by the Geology Department of Humboldt State University. Samples were taken with a variety of gear and the hard-shelled components of the invertebrate fauna, primarily gastropods and bivalves, were identified to genus or species and counted. Station depths ranged between 6 fathoms (off Humboldt Bay) and 1000 fathoms (mouth of Eel River Canyon). Sediment samples were taken and sediment type recorded on cruises since 1972. Deals primarily with the molluscan fauna; samples taken with otter trawl, pipe dredge, and Smith-Mcintyre bottom sampler.

-32-
DATABASE NAME: Benthic Organisms
CONTACT NAME: Roz Cohen, Manager
ADDRESS: U.S. Dept. of Commerce
National Oceanographic Data Center/NOAA
Ocean Pollution Data and Information Network
1825 Connecticut Ave., NW
Washington, D.C. 20235
ABSTRACT:
This file contains data from field sampling or surveys of bottom dwelling marine organisms. The data provide information on species abundance, distribution, and biomass; they may have been collected by point sampling (grab or core), by tow (dredge, trawl, or net), by photographic surveys, or by other methods. Cruise information such as vessel, start and end dates, investigator, and institution/agency; station numbers, positions, and times; and equipment and methods are reported for each survey. Environmental data reported at each sampling site may include meteorological and sea surface conditions; surface and bottom temperature, salinity, and dissolved oxygen; and sediment characteristics. Number of individual organisms and total weight

of organisms are reported for each species. A text record is available for comments.

-33-
DATABASE NAME: Benthos
CONTACT NAME: Sidney S. Herman, Director
ADDRESS: The Wetlands Institute
Lehigh University
Bethlehem, PA 18015
ABSTRACT:
Four stations located at Stone Harbor were sampled from October 1972 to March 1973 for count and species determination of benthic animals. In particular, worms, mollusks, and crustaceans above 0.5 mm in size were sampled. Data could be made available to a national repository.

-34-
DATABASE NAME: Bering Sea Baseline Survey of Demersal Fish and Shellfish
CONTACT NAME: Richard Bakkala
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
Resource Assessment and Conservation Engineering (RACE)
1184 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
The Bureau of Land Management funded a survey in the Bering Sea beginning August 1975 through the present, to conduct a baseline study of demersal fish and shellfish. Parameters measured included gonadal development, length, weight, and stomach content analysis. Shellfish data stored in Kodiak, Alaska. Sampling occurs during summer months.

-35-
DATABASE NAME: Bering Sea Clam Survey, 1977-78
CONTACT NAME: R. Mintel, S. Hughes
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains clam survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken. Catch data describes the species composition of the haul. Length-frequency data by species measure relative frequency of different size fish from the haul. Includes 1977 specimen data on sex, maturity, size, age, etc., and 1978 position data describing haul distance based on haul begin and end locations in latitude and longitude and in loran positions. The above data types have shared vessel and haul numbers.

-36-
DATABASE NAME: Bering Sea Demersal Haul Deck: Groundfish Program
CONTACT NAME: Dick Bakkala
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
2067 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
National Marine Fisheries Service conducted a trawl survey through the summer months, June through August, in the years 1971 to 1975 in the Bering Sea. The

main purpose of this study was to evaluate the stock conditions of demersal fish in that area. Parameters measured included species and sex determination, catch/effort and count of demersal fish, and length/weight ratios and age dating.

-37-
DATABASE NAME: Bering Sea Herring Fisheries, 1959-1969
CONTACT NAME: Ronald I. Regnart, Supervisor A-Y-K Region
ADDRESS: Commercial Fisheries Division
Alaska Department of Fish and Game
333 Raspberry Road
Anchorage, AK 99502
ABSTRACT:
The data include (1) Soviet Herring catches made in the north Pacific north at 40 degrees N for 1964-1970 (Bering Sea portion not available), (2) Bering Sea catches made by Japan 1964-1969, (3) U.S. Bering Sea catches (none west of Bristol Bay) 1964-1971, (4) Bering Sea Japanese annual catches by type and gear, (5) Japanese Bering Sea catch by 1/2 x 1 degree statistical areas, (6) Japanese Bering Sea catch for 1969 by 1/2 x 1 degree statistical areas, and (7) major herring concentrations in the eastern Bering Sea based on Soviet studies 1959-1961 by 1/2 x 1 degree statistical areas.

-38-
DATABASE NAME: Betty Halls Herring Data, 1972-77
CONTACT NAME: T. Landon, E. Hall
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
Auke Bay Laboratory
12 Mile Glacier Highway
Auke Bay, AK 99215
ABSTRACT:
File contains herring sampling data on date, specimen number, length, sex, maturity, age, area, and season. Data from April 1973 on includes location, gear used, and numbers of herring taken.

-39-
DATABASE NAME: Bioenvironmental
CONTACT NAME: E. Heyerdahl
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
The source of this data separates it from other NMFS biological and environmental measurements: planned, scientific experiments, mostly with research survey cruises as the platform. Species catch composition, age, length, environment, chemical, and oceanographic data are given.

-40-
DATABASE NAME: Biology of the Red Grouper, Epinephelus morio, from the Eastern Gulf of Mexico
CONTACT NAME: Director
ADDRESS: Florida Department of Natural Resources
100 8th Ave. S.E.
St. Petersburg, FL 33701
ABSTRACT:
Collections of red grouper, Epinephelus morio, were made from 1963 to 1967 in order to describe its life history. Age determinations, gonadal development, length, weight, and fecundity were measured.

-41-
DATABASE NAME: Biology of the Spotted Weakfish, Cynoscion nebulosus
CONTACT NAME: Director
ADDRESS: Florida Department of Natural Resources
100 8th Ave. S.E.
St. Petersburg, FL 33701
ABSTRACT:
The Biology of the spotted weakfish, Cynoscion nebulosus, was studied by collecting monthly samples of approximately 100 individuals from sport and commercial landings in northwest Florida. Analyses included length, weight, sex, age, stomach content, and stage of gonadal development.

-42-
DATABASE NAME: Blue Water Plankton Data
CONTACT NAME: Laurence P. Madin
ADDRESS: Woods Hole Oceanographic Institution
Redfield Bldg.
Woods Hole, MA 02543
ABSTRACT:
The following data have been collected by divers in several areas of the North Atlantic Ocean since 1971: species determination and count of zooplankton, pelagic fish, demersal fish, and benthic animals, and temperature. The stations are located in the slope waters off New England and New York, the Sargasso Sea, and along the Equator. Only the more unusual species are noted.

-43-
DATABASE NAME: Bottom Trawl Survey Cruise
CONTACT NAME: T. Azarovitz
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Groundfish survey cruises since 1963, offshore and inshore, follow stratified random sampling. The surveys were conducted by U.S. vessels ALB, DEL, and joint surveys with other nations. Data includes species catch composition, weight, number, length distribution by tow, as well as age samples for some species.

-44-
DATABASE NAME: Breton Sound
CONTACT NAME: Director
ADDRESS: Baton Rouge Office
Louisiana Department of Wildlife and Fisheries
7389 Florida Blvd.
Baton Rouge, LA 70806
ABSTRACT:
Physical, chemical, and biological assessments conducted on a monthly basis.

-45-
DATABASE NAME: Bridge Log File-Platform
CONTACT NAME: Steimle
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
NECDD
Sandy Hook Laboratory
P.O. Box 428
Highlands, NJ 07732

ABSTRACT:
The Bridge Log of a ship contains data relative to the time, location and environment of each sampling effort: these data are recorded each time a vessel stops to allow samples to be taken. In addition, data describing fishing effort are recorded. The Bridge Log Data (time and location) are of interest to all research activities which occur concomitantly with a particular ship's movements. A cruise is the key to linking other research data to Bridge Log Data. It is a composite of vessel identification, year, cruise-NUM and cruise-STA. Each cruise is accompanied by one set of platform-info data and one or more sets of trawl data. Each set of trawl-info is uniquely identified by cruise and trawl-NUM.

-46-
DATABASE NAME: Bridge Observations from Research Vessels
CONTACT NAME: R. Minkler, W. Nelson
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Mississippi Laboratory
3209 Frederick St.
P.O. Box Drawer 1207
Pascagoula, MS 39568
ABSTRACT:
Bridge observations from research vessels are provided dating back to 1950. Information includes location data and associated species data, behavior, and catch data, if any.

-47-
DATABASE NAME: Bruce Wings Chukchi Sea Midwater Trawl Data
CONTACT NAME: T. Landon, B. Wing
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
Auke Bay Laboratory
P.O. Box 155
Auke Bay, AK 99215
ABSTRACT:
File contains midwater trawl data from southeast Chukchi sea during one-half hour trawls. Data describes station, date, time, location, time start and stop of haul, latitude, longitude, gear code, tow code, mouth sizes, mesh sizes, tow speed and depths, number of hauls and species, life history stage, volume, and minimum and maximum length.

-48-
DATABASE NAME: Bureau of Commercial Fisheries (Juneau) Exploratory Fishing Data
CONTACT NAME: Director
ADDRESS: Bureau of Commercial Fisheries (NWAFC/NMFS)
Fisheries Management Division
709 West 9th Street
Juneau, AK 99801
ABSTRACT:
Historic, exploratory fishing data obtained (with various bottom sampling gear) by the Bureau of Commercial Fisheries, Exploratory Fishing and Gear Research Base in Juneau, Alaska. Data pertain to demersal species of fish and invertebrates. Data cover the period from 1960-1970 and provide information on reproduction, and on distribution of adults and juveniles along the southern Alaskan coast from Kodiak Island to Dixon Entrance.

-49-
DATABASE NAME: Bureau of Commercial Fisheries (Seattle) Exploratory Fishing Data
CONTACT NAME: Director
ADDRESS: Bureau of Commercial Fisheries (NWAFC/NMFS)
RACE
Northwest and Alaska Fisheries Center
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
Historic, exploratory fishing data were obtained (with various bottom and pelagic sampling gear) by the Bureau of Commercial Fisheries, Exploratory Fishing and Gear Research Base in Seattle, WA. Data pertain to demersal and pelagic species of fish and invertebrates. Data cover the period from 1950-1970 and provide information on reproduction, and on distribution of adults and juveniles along the west coast of North America from Prince William Sound to the tip of Baja Peninsula.

-50-
DATABASE NAME: Bureau of Commercial Fisheries and NMFS Vessel Surveys
CONTACT NAME: W. Nelson, R. Minkler
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Mississippi Laboratory
3209 Frederick St.
P.O. Box Drawer 1207
Pascagoula, MS 39568
ABSTRACT:
Data collected by Bureau of Commercial Fisheries and NMFS vessels and charters during exploratory fishing, stock assessment, and gear research cruises dating back to 1950 are given. Includes time, location, gear, some environmental, gross catch and species composition.

-51-
DATABASE NAME: CALCOFI Fish Larvae and Eggs
CONTACT NAME: Director
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
8604 La Jolla Shores Dr.
La Jolla, CA 92838
ABSTRACT:
Zooplankton tows were made monthly off the coast of the Californias between 1949 and 1960. Two hundred stations were surveyed each month from a grid of 600 stations 40 miles apart. Larvae of the Pacific hake, jack mackerel, and the northern anchovy were identified to species and counted. Sardine and anchovy larvae were measured. Sardine eggs were sized and aged. California Cooperative Oceanic Fisheries Investigations publishes a series of Journals known as CALCOFI Reports.

-52-
DATABASE NAME: CALCOFI Zooplankton and Fish Larvae
CONTACT NAME: Director
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
8604 La Jolla Shores Dr.
La Jolla, CA 92038
ABSTRACT:
Zooplankton tows from 140 meters were taken in the California current region. During each quarter between 1961 and 1965 tows were taken at approximately 200 stations out of a grid of 600 stations. After 1965, surveys were made monthly during each third year. Displacement volumes of the total catch and of the

volume of the small organisms are given. Larvae of the Pacific sardine, Pacific hake, Jack mackerel, and the anchovy larvae were measured. Sardine eggs were sized and aged. California Cooperative Oceanic Fisheries Investigations publishes a series of Journals known as CALCOFI Reports.

-53-
DATABASE NAME: CDFG Pelagic Wetfish Sea Survey Database
CONTACT NAME: Donna Malicoate
ADDRESS: Pacific Environmental Group/NMFS/NOAA
P.O. Box 831
Monterey, CA 93942
ABSTRACT:
The California Department of Fish and Game (CDFG) has annually conducted a series of pelagic fish survey cruises as a part of the California Cooperative Oceanic Fisheries Investigations (CalCOFI) program. In 1986 these pelagic fish survey cruises were changed in both scope and methodology. The resulting project was titled "Fisheries Resources Sea Survey" and its goal was to determine the total pelagic and bathypelagic fisheries resources available in the California Current System, and their abundance, distribution, and potential yield. The Sea Survey database consists of 101 cruises covering the period 1966-March 1983. Only pelagic fish cruises have been included in the database; therefore some cruise numbers will be missing from the series. The cruises range from the California-Oregon border to southern Baja California, Mexico; however the majority of cruises are in the Southern California Bight and in northern Baja California. Each cruise consists of a series of stations which are numbered consecutively from the state of each cruise. There are four types of data associated with a stations: 1) station/acoustic data, 2) species data, 3) BT data (bathythermograph data), 4) length-age data. Species data, BT data, and length-age data are not always taken for each station; however the stations data are always recorded.

-54-
DATABASE NAME: CDFG Monthly Landings
CONTACT NAME: Paul Sund, Dick Parrish, Andy Bakin
ADDRESS: Pacific Environmental Group/NMFS/NOAA
P.O. Box 831
Monterey, CA 93942
ABSTRACT:
This data set contains the total commercial fish landings for statistical bulletins and also unpublished reports. Coverage is from 1920 to present with the most recent data coming from the unpublished reports. Data summarizes the total catch of fish landings throughout California. Landings totals and subtotals are available by year, month, and species. Data is updated yearly.

-55-
DATABASE NAME: California Department of Fish and Game Commercial Fish Landings
CONTACT NAME: Richard Hiemann
ADDRESS: California Dept. of Fish and Game
Marine Resources Division
1416 Ninth St.
Sacramento, CA 95814
ABSTRACT:
The California Department of Fish and Game keeps record of commercial and live bait catches by recording information (tonnage, price, species, gear type, area fish caught) from departmentally required fish tickets and commercial fishing vessel log books. California is divided into seven statistical areas for which landings are summarized. Prior to 1972 commercial fish landings for

inland waters were combined with the San Francisco area totals. Salmon is reported for all species combined; the Anadromous Fisheries Branch determines species composition. Kelp harvest is also recorded. The most recent publication by the Department of Statistical Information was in 1979 of 1976 data.

-56-
DATABASE NAME: California Cooperative Oceanic Fisheries Investigations Data Management System
CONTACT NAME: Richard Charter
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Coastal Fisheries Resources Division
La Jolla, CA 92038
ABSTRACT:
California Cooperative Oceanic Fisheries Investigations data management system contains information collected during CalCOFI cruises. These California current biological cruises use precise measurements of net tows, larvae catches, and environmental factors to study the abundance and distribution of fish populations. Data files include catch statistics, flow meter calibrations, station activities, and occupied station data for each cruise. Catch statistics include size larvae counts and plankton volumes. The more important commercial species are sardine, anchovy, jack mackerel, Pacific mackerel, and Pacific hake. Flow meter calibration data are regression statistics based on the calibration of flow meters in plankton collection net. Cruise specifications and captain's log data are given with the calibration data. Station activity data include the fish collection activities for each station occupied. Occupied station data include the station position, temperature, salinity, and oxygen measurements, net information, tow times, and haul factors, as well as all descriptive and biological summary data relative to a specific net of a tow.

-57-
DATABASE NAME: Canada Department of Fisheries and Oceans Trawl Data
CONTACT NAME: John Thompson
ADDRESS: Canada Department of Fisheries and Oceans
Research Branch
Vancouver, B.C.
Canada
ABSTRACT:
Database was developed mostly from demersal and pelagic trawl surveys (other gear also used) by the Canada Department of Fisheries and oceans. Data pertain to demersal and pelagic species of fish and invertebrates. Data cover period from 1963-1979 and provide information on reproduction, and on distribution and abundance of adults and juveniles in waters off British Columbia and Alaska, from the Strait of Juan de Fuca to Kodiak Island.

-58-
DATABASE NAME: Catch and Allocation Monitoring System (CAMS)
CONTACT NAME: J. Terrill
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
NECDD, Northeast Region
14 Elm Street, Federal Bldg.
Glouchester, MA 01930
ABSTRACT:
CAMS files contain catch/effort data reported by designated foreign officers, the NMFS observer program, and NMFS/USCG enforcement officers. These files also contain foreign allocation and fishing area data. These data support two

tasks 1) monitoring the progress of the fisheries and 2) assessing the effectiveness of management measures.

-59-
DATABASE NAME: Catch Effort (Logbook) Data
CONTACT NAME: Director
ADDRESS: Pascagoula Laboratory/NMFS/NOAA
3209 Frederick Street
P.O. Box Drawer 1207
Pascagoula, MS 39567
ABSTRACT:
Daily catch data from Captain's Logbook have been collected since 1970 in an effort to monitor the industrial bottom fish fishery off the north central Gulf of Mexico coast. Data are also available on vessel characteristic and gear type. Although no specific data are recorded on species composition of the catches, it can be estimated according to the time of year.

-60-
DATABASE NAME: Catch Effort-Commercial Fisheries
CONTACT NAME: E. Heyerdahl
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
The source of this data separates it from other NMFS biological data: commercial fisheries catch and effort statistics from U.S. and foreign fleets. Subsets include northeast and Mid-Atlantic ports, Maine sardine fishery, logbooks for regulated species, operating units (vessels) characteristics, and foreign reporting. Variables include species type, catch, value, effort, area and time fished. Length, age, and industrial samples are included. In general, data have been automated since 1964.

-61-
DATABASE NAME: Catch Records of Gulf Menhaden
CONTACT NAME: Director
ADDRESS: Atlantic Estuarine Fisheries Center/NMFS/NOAA
Beaufort, NC 28516
ABSTRACT:
Commercial catch records are given for Gulf Menhaden for 25 years.

-62-
DATABASE NAME: Central Gulf of Mexico Platform Study
CONTACT NAME: Francis Mitchell
ADDRESS: National Environmental Data Satellite Data and Information Service/NOAA
Washington, D.C. 20235
ABSTRACT:
Twenty-four sites on the continental shelf of the Louisiana coast have been studied for long-term cumulative effects of petroleum production in the region of offshore platforms. Four primary study platforms and four control sites were visited in May 1978, August-September 1978, and January 1979. Sixteen secondary platforms were sampled August-September 1978. Sampling and analysis included hydrography and hydrocarbons of the water column; sediment physical characterization, hydrocarbons, trace metals, and contamination with depth; and populations of the meiofauna, macroinfauna, macroepifauna, demersal fishes, and species associated with the "artificial reef" brought about by the platform. Sites were located from 5 kilometers to 115 kilometers from shore and extended from the west shore of the Mississippi Delta to a line south of

Marsh Island. Results confirm widespread, chronic contamination with hydrocarbons and metals with some apparent incorporation of pollutants into biota found at the platforms. Benthic populations are indicative of a stressed environment caused from high freshwater and sediment loading from the Mississippi and periodic cyclonic storms.

-63-
DATABASE NAME: Chesapeake Bay Trawl Catch Data
CONTACT NAME: Martin Wiley
ADDRESS: Chesapeake Biological Laboratory
University of Maryland
Box 38
Solomons, MD 20688
ABSTRACT:
More than 3700 trawl hauls were made monthly or bimonthly within the Maryland portion of Chesapeake Bay from September 1965 through October 1975. The trawl catch data has been collected from both Bay-wide and site specific research projects. Three net sizes were used over the 10 year period-40 foot, 30 foot, and 25 foot. This information is available with the data.

-64-
DATABASE NAME: Chukchi Sea and Norton Sound Surveys Bottom and Midwater Hauls, 1976
CONTACT NAME: R. Mintel, M. Alton
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains crab and groundfish survey data of the following types: haul data describes the time, location, gear type, and conditions when catch taken; catch data describes the species composition of the haul. Length-frequency data by species measures relative frequency of different size fish from the haul; and specimen data contains detailed information on sex, maturity, size, age, etc. File also contains catch data adjusted for standardization of night hauls. The above data types are connected through shared vessel and haul numbers.

-65-
DATABASE NAME: Chukchi Sea and Norton Sound Surveys, Gillnet Hauls, 1976
CONTACT NAME: R. Mintel, M. Alton
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains pelagic fish data of the following types: haul data describes the time, location, gear types, and conditions when catch taken; catch data describes the species composition of the haul; and specimen data contains detailed information on sex, maturity, size, age, etc. The above data types are connected through vessel and haul numbers.

-66-
DATABASE NAME: Coastal Creel Survey
CONTACT NAME: Thomas Heffernan
ADDRESS: Texas Parks and Wildlife Department
715 S. Bronte
Rockport, TX 78382
ABSTRACT:
Sport fishery data have been systematically collected on eight estuarine systems on the Texas coast since September, 1974. Sampling was done the first year in Galveston, San Antonio and Aransas Bays, and the Upper Laguna Madre; the second year in the Sabine Lake, Matagorda Bay, Corpus Christi Bay and the lower Laguna Madre; the third year all systems except Sabine Lake. Sampling included random sampling of both week and weekend days and totalled 28 days per quarter. Data are stored on tape in the Austin Office and are also in annual reports.

-67-
DATABASE NAME: Coastal Pelagic Fish Tagging Program
CONTACT NAME: Director
ADDRESS: Port Aransas Laboratory/NMFS
Drawer 1208
Port Aransas, TX 78373
ABSTRACT:
Coastal pelagic fish, primarily Spanish and King Mackerel, have been tagged since mid-1974 in an effort to describe their migratory patterns. Data are held locally, but are also sent to the Beaufort, NC, NMFS Laboratory to be integrated into the total tagging program. To date about 1000 fish have been tagged with only one Spanish Mackerel return, and three King Mackerel returns.

-68-
DATABASE NAME: Coastal Pelagics Program, FY 1981
CONTACT NAME: Dept. of Commerce
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort, NC
ABSTRACT:
The Coastal Pelagics Program was formally created in 1977 by the Southeast Fisheries Center (SEFC), although research on various aspects of the life history of the major species had been initiated several years earlier. The purposes of this program are to obtain and to provide information on a group of fishes collectively termed coastal pelagics that are important to both recreational and commercial fishermen along the southeastern coast of the United States. The information sought by this program will be used for the conservation and management of these species. Currently available data on coastal pelagics are insufficient to produce enduring fishery management plans. In addition to providing new information on the population dynamics, biology, ecology, predator-prey relations, and socioeconomics of these species and fisheries, monitoring of fishing activities and catches will be required upon implementation of the plans. All of these activities are incorporated in this program.

-69-
DATABASE NAME: Coastal Resources Assessment Survey-Groundfish
CONTACT NAME: Director, Middle Atlantic Coastal Fisheries Center
ADDRESS: Middle Atlantic Coastal Fisheries Center
Dept. of Commerce
Sandy Hook Marine Laboratory
Highlands, NJ 07732

ABSTRACT:
500 stations were sampled from October 1972 to the present for count, species determination, weight, and length of demersal fish. The sampling area ranges from Cape Cod, MA, to Cape Canaveral, FL.

-70-
DATABASE NAME: Coastwide Commercial Landings
CONTACT NAME: Susan Jacobson, Chuck Korson
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Automated Data Processing Division
La Jolla, CA 92038
ABSTRACT:
The purpose of the data set was to merge commercial fishery landings data from California, Oregon, and Washington into a comprehensive, coastwide database. To achieve this, the state input data was standardized using predetermined field specifications. There are weekly summaries and yearly summaries which have separate files based on vessels landing no salmon, vessels landing only salmon and other species, and landings with mission vessel identification numbers. These landings data were combined with the Coastwide Fishing Vessel Characteristics files to create the Coastwide Data System, which was the basis for more complete data sets in later years.

-71-
DATABASE NAME: Columbia River Estuary Epibenthic Organisms
CONTACT NAME: David Fox
ADDRESS: Planning Division, Portland District, U.S. Army COE
Columbia River Estuary Task (CREST) Force
Columbia River Estuary Data Development Program (CREDDP)
750 Commercial Street, Rm. 214
Astoria, OR 97103
ABSTRACT:
The overall purpose of this study was to determine that the structure and standing stock of epibenthic organisms in the Columbia River estuary are determined by physical (sediment structure, depth), chemical (salinity), and biological (Primary production, detritus, predators) factors. Habitat-stratified sampling occurred between March 1980 and July 1981 using four types of sampling gear (suction pump, sled, beach seine, and trawl). Variables measured included species, life history stage, maturity, sex, carapace length, abundance, and biomass; corresponding data on tidal stage and evaluation, depth, sediment grain size, temperature, salinity, and sampling time and volume described the sampling conditions.

-72-
DATABASE NAME: Columbia River Estuary Fishes
CONTACT NAME: David Fox
ADDRESS: Planning Division, Portland District, U.S. Army COE
CREST Force
CREDDP
750 Commercial Street, Rm. 214
Astoria, OR 97103
ABSTRACT:
Fish populations were sampled with bottom trawls, purse seines, and beach seines to determine their spatial and temporal distributions and relative abundances. Fish feeding habits were determined by stomach analysis. Environmental data were recorded to determine relationships between species assemblages and these factors (1980-81).

-73-
DATABASE NAME: Commercial Age Sample
CONTACT NAME: A. Jerald
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
NMFS/NEFCDD
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Contains number of catch per age interval at length and sex of commercial samples. Data includes catch characteristics such as date, area, gear depth, tonclass and landed port. Catches from 1969 to present in the Northwest Atlantic are in the automated files.

-74-
DATABASE NAME: Commercial and Sport Fisheries Landings from New York to New Jersey
CONTACT NAME: J.L. McHugh
ADDRESS: Marine Science Research Center
State University of New York
Stony Brook, NY 11790
ABSTRACT:
A compilation of commercial fisheries landings for the states of New York and New Jersey from 1880 to 1973 were collected along with sport fisheries landings for the years 1960, 1965, and 1970. Data sheets for commercial fisheries landings from 1880 to 1973 for New York and New Jersey exist. Sport fisheries landings data sheets for 1960, 1965 and 1970 from New Jersey to Cape Hatteras, North Carolina, also exist.

-75-
DATABASE NAME: Commercial Fishery Landings for Texas
CONTACT NAME: Thomas Heffernan
ADDRESS: Texas Parks and Wildlife Department
715 S. Bronte
Rockport, TX 78382
ABSTRACT:
Commercial fisheries landings data have been collected along the Texas coast since the 1930s. Presently over 200 separate fish houses send data to the Texas Parks and Wildlife Department. Data 1972 have been put onto tapes, but data before 1972 are available only in various reports and bulletins. The automated data are sent to NOAA National Marine Fisheries Service.

-76-
DATABASE NAME: Commercial Landings
CONTACT NAME: M. Sisserwine
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Contains weight, value, effort and other catch characteristics of commercial landings in the Northeast region. Data are maintained at various levels of detail from the actual fishing vessels activity in a particular area to aggregation of a species catch in a state.

-77-
DATABASE NAME: Commercial Length and Age Sample
CONTACT NAME: Christensen
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Contains length and age at length data obtained from random samples of commercially caught fish. Data include age, length and sex for landed species by area and gear. Species sampled include cod, haddock, pollock, redfish, hake, flounders, herring, mackerel, squid and shellfish. Automated data are back to 1969.

-78-
DATABASE NAME: Commercial Length Sample
CONTACT NAME: A. Jerald
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Contains number of catch per length interval by sex of commercial samples. Includes catch characteristics such as date, area, gear, depth, ton class, number of males and number of females in sample and total sample numbers and weights. Data go back to 1969.

-79-
DATABASE NAME: Commercial Weightout Detail Data
CONTACT NAME: J. Palmer
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Contains detailed catch and effort information collected through the Northeast regional weightout system. This is the detail subset of the weightout data. Catch volume and value for each species is kept by vessel subtrips (vessel, gear, depth fished, area, and date).

-80-
DATABASE NAME: Commercial Weightout Summarized Data
CONTACT NAME: J. Palmer
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Contains summarized catch effort information collected through the Northeast regional weightout system. Catch volume and value are summed across days in month, vessel within ton class, and market category within species. Resulting levels of aggregation are catch and value by port, gear ton class, area, and species. Data go back to 1969.

-81-
DATABASE NAME: Community and Tropic Relationships of Nearshore Fish at Selected Sights Along the Strait of Juan de Fuca
CONTACT NAME: Ed Long
ADDRESS: Pacific Office, Office of Oceanography and Marine Services/NOAA
7600 Sand Point Way, NE
Seattle, WA 98115

ABSTRACT:
The nearshore fish and macroinvertebrate populations have been characterized quarterly from 1976 to 1979 at selected sites representative of major shoreline habitats. All fishes and invertebrates were identified, sorted to species, weighed, and measured and the stomach contents of most fish were identified. Where possible the following information was taken for an individual: sex, life history stage, external diseases, parasites, and other abnormalities.

-82-
DATABASE NAME: Community Profiles
CONTACT NAME: Bob Wolfe
ADDRESS: Subsistence Division
Alaska Department of Fish and Game
P.O. Box 3-2000
Juneau, AK 99802-2000
ABSTRACT:
This database will contain approximately 500 pieces of information about each of 400 communities within the state of Alaska that have been targeted for study. The database will contain demographic, geographical, economic and harvest information. Demographic and economic information is abstracted from U.S. Census and Alaska Department of Labor periodicals. Community level harvest information is abstracted from published technical reports of the Division of Subsistence and other divisions of the Department of Fish and Game. Additional information will be provided by researchers that conducted the study. The community Profile data base will work in conjunction with the Survey Analysis, Harvest Monitoring, Subsistence Literature Bibliographies, Research Note Preservation and Management and map Catalog databases, forming the Subsistence Information Retrieval and Analysis System (SIRAS) which is needed to respond to subsistence resource use questions.

-83-
DATABASE NAME: Comparative Trawl Survey of Los Angeles Area
CONTACT NAME: Alan Mearns
ADDRESS: Southern California Coastal Water Research Project
1500 E. Imperial Hwy.
El Segundo, CA 90245
ABSTRACT:
Nine stations each were taken in Santa Monica Bay, the Palos Verdes Shelf and San Pedro Bay in September of 1973. Ten minute tows were made at 25, 61, and 141 meters using a 25 ft. semi-balloon marinovich otter trawl. Fish and invertebrates were counted, identified to species and notes made of their biological conditions. Dissolved oxygen and salinity were measured at surface, mid-depth, and bottom.

-84-
DATABASE NAME: Comparison of Marine Fishes from Three Biogeographic Provinces off the North Carolina Coast

CONTACT NAME: Robert L. King
ADDRESS: Biology Department
Southeastern Community College
Whiteville, NC 28472
ABSTRACT:
Marine demersal fish from three biogeographic provinces off the coast of North Carolina were compared. Single samples were collected using an otter trawl during June and July of 1968. Numbers and species of fish were recorded.

-85-
DATABASE NAME: Continental Origin of Red Salmon Determined from Morphological Characteristics
CONTACT NAME: Director
ADDRESS: Northwest Fisheries Center/NMFS/NOAA
U.S. Dept. of Commerce
2725 Montlake Blvd. East
Seattle, WA 98112
ABSTRACT:
The purpose of this study was to determine the continental origin of red salmon populations which inhabit the waters of the western United States, western Canada and Japan along with the north Pacific Ocean, Bering Sea and Okhotsk Sea. The study was carried on from June 1955 to August 1957. Location, count, age dating, meristic measurements and sex determination were done on the salmon. The project was funded by NMFS. Specifics of similar data on chum, pink, coho, and chinook salmon were not available, data were received from Canadian and Japanese ships too.

-86-
DATABASE NAME: Cooperative Statistics Program
CONTACT NAME: Henry G. Lazauski
ADDRESS: Marine Resources Division
Alabama Department of Conservation and Natural Resources
P.O. Drawer 458
Gulf Shore, AL 36542
ABSTRACT:
Monthly interviews, in person, and by phone, with local commercial fish and oyster house operators to collect Alabama landings data from. South Mobile and Baldwin Counties since 1983; all information is volunteered by the seafood dealers and their figures are not subject to independent verification.

-87-
DATABASE NAME: Crab and Sea Snail Catches Reported by Japanese Bering Sea and Northeast Pacific Crab Fishery
CONTACT NAME: Sueto Murai
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
Fisheries Data and Management System
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains catch and effort data of crab and sea snails taken by the Japanese crab fishery reported by month and 1/2 degree latitude by 1 degree longitude blocks. Data contain date, vessel size, area, number of pots hauled, number of pots soaked, number of crabs caught, and number of metric tons caught.

-88-
DATABASE NAME: Crab Indexing Cruises Data File, Kodiak and Sand Point, 1974
CONTACT NAME: Regional Research Supervisor
ADDRESS: Alaska Department of Fish and Game
P.O. Box 686
Kodiak, AK 99615
ABSTRACT:
In order to gather more accurate information on King and Tanner crab stocks in the continental shelf adjacent to Kodiak Island and the Shumagin Islands, the Alaska Department of Fish and Game makes exploratory cruises during the summer to capture crabs in pots. Samples are analyzed for abundance of organisms,

species composition, age, length, weight and fecundity, and are tagged. Tags are recovered in the subsequent autumn and winter fisheries by commercial fishermen. These data provide baseline knowledge of crab populations so that harvest levels may be established and commercial fishing regulations set. Information is also obtained for species of fishes captured incidentally in the crab pots.

-89-
DATABASE NAME: Crab Indexing Cruises Data File, Kodiak, Sand Point, Dutch Harbor and Adak areas, 1975
CONTACT NAME: Regional Research Supervisor
ADDRESS: Alaska Department of Fish and Game
P.O. Box 686
Kodiak, AK 99615
ABSTRACT:
In order to gather more accurate information on King and Tanner crab stocks on the continental shelf adjacent to Kodiak Island, the Shumagin Islands and Unalaska and Adak Islands in the Aleutians, the Alaska Department of Fish and Game makes exploratory cruises during summer to capture crabs in pots. Samples are analyzed for abundance of organisms, species composition, age, length, weight and fecundity, and are tagged. Tags are recovered in the subsequent autumn and winter fisheries by commercial fishermen. These data provide baseline knowledge of crab populations so that harvest levels may be established and commercial regulations set. Information is also obtained for species of fishes captured incidentally in the crab pots.

-90-
DATABASE NAME: Crab Indexing Cruises Data Files, Kodiak 1971-1973
CONTACT NAME: Regional Research Supervisor
ADDRESS: Alaska Department of Fish and Game
P.O. Box 686
Kodiak, AK 99615
ABSTRACT:
In order to gather more accurate information on King and Tanner crab stocks on the continental shelf adjacent to Kodiak Island, the Alaska Department of Fish and Game makes exploratory cruises during summer to capture crabs in pots. Samples are analyzed for abundance of organisms, species composition, age, length, weight and fecundity and are tagged. Tags are recovered in the subsequent autumn and winter fisheries by commercial fishermen. These data provide baseline knowledge of crab populations so that harvest levels may be established and commercial fishing regulations set. Information is also obtained for species of fishes captured incidentally in the crab pots.

-91-
DATABASE NAME: Crab-Groundfish Surveys of Eastern Bering Sea, 1971-1975, 1977, 1978
CONTACT NAME: R. Mintel, R. Bakkala
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
2067 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
Haul data describe the time, location, gear type, and conditions when catch taken. Catch data describe the species composition. Length-frequency data by species measure relative frequency of the different size fish. Specimen data describes the sex, maturity, size, age, and etc. 1978 contains position data describing haul distance based on haul begin and end locations in latitude and

longitude and in loran positions. 1976 data are stored as part of file ID #16. 1977 contains comparative tow data.

-92-
DATABASE NAME: Croaker Tagging Study
CONTACT NAME: Director, NMFS
ADDRESS: Pascagoula Laboratory/NMFS/NOAA
3209 Frederick Street
P.O. Box Drawer 1207
Pascagoula, MS 39567
ABSTRACT:
The Atlantic or Bull Croaker, Micropogonias undulatus, was collected on two cruises totaling 5 weeks of sampling off the Texas coast. About 350 croaker were tagged and released in an effort to describe their movements around the oil rigs in the area. No returns have been reported to date, and none are expected in the future as the tags were meant to be short-lived, 1975-76.

-93-
DATABASE NAME: Crustaceans and Mollusks of the Offshore Ecology Investigation
CONTACT NAME: S.G. Appan
ADDRESS: Daniel Analytical Services Corporation
16821 Buccaneer Lane, Suite 202
Houston, TX 77058
ABSTRACT:
This study was conducted between September 1972 and January 1974 as part of the offshore ecology investigation to determine species of crustaceans and mollusks, their biomass, and frequency of occurrence in Timbalier Bay and Offshore Louisiana. Observations were made on the percentage of sand and mud in the trawl areas. Biomass data were derived from quantitative grab samples.

-94-
DATABASE NAME: DMF Biological Database: Dan Moore Exploratory Fishing
CONTACT NAME: Katy West
ADDRESS: Division of Marine Fisheries
North Carolina Dept. of Natural Resources
P.O. Box 769
Morehead City, NC 28557
ABSTRACT:
This exploratory fishing survey was conducted to determine and locate trawlable bottoms and live bottom species in Onslow and Raleigh Bays. Otter trawls (Yankee 41) and some fish pots were used from 1969-1977; data are not computerized.

-95-
DATABASE NAME: DMF Biological Database: Fishery Dependent Program
CONTACT NAME: Katy West
ADDRESS: Division of Marine Fisheries
North Carolina Dept. of Natural Resources
P.O. Box 769
Morehead City, NC 28557
ABSTRACT:
This survey was conducted to monitor the "health of the estuary" and to determine relative abundance of major species: shrimp, blue crabs, spot, croaker, and weakfish. Sampling was conducted mainly in North Carolina estuarine waters. Gear used was mainly otter trawls. Various years for each fishery for juvenile stock assessments since 1972 and the 1987 assessment for SEAMAP and Albemarle-Pamlico Sound Survey.

-96-
DATABASE NAME: DMF Biological Database: Fishery Independent Program
CONTACT NAME: Katy West
ADDRESS: Division of Marine Fisheries
North Carolina Dept. of Natural Resources
Research Section
P.O. Box 769
Morehead City, NC 28557
ABSTRACT:
Data include age and size composition data on the important North Carolina commercial fisheries. Samples are taken at the landing site. For major commercial species such as spot, croaker, weakfish, flounder, bluefish, snappers, groupers, etc., some data on species in the catch are recorded. Survey includes estuarine and ocean waters surrounding North Carolina. Commercial gear used include flounder trawl, gill net, long haul seine, electric handlines, etc. Data are given for various years for each fishery, mainly 1978 to present. Location information for fishing trips may be fairly general or lacking. Landings are influenced by market conditions, weather, etc., and are therefore not true indicators of stock abundance.

-97-
DATABASE NAME: Darnell/Defenbaugh Database
CONTACT NAME: R.M. Darnell
ADDRESS: Department of Oceanography
Texas A&M University
College Station, TX 77843
ABSTRACT:
Trawl samples were made on the shelf from below Corpus Christi to beyond Pensacola, Florida. One 24-hour study is included. Irregular stations were used except at the 24-hour study. Geographic extent: continental shelf from Corpus Christi, Texas, to Gulf of Mexico Region. Gear used: 20 ft. flat trawl, 91.5 in stretch Mesh. Period of survey: July, 1970 through February, 1973. Collections are not of uniform distribution throughout the area, and not all seasons are represented. However the collections do have both invertebrates and fishes identified.

-98-
DATABASE NAME: Data from Virginia-Maryland Cooperative Fish Trawl Surveys in Chesapeake Bay, 1957 and 1958
CONTACT NAME: Librarian
ADDRESS: Virginia Institute of Marine Science
Glouchester Point, VA 23062
ABSTRACT:
A 30-foot otter trawl was used to make 96 trawls at 24 stations during the Virginia-Maryland Cooperative Fish Trawl Surveys in Chesapeake Bay. Species, number, and length of demersal fish were recorded and length-frequency histograms constructed. Surface and bottom measurements of salinity and temperature were made at 200 water sample stations.

-99-
DATABASE NAME: Data of the Biology Phase, Florida Portion, Cooperative Gulf of Mexico Estuarine Inventory
CONTACT NAME: Director
ADDRESS: Panama City Laboratory/NMFS/NOAA
P.O. Box 4218
Panama City, FL 32401

ABSTRACT:
Five stations on the west coast of Florida were sampled monthly with trawl, seine, and plankton nets in conjunction with similar programs in other Gulf States, to demonstrate the importance of estuaries as nurseries and contributors to the fisheries of the Gulf of Mexico. Fish invertebrates and plankton were collected, identified and quantified. Temperature, salinity, catch, and length ranges were given. For most of the major organisms, the five stations were Ohokoloskee in Ten Thousand Islands area, Bokeelia in Charolette Harbor, Maximo Point in Tampa Bay, Atsena Otie Key Near Cedar Key, and St. Mark's River near the lighthouse. Data are available for 1968-1969.

-100-
DATABASE NAME: Decapod Crustaceans of Norfolk Canyon, June 1973, Atlantic Ocean
CONTACT NAME: Elizabeth L. Wenner
ADDRESS: South Carolina Marine Resources Institute
Charleston, SC 29412
ABSTRACT:
The crustacean community in the Norfolk Canyon was surveyed during 1973. Trawl and pot data on decapods were emphasized. Life history, ecology, and distribution of the dominant decapods were discussed. The data, including 12 bioecologic parameters with up to 3,500 observations per parameter came from 150 trawls and 12 pot sets. Specimens examined included Granyon quinquedens, Homarus americanus, Cancer borealis, Cancer irroratus, Bathynectes superba and shrimps.

-101-
DATABASE NAME: Demersal Finfishes and Macrocrustaceans from Offshore Louisiana
CONTACT NAME: Andre M. Landry
ADDRESS: Department of Marine Biology
Texas A&M University
Building 311, Fort Crockett
Galveston, TX 77550
ABSTRACT:
Baseline data concerning finfishes and macrocrustaceans were collected 6 and 26 miles offshore from Louisiana at two sites. Five stations were sampled at each site as part of the Department of Energy's Salt Dome Brine Disposal Study. Finfishes and crustaceans were investigated from species and counts present, length, weight, fecundity, sex and gonad development. Physical data taken include water temperature, salinity, conductivity and dissolved oxygen.

-102-
DATABASE NAME: Demersal Fish and Macrocrustaceans Collected Near the Buccaneer Oil Field
CONTACT NAME: Director, NMFS
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
Fish and macrocrustacenas have been collected in the vicinity of the Buccaneer Oil field located about 32 miles south-southeast of Galveston, Texas. The field has been divided into three sections with quarterly sampling in each section. Samples are collected by trawl, trap, and hook. Animals are identified, counted, measured, and weighed. If sample size is greater than 20 pounds, a random 20 pound subsample is taken. Temperature, salinity and DO

are taken at surface, mid and bottom at each collection site. This study is one part of a total environmental assessment.

-103-
DATABASE NAME: Demersal Fish and Macrocrustaceans of the Buccaneer Oil Field
CONTACT NAME: Director, NMFS
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
An investigation was conducted to determine the effects of oil-field effluents on fishes and macrocrustaceans in the Buccaneer oil field. This study was initiated in 1975 as part of a comprehensive monitoring survey of the Buccaneer oil field. Data include species composition, abundance, distribution patterns, and feeding habits of fishes and crustaceans. Data were reported in the form of NOAA/NMFS annual report to EPA, 1975 to present.

-104-
DATABASE NAME: Descriptions of Marine Vertebrates
CONTACT NAME: Richard Rosenblatt
ADDRESS: Scripps Institute of Oceanography
La Jolle, CA 92093
ABSTRACT:
A description of the distribution and systematics of fisheries is presented. Meristic measurements are available for Callechelys, Simenchelys, Ethadophia, Leuropharus, Gorgasis, Xenomedea, Paraclinus, Carcharhinus, Eustomias, Sagamichthys, Perparsia, Sebastes, Mycteroperca, Scarus, Pholis, Lasiognathus, Pythonichthys and Diplectrum. Measurements include a wide variety of fin ray and vertical counts and many proportional measurements, 1950 to present in the Global ocean.

-105-
DATABASE NAME: Diabolo Canyon Studies
CONTACT NAME: Dan Gotshall
ADDRESS: California Dept. of Fish and Game
Marine Resources Laboratory
2201 Gardens Road
Monterey, CA 93940
ABSTRACT:
A sixteen-month study was undertaken to determine the numbers of commercial species of fish and invertebrates between Pt. Arena and Mendocino, California. The area supports sport abalone, sea urchin and skiff sport fishes. Samples were taken during one week of each month. Divers sample both random and permanently placed stations. Numbers of algae, fish, and invertebrates, and sea otters were studied. Observations were made between 1973-1982 and reported in press.

-106-
DATABASE NAME: Distribution and Abundance of East Coast Bivalve Mollusks Based on Specimens in the NMFS Woods Hole Collection
CONTACT NAME: Roger B. Theroux
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543

ABSTRACT:
The distribution and numerical abundance of over 108,000 specimens of bivalve mollusks (81% of which were alive when captured) collected and maintained by the Benthic Dynamics Investigation at the NMFS Northwest Fisheries Center at Woods Hole, Massachusetts are presented. They are illustrated in a series of charts and their bathymetric range and bottom sediment preference are outlined in tabular form. Taxonomic groups represented 5 subclasses, 8 orders, 46 families, 99 genera and 164 species. The specimens are contained in 10,465 lots from 2,767 sampling sites along the east coast continental shelf and slope, and upper continental rise between Nova Scotia and Northern Florida. Samples range in depth from 0 to nearly 4,000 meters. The collections were obtained by a variety of research vessels and persons using quantitative and qualitative sampling devices over a period of 21 years. Also included are current vernacular names, zoogeographic data, and a reference to the original description of represented species.

-107-
DATABASE NAME: Distribution, Growth, Survival, and Biomass of Shrimp in Louisiana
CONTACT NAME: Louisiana State University Library
ADDRESS: Louisiana State University
Baton Rouge, LA 70803
ABSTRACT:
This study was conducted to determine distribution, growth, survival and biomass of juvenile and subadult Penaeus aztecus in an estuary in Southern Louisiana. Physical data on salinity and temperature were collected every 4 hours during the study period, May 1969 to January 1971.

-108-
DATABASE NAME: Dover Sole
CONTACT NAME: Lawrence F. Quirollo
ADDRESS: California Dept. Fish and Game
Marine Resources Laboratory
619 Second Street
Eureka, CA 95501
ABSTRACT:
Trawl survey, 1969-1971 spring, fall, and winter cruises. Geographic extent: Cape Mendocino-southern Oregon. Sampling gear used: trawl-400 mesh eastern trawl, 4 1/2 in. mesh throughout except for 1/2 in. cod-end liner. All data from the aforementioned survey have not been entered on a computerized database for analysis. Data entry are presently being worked on.

-109-
DATABASE NAME: Eastern Bering Sea Survey, 1975-76
CONTACT NAME: R. Mintel, R. Bakkala
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
2067 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains crab and groundfish survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; catch data describe the species composition of the haul; length-frequency data by species measures relative frequency of different size fish from the haul; and specimen data contain detailed information on sex, maturity, size, age, etc. File also contains catch data adjusted for standardization of night

hauls. The above data types are connected through shared vessel and haul numbers.

-110-
DATABASE NAME: Eastern Gulf of Mexico (OCS) Benchmark Studies
CONTACT NAME: Environmental Studies Section
ADDRESS: MMS Gulf of Mexico Regional Office, U.S. Dept. of Interior
Mail Stop LE4
1420 S. Clearview Parkway
New Orleans, LA 70123
ABSTRACT:
A third-year baseline marine environmental survey was conducted and a synthesis report prepared. Marine geology, physical oceanography, marine biology, trace metal and hydrocarbon chemistry of the water column, sediments and tissues were examined for the Mississippi, Alabama, Florida (MAFLA) outer continental shelf (OCS). The prime purpose of the MAFLA program was the determination of ongoing or potential impacts on the OCS environment from oil and gas development. Physical oceanographic and sediment geology data provided information to better understand the biological and chemical distributions. A database was created merging data collected from 1974 to 1978. A brief summary and lists of recommended monitoring parameters and major deficiencies in the database are included.

-111-
DATABASE NAME: Eastern Gulf of Mexico Outer Continental Shelf Ichthyoplankton Study, FY 1977

CONTACT NAME: Francis Mitchell, NOAA, Environmental Studies Section
ADDRESS: MMS Gulf of Mexico Regional Office
U.S. Dept. of Interior
Mail Stop LE4
1420 S. Clearview Parkway
New Orleans, OA 70123
ABSTRACT:
An ichthyoplankton survey in the eastern Gulf of Mexico was carried out from 1971 to 1974. Objectives of the survey were to determine the kinds and abundance of larval fishes, their distribution and diversity, and the relationship of their occurrence to environmental factors. The surveys succeeded in providing important baseline data on early life stages of fishes in the Gulf of Mexico. Effects of environmental factors on ichthyoplankton abundances were not clearly demonstrated, but the modes and ranges of surface temperature, surface salinities, and station depths where common species occurred were clearly defined. Positive affinities of some species with water of Loop Current origin, when it intruded into coastal areas, were demonstrated for several species.

-112-
DATABASE NAME: Epifauna Collection Data
CONTACT NAME: Richard Haedrich
ADDRESS: Woods Hole Oceanographic Institution
Redfield Bldg. Rm. 1-18
Woods Hole, MA 02543
ABSTRACT:
Richard Haedrich has been collecting data concerning epibenthic macrofauna in the North Atlantic ocean since 1972. The areas in the North Atlantic where data have been collected are near the Canary Islands off the New England coast, and in the New York Bight. The parameters included in this data collection are: species, count, weight and diversity of pelagic fish,

demersal fish and benthic animals; length and stomach content of pelagic and demersal fish; and community structure analysis and depth. Some samples are available for inspection.

-113-
DATABASE NAME: Epifauna of the South Texas OCS
CONTACT NAME: Director
ADDRESS: The Marine Science Institute
University of Texas
Port Aransas, TX 78373-1267
ABSTRACT:
Day and night trawl samples consisting of epifaunal invertebrates and demersal fish were collected at 12 stations over a 3-year period as part of the South Texas Outer Continental Shelf Baseline Survey sponsored by the Bureau of Land Management. Species diversity, composition and abundance were determined for each sample as well as trace metal and hydrocarbon content of each organisms. Catch per effort data and graphs are included which show seasonal distribution of trace metals and hydrocarbons in epifauna. Notes on histopathology of epifaunal organisms are also included.

-114-
DATABASE NAME: Exploratory Fishing for Southern Sea Bass, Centriopristes Striatus (Melanus), in the Northeastern Gulf of Mexico
CONTACT NAME: Mark F. Godcharles
ADDRESS: Florida Department of Natural Resources
100 8th Ave., S.E.
St. Petersburg, FL 33701
ABSTRACT:
An extensive exploratory trapping program for southern sea bass was conducted in the Northeastern Gulf of Mexico from January to October. 1968. Three trap types were set a total of 540 times producing 2283 sea bass. Measurements include counts, lengths, weights before and after fellating, and temperature and depth. Data were collected aboard R/V Hernan Cortez by Florida Department Natural Resources.

-115-
DATABASE NAME: FAMP
CONTACT NAME: Mark Van Hoose
ADDRESS: Alabama Department of Conservation and Natural Resources
P.O. Box 189
Dauphin Island, AL 36528
ABSTRACT:
Database includes commercial fishery monitoring and assessment data used to develop models. Geographic extent: Mississippi waters. Sampling gear: beam trawl. Years covered: 1973 to present.

-116-
DATABASE NAME: Fauna of the Florida Middle Grounds
CONTACT NAME: Thomas S. Hopkins
ADDRESS: Dauphin Island Sea Laboratory
University of Alabama
P.O. Box 386
Dauphin Island, AL 36528
ABSTRACT:
Observations have been made by scuba divers on seven cruises to the Florida Middle Grounds since 1971. General biological observations have been made

including identifications of the fishes and benthic animals observed on seven separate cruises to the Middle Grounds, 1971 to present.

-117-
DATABASE NAME: Finfish Monitoring Program
CONTACT NAME: Barry Barrett
ADDRESS: Office of Coastal and Marine Resources
Louisiana Department of Wildlife and Fisheries
P.O. Box 15570
Baton Rouge, LA 70895
ABSTRACT:
This program utilizes seines, gill nets and trammel nets to gather data for the management of Louisiana's coastal finfish resources. A bag seine is used to sample young of the year and provide information on growth and movement. The seine is 50' in length, 6' in depth and has 6' x 6' bag as an integral part of and midway the length of the net. The mesh size is 1/4" bar, 1/2" stretched, and constructed of Delta 44 knotless mesh. A gill net is used to sample juvenile, sub-adult and adults, and provide information on relative abundance, year class strength, movement and gonadal condition. The gill net is 750' in length, 6' in depth and constructed of monofilament. A trammel net is used to provide information on relative abundance, standing crop and movement. The trammel net is 750' in length, 6' in depth and constructed of nylon.

-118-
DATABASE NAME: Finfish Population Survey
CONTACT NAME: Thomas Heffernan
ADDRESS: Texas Parks and Wildlife Department
715 S. Bronte
Rockport, TX 78382
ABSTRACT:
The finfish populations in the seven major estuarine systems along the Texas Coast have been intensively studied since October 1975. The sampling regime in each system includes semiweekly gill netting from October to March, biweekly trammel netting in April, May, September and October and rotenone sampling in July and August. Several thousand fish, including red drum, black drum, southern flounder, and sheepshead have been tagged. Additional data on population size of some of the commercially important species can be found in annual reports by the Texas Park and Wildlife Department.

-119-
DATABASE NAME: Finfish Trawl
CONTACT NAME: Richard T. Sisson
ADDRESS: Division of Fish and Wildlife
Rhode Island Department of Natural Resources
150 Fowler Street
Wickford, RI 02852
ABSTRACT:
Four stations in Narragansett Bay were sampled from May 1969 to the present for temperature, count, and species determination of pelagic and demersal fish, and length and weight of pelagic fish (scup only), Stenotomous chrysops.

-120-
DATABASE NAME: Fish Abundance
CONTACT NAME: Nancy Wiley, Edmond Hobson
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Tiburon Fisheries Laboratory
Tiburon, CA 94920

ABSTRACT:
The file contains counts of fish by species taken from various distinct fish habitats. The counts were collected from 50-meter transections around Santa Catalina Island. The data are used to evaluate the impacts of environmental events on the relative abundance of fishes. Data elements include habitat, date, fish species, and the count per species.

-121-
DATABASE NAME: Fish and Invertebrates from Southern California Waters
CONTACT NAME: Alan Mearns
ADDRESS: Southern California Coastal Water Research Project
1500 E. Imperial Hwy.
El Segundo, CA 90245
ABSTRACT:
The Southern California Coastal Water Research Project (SCCWRP) regularly receives biology data collected by various sanitation districts. About 70% of this file originates from the Orange and Los Angeles County sanitation districts. Los Angeles County has surveyed 21 stations in seven transects off the Palos Verdes Peninsula twice yearly for 5 years. Orange County has surveyed eight stations quarterly for 6 years. Other contributors have monitored stations in Santa Monica Bay and off Dana Point and Point Loma. Ten minute otter trawls are taken and the fish and invertebrates are counted, identified and sized. Fish species, size classes and various indices of dominance and abundance are computerized by SCCWRP.

-122-
DATABASE NAME: Fish and Invertebrates of the Offshore Ecology Investigation
CONTACT NAME: S.P. Appan
ADDRESS: Daniel Analytical Services Corporation
16821 Buccaneer Lane, Suite 202
Houston, TX 77058
ABSTRACT:
Surface and bottom trawls were made at 21 stations around oil drilling platforms, production platforms and control areas to determine the effects of these activities on fish and invertebrate populations. Measurements of length, weight, and total catch were made as well as determinations of temperature and salinity.

-123-
DATABASE NAME: Fish Collection, University of North Carolina, Institute of Marine Sciences
CONTACT NAME: Frank J. Schwartz
ADDRESS: Institute of Marine Sciences
University of North Carolina
Morehead City, NC 28557
ABSTRACT:
A collection of fish specimens taken from Florida to Canada and from abyssal to freshwater areas is maintained at the University of North Carolina, Institute of Marine Sciences. Some 319,000 fish representing 240 families and 16,734 lots of fishes are stored in isopropyl alcohol. A few lots were collected as early as 1800, but most of the collection was accumulated between 1967 and the present. Hydrographic data have been irregularly recorded with the specimens.

-124-
DATABASE NAME: Fish Distribution-MESA New York Bight Atlas Monography 15
CONTACT NAME: Thomas R. Azorovitz
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Atlas Monograph 15 characterizes the fish fauna of the Middle Atlantic Bight and summarizes the ecology of 43 important species of fish and shellfish in terms of 1) distribution and seasonal movements, 2) population size and fisheries, 3) reproduction-growth life span, 4) feeding interrelationships, and 5) environmental sensitivity to pollutant and natural environmental factors. The species distributions are based on bottom trawl surveys or dredge surveys conducted by the NMFS or on commercial catch recorded from Cape Hatteras to the Gulf of Mexico (including Georges Bank).

-125-
DATABASE NAME: Fish Prey Abundance
CONTACT NAME: Peter Adams
ADDRESS: Tiburon Fisheries Laboratory
Southwest Fisheries Center/NMFS/NOAA
Tiburon, CA 94920
ABSTRACT:
The file contains counts and percentages of available fish preys by species from various distinct habitats in the nearshore environment of Santa Catalina Island. Invertebrate abundance is studied via several sources including algae, cores, and airlifts. The data were collected to evaluate the gut content of fish predators.

-126-
DATABASE NAME: Fish Surveys
CONTACT NAME: Jim Audet
ADDRESS: U.S. Dept. of Commerce
National Oceanographic Data Center/NOAA
Ocean Pollution Data and Information Network
1825 Connecticut Ave., NW
Washington, D.C. 20235
ABSTRACT:
This file contains data from field sampling of marine fish by means of midwater- or bottom-tow catches. The data provide information on population density and distribution. Cruise information, position, date, time, gear type, fishing distance and duration, and number of hauls are reported for each survey. Environmental information may include meteorological conditions, surface temperature, and current direction and speed. Trawl or other gear dimensions and characteristics are also reported. Catch statistics (e.g., weight, volume, sex maturity) and length frequency information are reported by species. Biological characteristics (e.g., sex, age, dimensions of body and organs) and predator/prey information (from stomach contents analysis) may be reported for selected specimens. A text record is available for comments.

-127-
DATABASE NAME: Fish Trawl Survey of Los Angeles County Coast
CONTACT NAME: Irwin Haydock
ADDRESS: County Sanitation District of Los Angeles County
1919 Workman Mill Road
Whittier, CA 90607

ABSTRACT:
The ocean monitoring program was established to assess possible effect of the sewage outfalls of Los Angeles County. Six offshore stations and one control station are sampled twice yearly by trawling. The number of fish species and the number of fish caught are recorded for the dover sole, Microstomus pacificus, and the rex sole, Glyptocephalus zachirus. Various states of a pathology such as presence of tumors or fin erosion were noted by number and fish size class, 1970 to present.

-128-
DATABASE NAME: Fish/Shellfish Surveys
CONTACT NAME: Jim Audet, Manager
ADDRESS: National Oceanographic Data Center/NOAA/U.S. Dept. of Commerce
Ocean Pollution Data and Information Network
1825 Connecticut Ave., NW
Washington, D.C. 20235
ABSTRACT:
Geographic coverage: Coastal Alaska, Puget Sound, U.S. Gulf Coast. Time Period: 1975-present. This file contains data from field sampling of marine fish and shellfish. The data derive from analyses of midwater- or bottom-tow catches and provide information on population density and distribution. Cruise information, position, date, time, gear type, fishing distance and duration, and number of hauls are reported for each survey. Environmental data may include meteorological conditions, surface and bottom temperature and salinity, and current direction and speed. Trawl or other gear dimensions and characteristics are also reported. Catch statistics (e.g., weight, volume, number of fish per unit volume) may be reported for both total haul and for individual species. Biological characteristics of selected specimens, predator/prey information (from stomach contents analysis) and growth data may also be included. A text record is available for comments.

-129-
DATABASE NAME: Fisheries Statistics, Salmon
CONTACT NAME: Sueto Murai
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
U.S. Dept. of Commerce, REFM
1063 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
The National Marine Fisheries Service funded a project through the years 1952-1974 in the Japanese North Pacific Ocean, Bering Sea and the Sea of Okhotsk. The main purpose of this project was to determine the catch/effort and the count of salmon in these areas.

-130-
DATABASE NAME: Fishery Statistics Data Collection Program, FY 1981-1983
CONTACT NAME: H. Erich Gross
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort, NC 28516
ABSTRACT:
The purpose of this program is to investigate fishery data collection and analysis methodologies within the SEFC using the principles of the science of statistics. Much of the time impetus for this program has come from the increasing need for more, new and better kinds of fishery data as a result of the FCMA and the consequent Fishery Management Plans and the resultant desire to maximize the informational return from data collection and analysis. In order to do so, the logistics of data collection must be weighted against the

stated needs and the time, money, and effort required to develop effective management actions. In addition, the needs and requirements of individual plans must be considered jointly whenever and wherever the sources of information and/or management agencies and/or management scales are the same. By mandate and default this task has fallen to the NMFS which has been delegated the responsibility of designing, and/or managing and/or monitoring and/or operating the system(s) of public collection.

-131-
DATABASE NAME: Fishes and Fish Larvae Collected from Atlantic Plankton Cruises of R/V Pathfinder, December 1959-December 1960
CONTACT NAME: Librarian (VIMS)
ADDRESS: Virginia Institute of Marine Science
Glouchester Point, VA 23062
ABSTRACT:
Fish and fish larvae collected during Atlantic plankton cruises of the R/V PATHFINDER were measured at 12 stations monthly for one year. The positions of the stations were described in Virginia Institute of Marine Science Special Scientific Report Number 18, and the data were reported in Special Scientific Report Number 26 (ORNL).

-132-
DATABASE NAME: Florida Finfish/Shellfish Landings
CONTACT NAME: Guy S. Davenport, Margery Bastian
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Data File Inventory ESO-Statistics
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
Monthly commercial landings of Florida fish dealers for 1977 through 1986. Files contain dealer, port, month, year, species, price/pounds,and value.

-133-
DATABASE NAME: Florida General Canvas Landings
CONTACT NAME: Guy S. Davenport, Gary Kinkle
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Data File Inventory ESO-Statistics
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
Florida annual landings for 1976 through 1985. Files contain year, state, area, gear, species, pounds, value, and distance from shore.

-134-
DATABASE NAME: Foreign Catch/Effort Data
CONTACT NAME: J. Terrill
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Northeast Region
14 Elm Street, Federal Bldg.
Glouchester, MA 01930
ABSTRACT:
Catch/effort data are reported by designated foreign officials, the NMFS observer program, and NMFS/USCG enforcement officials. Foreign allocation and fishing area data and C/E data are reported by vessels and/or processors/dealers.

-135-
DATABASE NAME: Foreign Commercial Catch-Effort
CONTACT NAME: R. Hennemuth
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
This data set is not yet automated.

-136-
DATABASE NAME: Foreign Fisheries Observer Program, Independent Stern Trawler
CONTACT NAME: B. Gibbs, R. Carlson
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
Resource Economics and Fisheries Management (REFM)
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains observer data collected on foreign independent stern trawler vessels. The data are sorted into haul data which contain position, depth, duration, detailed haul and vessel data, and catch reported by area. Catch data contain the species composition of the hauls and incidental catch data. Length-frequency and age data reported by area contains species, sex, depth, age, etc., that have been standardized to be used in conjunction with the race survey data. The above haul and catch data are connected through shared vessel and haul numbers.

-137-
DATABASE NAME: Foreign Fisheries Observer Program, Longliner Data
CONTACT NAME: B. Gibbs, R. Carlson
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
REFM
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains observer data collected on foreign longliner vessels. The data are sorted into haul data which contain position, depth, duration, detailed haul and vessel data, and catch reported by area. Catch data contain the species composition of the hauls and incidental catch data. Length-frequency and age data reported by area contain species, sex, depth, age etc., that have been standardized to be used in conjunction with the race survey data. The above haul and catch data are connected through shared vessel and haul numbers.

-138-
DATABASE NAME: Foreign Fisheries Observer Program, Mothership Data
CONTACT NAME: B. Gibbs, R. Carlson
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
REFM
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains observer data collected on foreign mothership vessels. The data are sorted into haul data which contain position, depth, duration, detailed haul and vessel data and catch reported by area. Catch data contain the

species composition of the hauls and incidental catch data. Length-frequency and age data reported by area contain species, sex, depth, age, etc., that have been standardized to be used in conjunction with the race, survey data. The above haul and catch data are connected through shared vessel and haul numbers.

-139-
DATABASE NAME: GMEI
CONTACT NAME: James Warren
ADDRESS: Fisheries Research and Development Section
Gulf Coast Research Laboratory
P.O. Box 7000
Ocean Springs, MS 39564
ABSTRACT:
Types of survey include monthly biological and hydrographic surveys of Mississippi coastal waters, additional data on botany, and the geology of Mississippi coast. The geographic extent include all inland and territorial water along the Mississippi Gulf coast. Sampling gear: includes beam trawls, otter trawls, seines, marsh nets, nekton nets, etc. The years covered were 1965-1969. Limitations in the database are gear selectivity and the fact that only day samples were taken.

-140-
DATABASE NAME: GUSIIIDATA
CONTACT NAME: Ed Klima, Frank Patella
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
A size and abundance survey was conducted on the following species: brown, pink, and white shrimp. The geographic area of concern was the Gulf of Mexico/Texas. Sampling gear used was shrimp trawl. Years: 1963-1965; Limitations of data: Not known.

-141-
DATABASE NAME: General Canvas of the Fisheries
CONTACT NAME: Gorden Rogers
ADDRESS: Coastal Resources Division
Georgia Department of Natural Resources
1200 Glynn Avenue
Brunswick, GA 31523
ABSTRACT:
Computer file of commercial fisheries landings of finfish and shellfish in coastal Georgia. Coverage: coastal Georgia. Data collected: 1963-present (monthly). Source of data: interviews and inspection of records. Items in database: month, year, state, county, dealer, water, gear, species, finshell code, pounds, value, district, state caught, price per pound. The purpose of the survey is to monitor commercial fisheries landings in coastal Georgia. The Georgia databases are a subportion of a much larger (federal) regional file.

-142-
DATABASE NAME: General File Description for Numerous Specific Studies
CONTACT NAME: Thomas Heffernan
ADDRESS: Texas Parks and Wildlife Department
715 S. Bronte
Rockport, TX 78382

ABSTRACT:
The Texas Parks and Wildlife Department has been collecting data on coastal environments since 1950 or earlier. Much of the recent (since 1970) data have been automated and are described elsewhere. This data file description has been entered to alert the user to the pre-1970 data held by the Texas Park and Wildlife Department in annual reports in the Austin Office. Generally, data collection efforts reported in the reports would fall in one or more of the following categories: general ecological investigations (populations analysis and dynamics of vertebrates and invertebrates), general hydrographic and meteorological data, shrimp studies, pollution abatement, and sport and/or commercial fishery studies.

-143-
DATABASE NAME: Gray's Harbor: Downstream Migrant Salmonoid Study
CONTACT NAME: Erik Tokar, Donald R. Kendall
ADDRESS: ITT Rayonier, Inc.
Research Division
409 E. Howard Ave.
Shelton, WA 98584
ABSTRACT:
This is a report on the results of the field surveys from April 1968 through December 1969 investigating the movements of downstream migrating salmonoids in Gray's Harbor. It was initiated to establish the timing of the migrations and to evaluate any effects of adverse water quality on these fish especially on any juvenile chinook salmon that are present in the late summer period. The number, species determination, condition, and stomach content of the fish were analyzed. The surrounding water was analyzed for dissolved oxygen, sulfite liquor, salinity, temperature, and turbidity. The project was funded by ITT Rayonier Inc. Samples were collected by beach seine and tow net.

-144-
DATABASE NAME: Gulf Coast Research Laboratory (GCRL) Database
CONTACT NAME: J.Y. Christmas
ADDRESS: Gulf Coast Research Laboratory
Fisheries Research and Development Section
P.O. Box 7000
Ocean Springs, MS 39564
ABSTRACT:
A single transect across the shelf was run monthly for over 2 years. Regular stations were sampled at monthly intervals. Geographic extent: one transect across the shelf off Horn Island, MS (99-91m). Sampling gear: 40 ft. balloon trawl. Years collected: January 1967-May 1969. Limitations of data: None. Good study. Authoritative identifications.

-145-
DATABASE NAME: Gulf Shrimp
CONTACT NAME: Guy S. Davenport, Gary Kinkle
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Data File Inventory ESO-Statistics
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
Monthly landings of shrimp data for the Florida West Coast, Alabama, Mississippi, Louisiana, and Texas. Files contain port, vessel, date, area, depth, species size class, pounds, value, effort/trips, dealer and condition landed. Files are available for 1961-1986.

-146-
DATABASE NAME: Gulf of Alaska Observer Data in RACE
CONTACT NAME: R. Mintell
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains observer survey data on the following types: haul data describe the time, location, gear type, and conditions when catch taken; and catch data describe the species composition of the haul. This file is a subset of the REFM observer data. The above data types are connected through shared vessel and haul numbers.

-147-
DATABASE NAME: Gulf of Alaska Rockfish Survey, 1978
CONTACT NAME: R. Mintel, L. Ronholt
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains rockfish survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; catch data describe the species composition of the haul; length-frequency data by species measure relative frequency of different size fish from the haul; and position data describe haul distance based on haul begin and end locations in latitude and longitude and in loran positions. Age-length specimen are for vessels Nore-Dick and Heidi-J only. The above data types are connected through shared vessel and haul numbers.

-148-
DATABASE NAME: Gulf of Alaska Shrimp Cruise Surveys, 1953-1977
CONTACT NAME: R. Mintel, L. Ronholt
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains shrimp survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; and catch data describe the species composition of the haul. In 1955, 1956, 1965, 1966, and 1969 no survey was conducted. The above data types are connected through shared vessel and haul numbers.

-149-
DATABASE NAME: Gulf of Alaska Surveys, 1971-1976
CONTACT NAME: R. Mintel, L. Ronholt
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115

ABSTRACT:
File contains crab and groundfish survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken. Catch data describes the species composition of the haul; length-frequency data by species measure relative frequency of different size fish from the haul. 1972-1973 and 1975-1976 contain age-length data (called specimen data in 1976) which contain detailed information on sex, maturity, size, age, etc. File also contains catch data adjusted for standardization of night hauls. The above data types are connected through shared vessel and haul numbers.

-150-
DATABASE NAME: Gulf of Alaska Surveys, 1977-1978
CONTACT NAME: R. Mintel, L. Ronholt
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains crab and groundfish survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; catch data describe the species composition of the haul; length-frequency data by species measure relative frequency of different size fish from the haul; specimen data contain detailed information on sex, maturity, size, age, etc.; and position data describes haul distance based on haul begin and end locations in latitude and longitude and in loran positions. The above data have shared vessel and haul numbers.

-151-
DATABASE NAME: Gulf of Mexico OCS Reef Fish Study (29139)
CONTACT NAME: Francis Mitchell
ADDRESS: National Environmental Satellite
Data and Information Service/NOAA
National Oceanographic Data Center
Washington, D.C. 20235
ABSTRACT:
The primary purpose of this study was, 1) to collect quantitative data for comparison of reef fish populations associated with natural hard bottom areas and offshore oil and gas structures and 2) to develop fish population sampling methods which can be applied to deep areas that exclude or limit direct observations. The study was designed as a three-phase effort with each phase having specific objectives: Phase I--evaluation of potential study sites; Phase II--evaluation of equipment and methods; and Phase III--generation and evaluation of standing stock estimates for fish species. The study area was the northern Gulf of Mexico outer continental shelf (OCS) between 90 and 94 degrees west longitude and the 18- and 200-meters isobaths. There are numerous hard bottom areas described as natural reefs within this area. Period: May 1980 to November 1980.

-152-
DATABASE NAME: Herring Spawning
CONTACT NAME: Jim Audet, Manager
ADDRESS: U.S. Dept. of Commerce
National Oceanographic Data Center/NOAA
Ocean Pollution Data and Information Network
1825 Connecticut Ave., NW
Washington, D.C. 20234

ABSTRACT:
This file contains data from aircraft surveys of herring schools. These data are collected to provide information on herring population density and distribution. Start data and time, start and end positions, and aircraft type, altitude, and airspeed are reported for each survey. Surveys are conducted for preassigned areas, and mid-point positions of census areas are reported. Environmental information may include meteorological conditions, sea state, air roughness, and water clarity. Census data include species identification, school position and activity, school size index, and number of schools sighted. Predominant beach type, biota type, and escarpment type may also be indicated. A text record is available for comments.

-153-
DATABASE NAME: Herring Survey, 1978, Eastern Bering Sea (Miller Freeman)
CONTACT NAME: R. Mintel, R. Bakkala
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains herring survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; catch data describe the species composition of the haul; length-frequency data by species measure relative frequency of different size fish; specimen data contains detailed information on sex, maturity, size, age, etc.; and position data describe haul distance based on haul begin and end locations in latitude and longitude and in loran positions. The above data have shared vessel and haul numbers.

-154-
DATABASE NAME: High Seas Salmon Catches
CONTACT NAME: Marilyn Marshall, Dr. Brian, Salmon Section
ADDRESS: Computer Division, Pacific Biological Station
Box 100
Nanaimo, B.C. V9K5K6
Canada
ABSTRACT:
Measurements have been made on tagged salmon caught in the North Pacific Ocean. Catches were mostly made by longline but some gillnet records are included. Data were collected from 1961-1967 and funding was provided by the Department of the Environment. Data are maintained in punched card file.

-155-
DATABASE NAME: High Seas Salmon Distribution
CONTACT NAME: Robert Carlson
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
1065 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
From June of 1965 to July of 1972, high seas salmon distribution studies were undertaken on the North Pacific Ocean and Bering Sea. The basic information collected was the number of fish caught, species determination, gonadal development, sea conditions and surface water temperature. The NMFS funded this project.

-156-
DATABASE NAME: High Seas Salmon Monitoring
CONTACT NAME: Colin Harris
ADDRESS: Fisheries Research Institute
University of Washington
WH-10
Seattle, WA 98195
ABSTRACT:
The National Marine Fisheries Service is funding a project continuing since 1960. The main purpose is to forecast annual abundance and age composition of runs of sockeye salmon to west Alaska one year prior to arrival. The area focused upon was south of Adak Island. Parameters measured include water samples and physical properties of the water. Gear used: purse seine.

-157-
DATABASE NAME: Historical Annotated Landings (HAL) Database
CONTACT NAME: Will Daspit, Marcelle Lynde
ADDRESS: Pacific Marine Fisheries Commission/NMFS/NOAA
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
The Historical Annotated Landings (HAL) database was compiled to provide a single, documented source of landings of groundfish from the northeastern Pacific ocean and eastern Bering Sea for 1956 through 1980. The database contains catch by year, area, species, gear type and state or nation and can be accessed through the Pacific Fisheries Management Commission's Pacific Fishery Information Network (PACFIN).

-158-
DATABASE NAME: Hourglass
CONTACT NAME: Karen A. Steidinger, Chief
ADDRESS: Bureau of Marine Research
Florida Department of Natural Resources
100 8th Ave., SE
St. Petersburg, FL 33701-5095
ABSTRACT:
Two transects are made across the continental shelf at monthly intervals. These transects carried out by personnel of the Florida Department of Natural Resources. One transect is off Tampa Bay; another is off Charolette Harbor (96-73m). Years collected: August 1965-November 1967 (except September, 1965). Excellent study. Not all the results have been published yet.

-159-
DATABASE NAME: Hydroacoustic Density per Unit Surface Area Estimates
CONTACT NAME: J. Traynor, M. Nelson
ADDRESS: Northwest Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains density estimates obtained using echo integration techniques from task surveys of pelagic and semi-pelagic fish stock.

-160-
DATABASE NAME: Ichthyofauna of the Gulf of Mexico and Northwest Caribbean
CONTACT NAME: Director, Sterling C. Evans Library
ADDRESS: Sterling C. Evans Library
Texas A&M University
College Station, TX 77843
ABSTRACT:
Taxonomy and distribution of several hundred species of fish from 10 reef areas in the Gulf of Mexico and Northwest Caribbean were investigated during cruises of the R/V Miss Freeport, R/V Orca, R/V Pearl M and R/V Alaminos. Data include notes on morphology and ecology of each species and a checklist of species in each area. Samples were collected using scuba.

-161-
DATABASE NAME: Ichthyoplankton Survey of Nearshore Gulf Waters of Louisiana
CONTACT NAME: Louisiana State University Library
ADDRESS: Louisiana State University
Baton Rouge, LA 70803
ABSTRACT:
This study was conducted as an exploratory survey of the early life history stages of fish occurring in the nearshore Gulf of Mexico. Limited water quality data were collected in addition to larval identifications and determination of relative abundance.

-162-
DATABASE NAME: Industrial Samples Data
CONTACT NAME: Christensen
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Database includes volume, species composition and catch characteristics of samples of commercial landings sold industrial for reduction. Data include fishing effort, date, location, gear used, port landed, and depth of catch.

-163-
DATABASE NAME: Inshore and Offshore Lobster Studies
CONTACT NAME: Howard J. Russell, Jr.
ADDRESS: Division of Fish and Wildlife
Rhode Island Department of Natural Resources
150 Fowler Street
Wickford, RI 02852
ABSTRACT:
Since 1973, the waters between the coastline and over the continental shelf in Narragansett Bay, Rhode Island Sound and Block Island Sound have been used to conduct lobster studies from commercial fishing vessels and a state vessel. Parameters measured include count, length, weight, biomass, sex determination, and catch/effort of American lobsters; the size composition and frequency are determined from the carapace length. Release and recapture tagging studies are performed to show growth and movements of the lobsters. Also catch quotas are calculated from the size at maturity.

-164-
DATABASE NAME: Inshore Groundfish Surveys
CONTACT NAME: T. Azarovitz
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543

ABSTRACT:
Inshore groundfish surveys cover the area from Cape Ann, Massachusetts to Cape Fear, North Carolina. Depths of samples are approximately from 5-15 fathoms. Seasonal cruises on catch composition include weight, number at length, and age for each tow. Environmental data are also given by tow.

-165-
DATABASE NAME: International North Pacific Fisheries Commission Catch Statistics
CONTACT NAME: Executive Director
ADDRESS: International North Pacific Fisheries Commission
6640 Northwest Marine Drive
Vancouver, B.C.
Canada
ABSTRACT:
Commercial catch statistics for foreign fisheries in U.S. waters are provided through the International North Pacific Fisheries Commission. Data are produced on a 1-degree longitude x 1/2 degree latitude scale, and cover a period from 1963-1983. Data provide information on harvest areas of commercially important species of fish and invertebrates in waters off the southern Alaskan coast from the Aleutian Islands to the Alaskan/British Columbia border. Data pertain to adults.

-166-
DATABASE NAME: Intertidal Organisms and Habitat
CONTACT NAME: Jim Audet, Manager
ADDRESS: U.S. Dept of Commerce
National Oceanographic Data Center/NOAA
Ocean Pollution Data and Information Network
1825 Connecticut Ave., NW
Washington, D.C. 20235
ABSTRACT:
Geographic coverage: Coastal Alaska. Time period: 1974-1980. This file contains data from field sampling of marine organisms in intertidal or subtidal habitats. The data are collected to provide information about species abundance and distribution. Data from each observation may include: cruise and station information such as vessel name, senior scientist, position, date, and time; environmental conditions such as surface temperature and salinity, wind speed and direction, and sea state; sediment and habitat descriptors; and species identification and organism counts and measurements. Data may be reported for either individual or composite samples. A text record is available for reporting comments.

-167-
DATABASE NAME: Invertebrates Program
CONTACT NAME: William Richards
ADDRESS: Southeast Fisheries Center/NMFS
Beaufort Laboratory
Pivers Island
P.O. Box 570
Beaufort, NC 28516
ABSTRACT:
There are several major groups of invertebrates (excluding shrimp) which have major fisheries focused on them in the Gulf of Mexico, South Atlantic and Caribbean. Chief among these is the stone crab in the Gulf of Mexico for which a Fishery Management Plan is in effect (operational March 19, 1979 as published in the Federal Register April 3, 1979. Fed. Reg. Ref. Vol. 44, No. 65). Second in importance is the spiny lobster for which draft FMPs have been

completed for this fishery in the Gulf of Mexico and South Atlantic (combined plans) and the Caribbean. Third in importance are the corals-a joint draft FMP for the Gulf and South Atlantic is in preparation and one for the Caribbean has not been initiated. Other groups for which FMPs may be developed but only profiles are being considered include mollusks (conch and whelk) for the Caribbean Council, and calico scallops for the South Atlantic Council. The Invertebrate (x-shrimp) Program was inactive during FY 1980 because of reprogramming funds to other areas and decreases in resource survey funding.

-168-
DATABASE NAME: Isaacs-Kidd Midwater Trawl Data, 1977, Eastern Bering Sea (Discoverer)
CONTACT NAME: R. Mintell, R. Bakkala
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
2067 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains ichthyoplankton survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; catch data describe species composition of the haul; and length-frequency data by species measure relative frequency of different size fish from the haul. The above data types are connected through shared vessel and haul numbers.

-169-
DATABASE NAME: JETTYPL
CONTACT NAME: Ed Klima, Frank Patella
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
Data are presented on white shrimp collected from 1960-1987 using beam trawls in the Gulf of Mexico.

-170-
DATABASE NAME: Japan Fisheries Agency Survey Data of the Bering Sea
CONTACT NAME: R. Mintell, G. Smith
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains crab and groundfish survey data of the following types: haul data describe the time, location, gear type, and conditions of the haul; length-frequency data by species measure relative frequency of different size fish from the haul. In 1972 there was no Bering Sea survey conducted. The above data types are connected through shared vessel and haul numbers.

-171-
DATABASE NAME: Japanese Bering Sea Groundfish Mothership Trawl Fishery Catch and Effort Data
CONTACT NAME: S. Murai, L. Low
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
FDMS & REFM
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains catch and effort data from the Japanese Mothership and independent trawlers operating in the Bering Sea. Data are by species, fishing gear, and vessel size reported by month and 1/2 degree latitude by 1 degree longitude blocks. Data are used in conjunction with file Id#3.

-172-
DATABASE NAME: Japanese North Pacific Salmon Mothership Fishery Catch and Effort Data
CONTACT NAME: M. Dahlberg, S. Murai
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
ABL & FDMS
P.O. Box 155
Auke Bay, AK 99125
ABSTRACT:
File contains catch and effort data from the Japanese North Pacific Salmon Mothership Fishery for five species of salmon: red, chum, pink, coho, and chinook. Catch are in numbers of fish and effort in numbers of tons of gill net. Data are reported by 10-day periods and 2 degree latitude by 5 degree longitude blocks.

-173-
DATABASE NAME: Japanese North Pacific Salmon Mothership Fishery Detailed Data; Catch, Effort and Size Composition
CONTACT NAME: F. Fukuhara, S. Murai
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
FMMS & REFM
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains detailed information of catch by 10-day time intervals and 2 degree latitude by 5 degree longitude blocks. Data are by species, fishing gear, and vessel size reported for 12 montherships and 369 catcher boats. File used for catch and effort totals for a particular time and area. Using the length-frequency, time, area, and species information the stock of the various species can be assessed.

-174-
DATABASE NAME: Japanese Northeastern Pacific Groundfish Mothership Trawl Fishery Catch and Effort Data
CONTACT NAME: S. Murai, L. Low
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
FDMS & REFM
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115

ABSTRACT:
File contains catch and effort data from the Japanese trawl fishery operating in the Gulf of Alaska East of 170 degrees west longitude and down along the North American Coast to California. Data are by species, fishing gear, and vessel size reported by month and 1/2 degree latitude by 1 degree longitude blocks. Data are used in conjunction with file Id#5.

-175-
DATABASE NAME: Japanese and Russian Observer Vessels Groundfish Program
CONTACT NAME: Russ Nelson
ADDRESS: Northwest and Alaska Fisheries Center/NMFS NOAA
U.S. Dept. of Commerce, Burroughs Computer-REFM
1061 Bldg 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
There are two objectives to this study: 1) to determine the incidental catches of crab and halibut by Japanese and Russian observer vessels and to recommend remedial measures for these catches (Japan and Russia can't keep these animals caught in U.S. waters) and 2) collect information on target species of the foreign vessels and determine how it relates to the entire target species picture. Some standard and many casual observations of many species of fish are made starting in 1973 and continuing. The Bering Sea and Bristol Bay are the areas fished. Incidental catches of King and Tanner crabs were examined also.

-176-
DATABASE NAME: Japanese Groundfish Landbased Independent Trawl Fishery Catch and Effort Data
CONTACT NAME: S. Murai, L. Low
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
FDMS & REFM
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains catch and effort data from the Japanese independent trawl fishery operating in the Bering Sea and the North Pacific Ocean. Data are by species and fishing gear reported by month and 1/2 degree latitude by 1 degree longitude blocks.

-177-
DATABASE NAME: Japanese Research Survey, 1978, Central Bering Sea (Tomi Maru)
CONTACT NAME: R. Mintel, R. Bakkala
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains Pollock survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; catch data describe the species composition of the haul; and length-frequency data by species measure relative frequency of different size fish from the haul. The above data types are connected through shared vessel and haul numbers.

-178-
DATABASE NAME: Joint U.S. and U.S.S.R. Ichthyoplankton West Coast Survey
CONTACT NAME: Jay B. Clark
ADDRESS: Division NOAA/NWAFC
RACE
2095 Bldg. 4
7600 San Point Way, NE
Seattle, WA 98115
ABSTRACT:
Distribution and abundance of ichthyoplankton are presented by species. Geographic extent: Washington, Oregon, Northern California coasts, 124-125 stations, and 3-200 miles from shore. Sampling gear: paired neuston tows .3m x .5m Sameoto samplers with .505m nets made at 2 knots for 10 minutes/station, Marmap bongo tow with 60cm, .505mm mesh nets, with maximum 300 m of wire at 49 stations. Years collected: 1980-1987.

-179-
DATABASE NAME: Juvenile Gulf Menhaden Tagging
CONTACT NAME: Director
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort Laboratory
Beaufort, NC 28516
ABSTRACT:
Juvenile gulf menhaden have been tagged annually in the Gulf of Mexico and along the United States Coast from Florida to Texas from 1970 to 1984. The fish were collected in surface trawl catches and a variable number of stations were sampled each year. Water temperature was also measured once for each group of tagged fish.

-180-
DATABASE NAME: Juvenile Finfish and Crustacean Databases
CONTACT NAME: Jim Richardson, Jim Music
ADDRESS: Coastal Resources Division
Georgia Department of Natural Resources
1200 Glynn Avenue
Brunswick, GA 31523
ABSTRACT:
This monitoring database is designed to assess the abundance of juvenile finfish and crustaceans in Georgia estuaries. Geographical extent: coastal Georgia inshore waters. Years collected: 1978 to present, monthly. Source of data: field-collected trawl and physicochemical data. Items in database: salinity, temperature, date, tide, wind, vector, effort, station, catch by species and/or sex, and lengths. The purpose of the survey is to monitor juvenile stocks of penaeid shrimps, blue crabs, and selected finfishes of coastal Georgia inshore waters.

-181-
DATABASE NAME: Katchemak Bay Commercial Shrimp Data, 1970-1974
CONTACT NAME: J. Olsen
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
Auke Bay Laboratory
P.O. Box 155
Auke Bay, AK 99215
ABSTRACT:
File contains commercial shrimp data covering all species. Data describe vessel number and type, gear used, date, time, depth, position, species, sample weight, length-frequency, and species sub-sample weights. SHRCOM is a master merge file for 1970-1974. File is for shrimp sampling.

-182-
DATABASE NAME: Katchemak Bay Research Shrimp Data by Species, 1970-1974
CONTACT NAME: J. Olsen
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
Auke Bay Laboratory
P.O. Box 155
Auke Bay, AK 99215
ABSTRACT:
File contains research shrimp data covering four species separately: Pandalopsis dispar, Pandalus borealis, Pandalus gonlurus, and Pandalus hypsinotus. Data describe vessel number and type, gear used, date, time, depth, position, species, sample weight, length-frequency, and species sub-sample weights. SHRCOM is a master merge file for 1970-1974. File is for shrimp sampling.

-183-
DATABASE NAME: King Mackerel Recreational Fishery Survey
CONTACT NAME: Director
ADDRESS: Panama City Laboratory/NMFS/NOAA
P.O. Box 4218
Panama City, FL 32401
ABSTRACT:
A survey of the king mackerel sport fishery near Panama City, Florida has been undertaken by NMFS. Questionnaires are sent out weekly to determine the amount of fishing effort and catch there is in the fishery in the Panama City area. Questionnaires are sent weekly to 15-head-party boat captains, 107 charter boat captains, and 900 to 1100 private boat owners. Rate of return ranges from 20-100%. Data are held by NMFS. Years covered: April 1975 to present.

-184-
DATABASE NAME: King Mackerel Tagging Study
CONTACT NAME: Doyle Sutherland
ADDRESS: Panama City Laboratory/NMFS/NOAA
P.O. Box 4218
Panama City, FL 32401
ABSTRACT:
A study of the migration and growth of king mackerel is being conducted by members of NMFS. As of August 1975, 300 king mackerel had been tagged and released, and one tagged king mackerel had been recaptured. Data are held by NMFS. Years covered: October 1974 to present.

-185-
DATABASE NAME: Korean Groundfish Trawl Fishery Catch and Effort Data from the Bering Sea and Northeast Pacific Ocean
CONTACT NAME: Sueto Murai
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
FDMS
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains catch and effort data from the Korean trawl fishery operating in the Northern Pacific Ocean reported by month and 1/2 degree latitude by 1 degree longitude blocks. Data contain species, catch in metric tons, number of drags and hours, vessel size, gear type, and date.

-186-
DATABASE NAME: LANDGS79
CONTACT NAME: G. Kinkle
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Resource Information Management Systems
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
General canvas landings master for 1979 for three states (Alabama, Louisiana, and Mississippi). File contains species, date, county, dealer, water body, section, district, pounds, and value.

-187-
DATABASE NAME: LANDGS80
CONTACT NAME: G. Kinkle
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Resource Information Management Systems
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
Data type: catch/effort. Data program: oceanic pelagics. General canvas landings master for 1980 for six states (Alabama, Louisiana, Mississippi, Georgia, North Carolina, and South Carolina). File contains species, date, county, dealer, water body, section, district, pounds, and value.

-188-
DATABASE NAME: LANDGS81
CONTACT NAME: G. Kinkle
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Resource Information Management Systems
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
Data type: catch/effort. Data program: oceanic pelagics. General canvas landings master for 1981 for six states (Alabama, Georgia, Louisiana, North Carolina, South Carolina and Mississippi). File contains species, date, county, dealer, water body, section, district, pounds, and value.

-189-
DATABASE NAME: LARVFISH
CONTACT NAME: Ed Klima, Frank Patella
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
Data on post larval shrimp harvested in the Gulf of Mexico during beam trawls in 1975 are presented.

-190-
DATABASE NAME: LDGS6275
CONTACT NAME: G. Kinkle
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Resource Information Management Systems
75 Virginia Beach Dr.
Miami, FL 33149

ABSTRACT:
General canvas landings master for 1962-1975. File contains state, species, year, county, water body, section, pounds, and value.

-191-
DATABASE NAME: LDGS7678
CONTACT NAME: G. Kinkle
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Resource Information Management System
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
General canvas landings master for 1976-1978. File contains state, species, year, county, water body, section, pounds, and value.

-192-
DATABASE NAME: LOGBOOK
CONTACT NAME: Ed Klima, Frank Patella
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
Shrimp vessel survey were conducted from 1985-1986 in the Gulf of Mexico. Data are presented on shrimp harvested during shrimp trawls.

-193-
DATABASE NAME: LSU
CONTACT NAME: James G. Gosselink
ADDRESS: Center for Wetland Resources
Louisiana State University
Baton Rouge, LA 70803
ABSTRACT:
This was a thorough ecological study of Lake Pontchartarain and adjacent wetlands carried out by personnel of the Louisiana State University Center for Wetland Resources. This included hydrography, water chemistry, plankton, benthos, and nekton. For the nekton the following gear was used: seines, trawls, stationary nets, electro-shockers, and dipnets. Seventeen regular stations were sampled at monthly intervals for one year. Gear trawl: 4.9m, (19.1mm mesh); 2.4m (19.1mm,, mesh); 9.1m (19.1mm mesh); Years collected: 1978. Limitations: none known.

-194-
DATABASE NAME: Lake Pontchartrain-Fish
CONTACT NAME: R.D. Suttkus
ADDRESS: Department of Biology
Tulane University
New Orleans, LA 70118
ABSTRACT:
Biological survey carried out by Tulane University scientists for the State of Louisiana included plankton, benthic invertebrates, and fishes. Most stations were located within Lake Pontchartrain. A few samples were taken in Lake Borgne and around the Chandeleur Islands. Included are regular monthly stations plus exploratory stations. Several sizes of trawls were used (largely 22 ft. and 35 ft. flat otter trawls with 3/4 in. stretch mesh). Years collected: June 1953-May 1955. More than one trawl type limits comparability of the samples.

-195-
DATABASE NAME: Lake Pontchartrain-Invertebrates
CONTACT NAME: R. M. Darnell
ADDRESS: Department of Oceanography
Texas A&M University
College Station, TX 77843
ABSTRACT:
Biological survey carried out by Tulane University scientists for the State of Louisiana included plankton, benthic invertebrates, and fishes. Most stations were located within Lake Pontchartrain. A few samples were taken in Lake Borgne and around the Chandeleur Islands. Included are regular monthly stations plus exploratory stations. Several sizes of trawls were used (largely 22 ft. and 35 ft. flat otter trawls with 3/4 in. stretch mesh). Also seines were employed. Years collected: June 1953-May 1955. More than one trawl type limits comparability of the samples.

-196-
DATABASE NAME: Landings Interview Data
CONTACT NAME: Christensen
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Contains detailed catch and effort information obtained from interviews with fishing vessel captains upon landing. Includes weight and number caught, days fishing effort expended by area to 10-minute squares, and catch characteristics such as vessel Id, ton class, depth, port of landing, number and average duration of tows and mesh size. Most of these data are identical to those on the weightout detail except for more detailed location, depth, days absent and time of day, data, and haul. Data goes back to 1971.

-197-
DATABASE NAME: Landings Weightout Data
CONTACT NAME: Christensen
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Contains detailed and summarized catch and effort information regarding all commercially landed catches obtained by the Northeast Regional Weightout System since 1964. Data include number and weight of each species caught for vessel trips by subtrips. The basic collection unit of subtrips is defined as a particular vessel fishing area, gear, depth, landing date; combination identifying data consist of landing port, vessel ton class, main species sought and total subtrip catch. The several data files that make up this group contain different levels of aggregation of the basic collection units.

-198-
DATABASE NAME: Larval Fish of the California Current
CONTACT NAME: Director
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
8604 La Jolla Shores Dr.
La Jolla, CA 92038
ABSTRACT:
Several hundred larval fish of the California current region have been counted and identified; most to species, some to genera and family. The fish have been taken in zooplankton net tows at 200 stations surveyed monthly between 1949 and 1960, quarterly between 1961 and 1965 and monthly in 1966.

-199-
DATABASE NAME: Larval Development of Croaker and Spot off the Southeastern Louisiana Coast
CONTACT NAME: Louisiana State University Library
ADDRESS: Louisiana State University
Baton Rouge, LA 70803
ABSTRACT:
In this study, the larval development of the Atlantic croaker and the spot are examined. Also included are the results of short term larval distribution studies of the striped mullet and antenna codlet. Data are based on the time sampling of 41 stations, November 1974

-200-
DATABASE NAME: Life History of Bluefish from the Coast of North Carolina
CONTACT NAME: Librarian
ADDRESS: North Carolina University
Hill Library
Raleigh, NC 27607
ABSTRACT:
Aspects of the life history of the bluefish (Pomatomus saltatrix) were studied over a 1-year period. The study included data on length, weight, sex, fecundity, spawning history, age, and stomach contents. Earliest date: June 1960 to August 1961.

-201-
DATABASE NAME: Livingston Database
CONTACT NAME: Robert J. Livingston
ADDRESS: Department of Biological Science
The Florida State University
Tallahassee, FL 32306
ABSTRACT:
Two nearshore stations were sampled monthly and/or seasonally in shallow waters off Apalachee bay, Florida, one off the mouth of Econfina and the other, off the mouth of Fenholloway River. Sampling gear used: 16 ft. flat trawl (0.75 in. stretchmesh). Years collected: monthly samples January 1972-April 1973; seasonally 1974, 1975, 1978, and in October 1977. Limitations of data: small trawl size reduced capture of larger and swifter species.

-202-
DATABASE NAME: Lobster Tagging Study
CONTACT NAME: James Fair
ADDRESS: Division of Marine Fisheries
Massachusetts Department of Fisheries, Wildlife, and Recreation Vehicles
Shawme-Crowell State Forest
Sandwich, MA 02563
ABSTRACT:
James Fair has been conducting a lobster tagging study in Cape Cod Bay, Massachusetts since May of 1975. Approximately 2,000 lobsters (Homarus americanus) have been tagged and released from three stations off Plymouth, Massachusetts with 70% recaptured. The parameters included are: species determination, count, mortality, growth studies and length of benthic animals. Seven quarterly progress reports are available.

-203-
DATABASE NAME: Louisiana Database
CONTACT NAME: Barney B, Barrett, Coordinator
ADDRESS: Federal Aid Section
Louisiana Department of Wildlife and Fisheries
2156 Wooddale Blvd.
Baton Rouge, LA
ABSTRACT:
This was a 2-year study of the Louisiana estuaries carried out by personnel of the Louisiana Department of Wildlife and Fisheries. Seven estuarine systems transects were set up with five stations each. Physical parameters, productivity, zooplankton, and nekton were studied. Geographic extent: entire coastal Louisiana. Sampling gear used: 16 ft. otter trawl, 1/4 in. stretch mesh. Years collected: October 1974 through September 1976. Limitations of data: none known. Excellent study.

-204-
DATABASE NAME: Louisiana Offshore Oil Port (LOOP) Monitoring Program
CONTACT NAME: Director
ADDRESS: Baton Rough Office
Louisiana Department of Wildlife and Fisheries
7389 Florida Blvd.
Baton Rouge, LA 70806
ABSTRACT:
Program monitors the physical, chemical, biological environment and sediment of the Lafourche Parish and adjacent offshore area; February 1978 to present; monthly and quarterly samples.

-205-
DATABASE NAME: Lyon and Baxter Database
CONTACT NAME: Ed Klima, Director
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
Fishery Laboratory
Galveston, TX 77551-5997
ABSTRACT:
Monthly trawl samples were taken along transects across the continental shelf. Regular stations were used with repeated sampling. Plankton samples and hydrographic data were also taken. Geographic extent: Rio Grande to Mobile Bay, transects from 7m to 110m deep. Sampling gear used: 45 ft. flat trawl with rollers 92.3 in stretch mesh. Years collected: January 1961 to December 1965. Limitations of data: large mesh permits loss of small individuals, otherwise this is an extremely good database. All species identifications are authoritative. Lyon and Baxter include shrimp species only. Some of the stations east of the Mississippi River were skipped during this period.

-206-
DATABASE NAME: MAFLA
CONTACT NAME: Alan Harte
ADDRESS: Continental Shelf Associates, Inc.
759 Parkway St.
Jupiter, FL 33477
ABSTRACT:
The MAFLA project involved many types of studies. The trawl survey involved survey seasonal transects as well as special stations. This study was sponsored by BLM (New Orleans). The prime contractor was Dames and Moore (San Diego, California), but CSA was responsible for trawling. Geographic extent: from Mobile Bay to below Charlotte Harbor, Florida, transects and special

stations (9-118m), 30 ft. flat trawl (1.0 in. stretch mesh). Years collected: 1975-1977. The data are good, but accessibility has been a problem.

-207-
DATABASE NAME: MESA New York Bight Project
CONTACT NAME: Director, Middle Atlantic Coastal Fisheries Center
ADDRESS: Middle Atlantic Coastal Fisheries Center
Dept. of Commerce
Sandy Hook Marine Laboratory
Highlands, NJ 07732
ABSTRACT:
One hundred five stations located in the New York Bight were sampled from March 1973 to the present for various chemical, physical, and biological variables. Some of these include salinity, temperature, and heavy metals analysis of sediment, and count, weight, and length determination of demersal fish.

-208-
DATABASE NAME: Man Undersea Observations
CONTACT NAME: R. Cooper
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
This data set comprises photos taken by divers of fish communities at assorted locations, usually coordinated with survey stations at which other experiments were conducted. When automated the database will contain counts by species.

-209-
DATABASE NAME: Map Catalog
CONTACT NAME: Bob Wolfe
ADDRESS: Alaska Department of Fish and Game
Subsistence Division
P.O. Box 3-2000
Juneau, AK 99802-2000
ABSTRACT:
The Division of Subsistence routinely collects information on subsistence fishing, hunting, gathering and trapping activities within the state. A large proportion of this information is in the form of maps. The maps depict resource use areas on a household and community basis across species and seasons. The Map Catalog database will contain information on an estimated 10,000 finished map products, rough map drafts and mylar overlays. Regional subsets of the database will be available in the regional offices of the division. Information on approximately 2,000 finished map products will be available for on-line access to the Department through Habitat Divisions's Data General.

-210-
DATABASE NAME: Marine Fisheries Information System-Trip Ticket System
CONTACT NAME: Frank S. Kennedy
ADDRESS: Fisheries Statistics Section
Florida Department of Natural Resources
Bureau of Management Systems Data Center
Tallahassee, FL
ABSTRACT:
Complete census is given for the state of Florida commercial saltwater landings since 1985.

-211-
DATABASE NAME: Marine Growth of North American and Asian Sockeye Salmon and Pink Salmon
CONTACT NAME: George K. Tanonaka (retired)
ADDRESS: Northwest Fisheries Center/NMFS/NOAA
U.S. Dept. of Commerce
2725 Montlake Blvd. East
Seattle, WA 98112
ABSTRACT:
The two objectives of the study are 1) to denote the effect of the Japanese Mothership catches of sockeye and pink salmon on these salmon stocks around U.S. waters, and 2) to determine the optimal yields of these types of salmon. The study took place in the Bering Sea and Gulf of Alaska from May of 1956 to September of 1962. Standard measurements of the fish were taken, and the origins of each were tentatively calculated. The study was part of the International North Pacific Fisheries Commission Project and was funded by the NMFS. Some data was collected from Japanese Motherships.

-212-
DATABASE NAME: Marine Mollusks of the Texas Coast
CONTACT NAME: Director, M.D. Anderson Library
ADDRESS: M.D. Anderson Library
University of Houston
4800 Calhoun Street
Houston, TX 77004
ABSTRACT:
Mollusks were collected from Bolivar Peninsula, Galveston Island, Galveston Bay, Matagorda Island, Aransas Bay, St. Joseph, Harbor Island, Mustang Island and Padre Island in beach and shallow water areas by dredging. Taxonomic notes are included on species distribution along coastal Texas. A complete list of marine mollusks reported from Texas is included as well as black and white photographs of each species. Years collected: 1947-1950.

-213-
DATABASE NAME: Marine Recreational Finfish Survey
CONTACT NAME: John Pafford
ADDRESS: Coastal Resources Division
Georgia Department of Natural Resources
1200 Glynn Avenue
Brunswick, GA 31523
ABSTRACT:
The fishery dependent interview program was designed to assess catch rates and patterns of recreational exploited finfishes along Georgia's coast. Geographical coverage: coastal Georgia, landing site by count. Time span of data collected: 1985 to present. Sources of data: field interviews of recreational fishermen. Items in database: record, type, interviewer code, date, interview number, hour, state, county, site, interview status, fishing mode, type water, target species, gear type, time fished, days fished past 12 months/2 months, residence, type residence, phone, age, sex, and various characteristics of the catch including species, number, size, etc.

-214-
DATABASE NAME: Marine Resources Monitoring, Assessment, and Prediction (MARMAP)
CONTACT NAME: Chief, Marine Ecosystems Division

ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Narragansett Laboratory
South Ferry Road
Narragansett, RI 02882

ABSTRACT:
The data currently stored in the MARMAP information system at Kingston, Rhode Island are concerned with the collection and analysis of planktonic and associated environmental data. Two series of surveys have been conducted since 1971: collections during the fall and spring groundfish surveys of NOAA Fishery Research vessels in the North Atlantic from Nova Scotia to Cape Hatteras, and intensive bimonthly sampling (mid-September through mid-March) of Georges Bank as part of joint international surveys of larval herring and their food. The parameters included are: time, position, wind speed, wind direction, clouds, sky, temperature (air and water), wave amplitude, volume, depth, volume determination, taxonomic list, morphometric measurement, length, developmental stage, and biomass of zooplankton, length and sex determination of pelagic animals and salinity.

-215-
DATABASE NAME: Marmot Bay Surveys (Miller Freeman) 1978
CONTACT NAME: R. Mintel, R. Ronholt
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115

ABSTRACT:
File contains crab and groundfish survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; catch data describe the species composition of the haul; length-frequency data by species measure relative frequency of different size fish from the haul; and position data describe haul distance based on haul begin and end locations in latitude and longitude and in loran positions. The above data have shared vessel and haul numbers.

-216-
DATABASE NAME: Master Vessel Data
CONTACT NAME: J. Palmer
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02345

ABSTRACT:
This database contains information about fishing vessels whose catch has been entered into the weightout system since approximately 1972. Data include identification, home port, size, age, gear, horsepower, and limited fishing activity data.

-217-
DATABASE NAME: McCaffrey Database
CONTACT NAME: Patrick M. McCaffrey
ADDRESS: Florida Department of Environmental Regulation
2600 Blairstone Road
Tallahassee, FL 32301

ABSTRACT:
This database includes general survey of data fishes collected by flat trawls on the continental shelf of the northeast and eastern Gulf, using ships of opportunity. Irregular stations were sampled. Geographic extent: continental shelf off Alabama and Florida to below the level of Tampa Bay. Sampling gear

used: 16 ft. flat trawl (0.75 in. stretch mesh). Years collected: July 1969 through October 1971. Limitations of data: some of the taxonomy needs updating. Small size of the trawl limits capture of larger and more mobile species.

-218-
DATABASE NAME: Memoirs of the Hourglass Cruises-Flatfishes
CONTACT NAME: Director
ADDRESS: Florida Department of Natural Resources
100 8th Ave. SE
St. Petersburg, FL 33701
ABSTRACT:
Monthly trawl and dredge samples were collected at 10 stations off central Florida's West Coast during the hourglass cruises from August 1965 to November 1967. Flatfishes were separated from the samples and identified, counted, sexed and measured. The biology, ecology and distribution are described in a report by Florida Department of Natural Resources. Data were collected aboard the R/V Hernan Cortez by the Florida Department of Natural Resources.

-219-
DATABASE NAME: Menhaden and Herrings Program FY 1980-1983
CONTACT NAME: Theodore Rice
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort Laboratory
Pivers Island
P.O. Box 570
Beaufort, NC 28516
ABSTRACT:
The principal research and monitoring of the menhaden resources is conducted by the Southeast Fisheries Center. Menhaden are caught principally in state waters and are subject to state management. They are also migratory across state boundaries and management plans are being developed through the State-Federal Program. The role of the Menhaden and Herrings Program is to provide data to those groups on the status of the stocks, and the role of menhaden in the ecosystem, and the impact of management options on the stock and fishery. Coastal herrings are principally within the zone of extended jurisdiction, subject to management plans developed by the South Atlantic, Gulf, and Caribbean Councils. The role of the Menhaden and Herrings Program is to provide data to the councils on the distribution, abundance, and status of this resource which are necessary for the development of those potential management plans.

-220-
DATABASE NAME: Mississippi Sound
CONTACT NAME: J.Y. Christmas, Head
ADDRESS: Fisheries Research and Development Section
Gulf Coast Research Laboratory
P.O. Box 7000
Ocean Springs, MS 39564
ABSTRACT:
This major study was part of the Cooperative Gulf of Mexico Estuarine Inventory which included hydrology, sedimentology and biology (macrophytes, benthic and nektonic studies). Geographic extent: Mississippi Sound and affluent streams, bayous, and bays, stations located throughout the area. Sampling gear used: 40 ft. balloon trawl (1.9 in. stretch mesh). Years collected: April 1968-March 1969. Monthly samples were taken at regular stations, twice monthly at some. Excellent data set. No known limitations.

-221-
DATABASE NAME: Moore, Brusher, and Trent Database
CONTACT NAME: Ed Klima, Director
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NOAA/NMFS
Fishery Laboratory
Galveston, TX 77551-5997
ABSTRACT:
Monthly trawl samples were taken along transects across the continental shelf. Regular stations were used with repeated sampling. Geographic extent: Rio Grande to Mobile bay, transects from 7m to 110m. 45 ft. flat trawl with rollers (2.3 in. stretch mesh). Years collected: January 1962 through December 1964. Limitations of data: large mesh permits loss of small individuals. This is the fish part of the Lyon and Baxter survey. Fishes only are included in this database. Some stations skipped east of the Mississippi River. Some of the taxonomy is out of date.

-222-
DATABASE NAME: Movements and Growth of Spotted Seatrout in West Florida
CONTACT NAME: Director
ADDRESS: Florida Department of Natural Resources
100 8th Ave., SE
St. Petersburg, FL 33701
ABSTRACT:
Migration, growth, and spawning of west Florida seatrout were studied from September 1958 through October 1960. Over 5000 fish were tagged with either internal or body cavity tags, with 577 of these being recaptured. Sampling was done monthly, but months yielded very few or no fish.

-223-
DATABASE NAME: NMFS Observers Aboard Japanese Tuna Longliners
CONTACT NAME: R. Minkler
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Mississippi Laboratory
3209 Frederick St.
P.O. Box Drawer 1207
Pascagoula, MS 39568
ABSTRACT:
Data collected by NMFS observers aboard Japanese Tuna Longliners. File contains time and location, vessel, gear and set, catch, and some environmental data.

-224-
DATABASE NAME: Natural History Specimen Collection
CONTACT NAME: Director
ADDRESS: The Marine Science Institute
University of Texas
Port Aransas, TX 78373-1267
ABSTRACT:
The natural history specimen collection is a reference collection of over 6300 samples of animals and plants collected in the Gulf of Mexico area especially on the Texas and Mexico coasts. The collection includes approximately 2500 cataloged and 400 uncataloged fish samples, 1200 cataloged and 300 uncataloged mollusk samples, 100 cataloged and 100 uncataloged corals and other coelenterates, 600 crustaceans, 300 echinoderms, 200 insects, 400 plants, and 200 uncataloged "other benthos."

-225-
DATABASE NAME: Neuston of the South Texas Outer Continental Shelf
CONTACT NAME: Director, MSI
ADDRESS: The Marine Science Institute
University of Texas
Port Aransas, TX 78373-1267
ABSTRACT:
Twelve stations along four transects were sampled for neuston populations from the R/V Longhorn over a 3-year period (1974-1977) as part of the South Texas Outer Continental Shelf Baseline Survey sponsored by the Bureau of Land Management. Observations were made concerning species composition, abundance, and biomass. Neuston samples were also analyzed for trace metal and hydrocarbon content.

-226-
DATABASE NAME: Non-salmonoid Pelagic Fish Resource Data of the Gulf of Alaska and Eastern Bering Sea
CONTACT NAME: R. Reimann
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
FDMS
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains detailed information on non-salmonoid pelagic fish resources giving the volume of fish caught, the specific gear used for the catch, the latitude and longitude, time, and the date of the catch. Also a description of bottom, surface, and wind conditions during the catch are given. These data are sorted many different ways and are then summarized and statistically analyzed for species population estimation, fisheries management information and fishing gear evaluation.

-227-
DATABASE NAME: North Carolina Landings-1964
CONTACT NAME: Ken Harris
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort Laboratory
Pivers Island
P.O. Box 570
Beaufort, NC 28516
ABSTRACT:
Contains the summary statistics, by county, for fishery products in North Carolina in 1964. A comparison of landings with those previous years is given when the data are available.

-228-
DATABASE NAME: Northeast Regional Catch and Effort Management System (NERCEMS)
CONTACT NAME: J. Terrill
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
NECDD, Northeast Region
14 Elm Street, Federal Bldg.
Glouchester, MA 01930
ABSTRACT:
NERCEMS data files contain catch/effort data reported by vessel and/or by processors/dealers. They contain data relating to effort restrictive measures. The data support the status of managed fisheries for enforcement and management and are used for assessing effectiveness of management.

-229-
DATABASE NAME: Northeast Regional Fisheries Information System Database (NERFIS)
CONTACT NAME: E. Heyerdahl
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
NECDD, Northeast Region
Woods Hole, MA 02543
ABSTRACT:
NERFIS automated data sets cover all NMFS data in the Northeast Center and Region under purview of a regional database manager, with responsibility to protect, archive, and make available to authorized investigators. Data are in seven categories: bioenvironment, catch/effort, socioeconomic, legal-enforcement, technical, administrative, and data management.

-230-
DATABASE NAME: Northern Gulf of Mexico Topographic Features Study, FY 1978
CONTACT NAME: Francis Mitchell
ADDRESS: National Environmental Satellite
Data and Information Service/NOAA
National Oceanographic Data Center
Washington, D.C. 20235
ABSTRACT:
The purpose of the study was to gather data from selected areas and topographic features in the Gulf of mexico, and then to reduce, map, analyze, synthesize, integrate, and report findings and conclusions. Geological, chemical, physical, geophysical, and biological, oceanographic data were collected from the Florida Middle Ground (off the west Florida coast) and from twelve topographic features off the Louisiana-Texas coast. This report presents the findings of the work performed during the period August 1978 to November 1980. An integrated multidisciplinary overview of the Florida Middle Ground is presented. The geophysical, physical, and geological data are used to describe the setting for biological data.

-231-
DATABASE NAME: Northern Anchovy
CONTACT NAME: Rick Kleinber
ADDRESS: Department of Fish and Game
245 W. Broadway, Suite 350
Long Beach, CA 90802
ABSTRACT:
Anchovy: biomass abundance, distribution, age composition, size composition, behavior, sex ratio, and spawning condition. Years covered: 1962-1986, 3 to 10 times per year, and 70 to 130 vessel days. Geographic extent: San Francisco to southern Baja California Mexico. Most surveys were made in southern California and northern Baja California. Sampling gear used: midwater trawl 40' x 50' mouth opening 1/2" cod end liner, side scan horizontal sonar and vertical echo sounder. Data were sparse in central California due to chronic poor weather conditions and low abundance of anchovies. Mexican waters were not consistently surveyed due to consistent problems in obtaining survey permits from the Mexican Government.

-232-
DATABASE NAME: Northwest Gulf of Mexico Topographic Features Study, FY 1977
CONTACT NAME: Francis Marshall
ADDRESS: National Environmental Satellite
Data and Information Service/NOAA
National Oceanographic Data Center
Washington, D.C. 20235

ABSTRACT:
The study was conducted to perform mapping, monitoring, sampling and submersible observations of several topographic features in the Gulf of Mexico. The work effort is a continuation of FY 1976 efforts that were previously reported. Studies include current measurements, hydrography dye emission, drift bottles, descriptive geology, sedimentology, suspended sediment dispersal, descriptive biology, the East Flower Garden Bank monitoring system, hydrocarbons and trace metals in macronekton and Spondylus, high molecular weight hydrocarbons in sediments, the chemical aspect of the brine lake at the East Flower Garden Bank, and the meiofauna and macroinfauna of selected banks. Reconnaissance studies were conducted at the following banks: Bouma, Brigh, Claypile, East Flower Garden, 18 Fathom, Ewing, Parker, Sonnier and Sackett. Detailed bathymetric maps were prepared also for these banks.

-233-
DATABASE NAME: Northwest Region Observer Data
CONTACT NAME: J. Terrill
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Northeast Region
14 Elm Street, Federal Bldg.
Glouchester, MA 01930
ABSTRACT:
Northeast regional observer data files contain summarized catch data from observers aboard foreign vessels. Data originate from each deployment, general deployment data, deployment cost data, and observer program personnel data.

-234-
DATABASE NAME: Northwest and Alaska Fisheries Center Resource Survey Database
CONTACT NAME: Mike McPhale, Susan Picquelle
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
Developed from demersal and pelagic trawl surveys conducted by the Northwest and Alaska Fishery Center, Resource Assessment and Conservation Engineering Division in Seattle, Washington. Data pertain to demersal and pelagic species of fish and invertebrates. Data cover the period from 1953-1984 and provide information on reproduction, and on distribution and abundance of adults and juveniles from the Aleutian Islands to the Washington/Oregon border. All usually gather information describing the cruise, type of platform, time, sampling location, sampling gear, taxonomic composition of the catch, weight, and number, sizes and ages, and more specialized observations that may include reproductive condition, stomach contents, and individual length-weight factors. The database includes information on approximately 1200 species and higher taxonomic groups.

-235-
DATABASE NAME: Observations on the Fish Fauna Associated with Offshore Platforms in the Northeastern Gulf of Mexico
CONTACT NAME: Larry Ogren
ADDRESS: Panama City Laboratory/NMFS/NOAA
P.O Box 4218
Panama City, FL 32401

ABSTRACT:
Extensive observations of the fish fauna around two offshore platforms have been made with the use of scuba. Estimates of abundance have been made, along with information on seasonality, behavior and activity. Twenty one trips were made to platform stage II 3.2 km south of Panama City, Florida, 1970 to 1974.

-236-
DATABASE NAME: Observations on the Offshore Reef and Platform Fish Fauna of Louisiana
CONTACT NAME: H. Dickson Hoese
ADDRESS: Department of Biology, University of Southwestern Louisiana
Lafayette, LA 70501
ABSTRACT:
Observations, photographs and collections of fishes on the Western Reef of the Outer Louisiana Continental Shelf and around oil platforms were made over a 10-year period between 1963 and 1973.

-237-
DATABASE NAME: Ocean Shellfish Data
CONTACT NAME: N. Clarke
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
NECDD
Galveston Laboratory
4700 Avenue U
Galveston, TX 77550
ABSTRACT:
Contains shellfish catch-effort data submitted by fishermen and landings data submitted by shellfish processors in a given year. Data include catch, date, effort, location, and volume, gear used, port landed at, and purchasing company.

-238-
DATABASE NAME: Oceanic Pelagics Program
CONTACT NAME: William Richards
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort Laboratory
Pivers Island
P.O. Box 570
Beaufort, NC 28516
ABSTRACT:
Oceanic Pelagic Program FY 1980: The Oceanic Pelagics Program was formally organized in 1977 by merging two existing research programs dealing with fishes from the pelagic ecosystem. These programs were the Atlantic Bluefin Tuna Program and the Oceanic Game Fish Investigations Program, the latter focusing on billfishes and pelagic sharks, primarily the mako and blue sharks. The basic responsibilities of the Program are to conduct research leading to the assessment of the status of stocks of Atlantic bluefin tuna, blackfin tuna, blue marlin, white marlin, sailfish, sharks, and other oceanic pelagics such as dolphin, wahoo, little tunny, frigate mackerel, and bullet mackerel. Assessment results are evaluated annually and are used on both a national and international level. This program is directed primarily toward stock assessment, secondly toward research needed to refine these assessments, understanding their life history and factors which affect their life history, and to provide scientifically reliable methods for evaluating environmental and multispecies interactions of the oceanic ecosystem and on the factors which control recruitment.

-239-
DATABASE NAME: Offshore Bottom Fish Populations in Mississippi
CONTACT NAME: Director of Library (Gulf Coast Research Labs)
ADDRESS: Fisheries Research and Development
Gulf Coast Research Laboratory
P.O. Box 7000
Ocean Springs, MS 39564
ABSTRACT:
Monthly, day and night collections of fishes were taken and hydrographic data were collected in 1967 at six stations in Mississippi offshore waters. A trawl was used to collect 106 species of fish belonging to 55 families. Consideration was given to the distribution of the species in relation to depth, salinity, and seasonal changes in water temperature, January 1967 to December 1967.

-240-
DATABASE NAME: Offshore Bottom Trawl Survey
CONTACT NAME: Eugene Heyerdahl, Director
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
The National Marine Fisheries Service, Northeast Fisheries Center has been conducting an offshore bottom trawl survey since 1963 in the North Atlantic Ocean from Halifax, Nova Scotia to Cape Hatteras, North Carolina. The parameters included in this survey are species, count, catch/effort, length and sometimes age and sex of demersal fish, temperature, bottom type, wind speed and direction, wave amplitude and sometimes stomach content analysis of demersal fish. This file contains a number of special studies, the purpose of each is given with the data as well as station and cruise numbers, gear used, and condition, tow times, distances and average speed.

-241-
DATABASE NAME: Offshore Groundfish Surveys
CONTACT NAME: T. Azarovitz
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02345
ABSTRACT:
Offshore groundfish surveys cover the area from Cape Fear (North Carolina) to Nova Scotia in depths 27 meters (15 fathoms) and over. Data are automated since 1963. Data are from U.S. and foreign research vessels. Data include species catch composition, weight, number at length, age, each tow, and environmental data by tow.

-242-
DATABASE NAME: Oregon Department of Fish and Wildlife Commercial Landings Database
CONTACT NAME: Jerry Lukas
ADDRESS: Oregon Department of Fish and Wildlife
P.O. Box 59
Portland, OR 97207
ABSTRACT:
The Oregon Department of Fish and Wildlife, as other State departments of fisheries, compiles information from receiving tickets which include information about date of landing, unloading stations, gear, pounds landed by species, and price per pound paid to the fishermen. Commercial landings are reported for the Columbia River (Oregon landings only), locations along the

coast, and by county for freshwater species. Coastal locations represent the major port or area of landing. Monthly data submitted to the PacFIN database of the Pacific Marine Fisheries Commission and are used by the Pacific Fishery Management Council in determining catch allocations. Port of landing does not necessarily indicate the area of catch, date of landing does not necessarily indicate true date of catch, since some fishermen can hold fish in their boats for long periods of time, and some store fish on land until prices are favorable for selling. In some groups, species are not easily distinguishable from one another, especially among rockfish. For some years' data, certain species are separated out, other years they are grouped with similar species. Widow rockfish and pacific ocean perch are two cases of this in Oregon's data. Fish and shellfish landings are reported as round (whole) weight. A conversion factor is applied to species which are dressed or filleted prior to landing. When ticket information is complete, the department fills it in with the best information they have from surveys of prices and percentages of species in catches.

-243-
DATABASE NAME: Otter Trawl Survey in Central Orange County Coast
CONTACT NAME: Alan Mearns
ADDRESS: Southern California Coastal Water Research Project
1500 E. Imperial Hwy.
El Segundo, CA 90245
ABSTRACT:
In August 1972 10 otter trawls were taken at nine stations off the Orange County Coast. Stations were 90 to 288 feet in depth, trawls were of 15 minutes duration. At the six stations off Three Arch Bay, temperature was measured from surface to bottom at 5 m intervals. Fish were measured, counted, identified to species and inspected for tumors and fin erosion.

-244-
DATABASE NAME: Otter Trawl Survey off Point Loma
CONTACT NAME: Robert Voglin
ADDRESS: Southern California Coastal Water Research Project
1500 E. Imperial Hwy.
El Segundo, CA 90245
ABSTRACT:
In February 1975 eight otter trawls were taken west of Point Loma. Trawls were of 10 minutes duration and ranged in depth from 61 to 137 meters. Fish and invertebrates were counted and identified. Fish were measured to 1 cm size classes. Surface, mid-depth and bottom temperatures were determined.

-245-
DATABASE NAME: Outer Continental Shelf Environmental Assessment Program Pollution Data
CONTACT NAME: Nancy Wiley
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Tiburon Fisheries Laboratory
Tiburon, CA 94920
ABSTRACT:
The file contains data pertaining to the effect of environmental pollution on marine biology. Biological condition data were taken from food source littleneck clams, Tapes semidecussata, and from starry flounder, Platichthys stellus, in a series of laboratory experiments. The collection was carried out in order to determine the accumulation and passage of petroleum constituents in experimental marine food chains and the effects of petroleum exposure on test organisms. Data elements include the concentration of monocyclic and dicyclic compounds, organ conditions, (liver, gonads), egg

condition and resorption, maturation rates, behavior, pathologies, mortality rates, and pollution uptake and retention, March 1976 to September 1977.

-246-
DATABASE NAME: Outer Continental Shelf Environmental Assessment Program Trawl Data
CONTACT NAME: Nancy Nicolaisen
ADDRESS: Outer Continental Shelf Environmental Assessment Program/NOAA
U.S. Dept. of Commerce
Anchorage, AK
ABSTRACT:
Database developed from nearshore demersal and pelagic trawl surveys conducted for the Outer Continental Shelf Environmental Assessment Program (sponsored by the Department of Interior). Data apply to demersal and pelagic fish and invertebrates. Data cover period from 1977-1978 and provide information on reproduction, and on distribution and abundance of adults and juveniles in nearshore waters of Cook Inlet and the Northern Kodiak area.

-247-
DATABASE NAME: Oyster Monitoring Program
CONTACT NAME: Barney Barrett
ADDRESS: Office of Coastal and Marine Resources
Louisiana Department of Wildlife and Fisheries
P.O. Box 15570
Baton Rouge, LA 70895
ABSTRACT:
This monitoring program utilizes Butler plates (for spat set), 1 square meter density samples of the oyster reef, and a survey of fishermen working on the public oyster grounds to gather data for the management of Louisiana oyster resources. Spat collecting plates are used to collect spatfall. This gear consists of two square asbestos plates which are 4 inches long per side. These are placed parallel to and 1/2 inch apart. A square aluminum frame with 1 meter long sides is used to determine oyster density and abundance. Harvest estimates are determined from twice weekly boarding surveys of boats which are fishing on the public grounds and seed oyster reservations. Harvest is divided into sacks of market oysters and barrels of seed oysters. The catch and hydrological information is summarized for each coastal area on a weekly basis to give the resource managers information as to the current condition of the resource. The pertinent life history information for the important species is also used in developing analytical and predictive models.

-248-
DATABASE NAME: Pacfin (Pacific Fishery Information Network) Commercial Catch Data
CONTACT NAME: Will Daspit, Pacific Marine Fisheries Commission
ADDRESS: Pacific Marine Fisheries Commission
Bldg. 4
7600 San Point Way, NE
Seattle, WA 98115
ABSTRACT:
Commercial catch statistics are given for domestic fisheries, provided by the Pacific Coast Fisheries Information Network. Data are presented by geographic area, and cover a period from 1981-1983. Data provide information on harvest areas of commercially important species of fish and invertebrates along the west coast of North America from the Aleutian Islands to the tip of Baja Peninsula. Data pertain to adults.

-249-
DATABASE NAME: Pacific Ocean Shrimp
CONTACT NAME: Pat Collier
ADDRESS: California Dept. of Fish and Game
Marine Resources Laboratory
619 Second Street
Eureka, CA 95501
ABSTRACT:
Commercial landings and shrimp sexes, sizes, weight, counts per 16 and ages from commercial landings are given. Years collected: 1958 to present; on microcomputer, 1985 to present. Geographic extent of survey: California.

-250-
DATABASE NAME: Party Boat Survey
CONTACT NAME: Dan Huppert
ADDRESS: Coastal Fisheries Resources Division
Southwest Fisheries Center/NMFS/NOAA
La Jolla, CA 92038
ABSTRACT:
The data file consists of socioeconomic information concerning marine recreational anglers. Field survey operations were conducted with on-site questionnaires followed up with telephone interviews. Samples were taken from ports in Mexico, southern California, and San Francisco Bay. The purpose of the collection was to summarize and analyze recreational demand for partyboat fishing in California.

-251-
DATABASE NAME: Pascagoula Laboratory Database
CONTACT NAME: Andrew J. Kemmerer, Director
ADDRESS: Mississippi Laboratory/NMFS/NOAA
Pascagoula Laboratory
P.O. Drawer 1207
Pascagoula, MS 39567-0112
ABSTRACT:
The NMFS Laboratory has been conducting exploratory fishing studies throughout the Gulf and South Atlantic since the 1950s. In addition to various trawls, they have used longlines, traps, dredges, handlines and television cameras. All data are on computer tape. Geographic extent: throughout northern and eastern Gulf shelf and part of the slope. Also throughout rest of Gulf of Mexico, Caribbean, and South Atlantic off South America. Various types of gear including trawls of many descriptions. Years collected: 1950 to present. Some of the species identifications are questionable, especially during earlier cruises; most are shipboard identifications. For the common species the identifications are probably trustworthy. Some of the taxonomy is out of date. Obtaining data of interest is a problem because the files are so extensive.

-252-
DATABASE NAME: Pelagic Resource Survey, March 1977, of Eastern Bering Sea (Miller Freeman)
CONTACT NAME: R. Mintel, R. Bakkala
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
2067 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115

ABSTRACT:
File contains juvenile pollock specimen data which contain detailed information on sex, maturity, size, age, etc., from March 1977 Eastern Bering Sea cruise of the research vessel Miller Freeman.

-253-
DATABASE NAME: Pelagic, Nonsalmonoid Nekton off Oregon and Washington, 1979-1984
CONTACT NAME: William Pearcy, Richard D. Brodeur
ADDRESS: College of Oceanography
Oregon State University
Corvallis, OR 97331
ABSTRACT:
From 1979 to 1984, researchers from the College of Oceanography at Oregon State University conducted 15 cruises in coastal waters off Oregon and Washington. The primary purpose of these cruises was to assess the abundance and determine distribution patterns and migration routes of juvenile and adult salmonoids. Small mesh purse seines were used to quantitatively sample large volumes (up to 1 million m3) of water. In addition to the salmonoid catch, which has been summarized in various technical reports (Pearcy 1979, 1980; Wakefield et al. 1981; Fisher et al. 1983, 1984; and Fisher and Pearcy 1985), many associated species of fishes and cephalopods were caught and biological data gathered on these species. This report summarizes the kinds, numbers, and size distribution of the nonsalmonoid nekton catches and describes their distribution in relation to some hydrographic features of the sampling area. A species assemblage analysis is also given based on recurring groups of species caught in the seine area.

-254-
DATABASE NAME: Pequegnat Database
CONTACT NAME: Dr. Willis E. Pequegnat
ADDRESS: LGL Ecological Research Associates, Inc.
1410 Cavitt St.
Bryan, TX 77801
ABSTRACT:
Deep-sea collections made by Dr. W.E. Pequegnat on various ships during the period 1964-1973. Geographical extent: continental shelf, slope, and abyss of northern Gulf of Mexico in the depth range of 81-3,802 m. Sampling gear used: beam trawl (metal skimmer), 20 ft and 20 m flat otter trawls. Many types of gear (including grabs and dredges) were used. Publications do not indicate details of collection for each species.

-255-
DATABASE NAME: Plankton Abundance
CONTACT NAME: Edmond Hobson
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Tiburon Fisheries Laboratory
Tiburon, CA 94920
ABSTRACT:
Stratified plankton samples are taken at fixed stations along the central California coast. Data elements include the date, time and location of each collection. For each species in each collection, the data include the count, volume, minimum size and the maximum size. The data are being collected to understand the oceanographic regime off central California and the impact of this regime on fish communities.

-256-
DATABASE NAME: Poland Groundfish Trawl Fishery Catch and Effort Data from the Bering Sea and Northeast Pacific Ocean
CONTACT NAME: Sueto Murai
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
FDMS
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains catch and effort data from the Polish Trawl Fishery operating in the Bering Sea and Northeast Pacific Ocean reported by month and 1/2 degree latitude by 1 degree longitude blocks. Data contain species, catch in metric tons, number of hours and days fished, number of trawls, number of hooks, vessel size, gear type, and date.

-257-
DATABASE NAME: Population Dynamics of Private and Public Oyster Beds in Virginia
CONTACT NAME: Jay D. Andrews
ADDRESS: Virginia Institute of Marine Science
Glouchester Point, VA 23062
ABSTRACT:
Annual population assessments of oysters in the lower Chesapeake Bay and numerous tributaries have been made since 1947. Data include also counts of oyster spatfall at and within seasonal intervals for numerous stations in these areas. Information on occurrence, abundance, and distribution of predators, fouling organisms, scavengers, and other associates of oyster bed communities is available. Observing station type: fixed station (Oyster beds). Instrumentations: shellbags, shellstrings, and setting plates. Data collection type: point location.

-258-
DATABASE NAME: Potential and Recommendations for Shellfish Exploitation and Cultivation on the Port Gamble and Squaxin Island
CONTACT NAME: Kenneth Chew, Ron Thom
ADDRESS: College of Fisheries, Fisheries and Agriculture
University of Washington
WH-10
Seattle, WA 98195
ABSTRACT:
This survey was conducted for the following purposes: 1) to delineate existing stocks of commercial invertebrates (shellfish) in the two reservations and 2) on the basis of the findings to make recommendations regarding present use of these stocks and possible future shellfish aquaculture on these grounds by the Indian people. The study was done on Port Gambel shoreland and around Squaxin Island shoreland from April 1971 to June 1971. Grain texture was roughly analyzed, count identification and length of molluscs and crustaceans were done. Count of coliform bacteria was taken in the sediment and in oyster tissue in Port Gamble. The project was funded by the Volt Information Sciences Incorporated and the Small Tribes Organization of Western Washington Incorporated. Sieve and randomly shoveled samples were taken; the "most probable number" technique was used in bacterial analysis.

-259-
DATABASE NAME: Preliminary Survey of Macrofauna in Anderson Cove
CONTACT NAME: Kenneth Chew
ADDRESS: College of Fisheries
University of Washington
WH-10
Seattle, WA 98195
ABSTRACT:
The purpose of this study was to report objectively on the macrofauna abundance and distribution of Anderson Cove. The study was done in the month of January of 1971 and funded by Boise Cascade Properties Incorporated. Count, identification, length, and weight of fish and shellfish were made. Scuba diving was used as the sampling technique.

-260-
DATABASE NAME: Preliminary Survey of Invertebrates and Algae Along the Intertidal Beaches of West Point
CONTACT NAME: Kenneth Chew
ADDRESS: College of Fisheries, Fisheries and Agriculture
University of Washington
WH-10
Seattle, WA 98195
ABSTRACT:
This report presents information gathered from a survey of the major types of macrofauna and macroflora on the north and south intertidal beaches of Metro's West Point Sewage Treatment Plant, Seattle, Washington. During late April and early May 1971 permanent transects and sampling stations were also established during the survey so that future sampling can be undertaken for general comparison. The project was funded by the Municipality of Metropolitan Seattle (METRO).

-261-
DATABASE NAME: Puget Sound Interim Studies (METRO)
CONTACT NAME: Ron Thom
ADDRESS: Fisheries Research Institute
University of Washington
WH-10
Seattle, WA 98195
ABSTRACT:
The data are scattered-housed with each individual investigator.

-262-
DATABASE NAME: QTRREPT
CONTACT NAME: R. Minkler
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Mississippi Laboratory
3209 Frederick St.
P.O. Box Drawer 1207
Pascagoula, MS 39568
ABSTRACT:
Contains data submitted by Japanese Tuna Fisheries on a quarterly basis. Includes noon day positions, number of hooks fished by week, and one degree square and bycatch data.

-263-
DATABASE NAME: REC77-REC86
CONTACT NAME: Edward F. Klima, Frank Patella
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
Mark-recapture of shrimps during shrimp trawls in Gulf of Mexico from 1977-1986. Limitations: has some glitches due to lack of initial entry data checks. 1978 record has no recapture depths.

-264-
DATABASE NAME: Recreation Fishing in the Buccaneer Oil Field
CONTACT NAME: Director, NMFS
ADDRESS: Galveston Laboratory
Southeast Fisheries Center/NMFS/NOAA
4700 Ave. U
Galveston, TX 77551-5997
ABSTRACT:
The recreational fishery and the distribution of pelagic predatory fishes were studied in the Buccaneer oil field located 50 km offshore of Galveston, Texas. Sampling included 34 days of observations and 132 fishermen interviews for the recreational fishery and 17 days with 5 stations/day of trolling, 3 nights with 5 stations of gill nettings and 5 nights and 1 day totaling 14 samplings of longlining for the predator pelagic fishes, June 1976-March 1977.

-265-
DATABASE NAME: Recreational Creel Survey
CONTACT NAME: Harry Lazauski
ADDRESS: Marine Resources Division
Alabama Department of Conservation and Natural Resources
Gulf Shores, AL 36542
ABSTRACT:
Based on interviews with anglers since 1985. Includes data on all species harvested by recreational anglers in inshore and offshore waters of Alabama.

-266-
DATABASE NAME: Recreational Finfish Assessment
CONTACT NAME: Jim Richardson, John Pattord
ADDRESS: Coastal Resources Division
Georgia Department of Natural Resources
1200 Glynn Ave.
Brunswick, GA 31523
ABSTRACT:
Monitoring database designed to assess the biology and stock status of migratory recreational finfishes along Georgia's coast. Subject coverage: age and growth, food habitats, movement, and relative abundance. Geographical coverage: inshore waters of coastal Georgia. Years collected: 1978 to present; monthly (for active databases). Sources of data: field collections and manipulations of sport fishes. Item in database: date, salinity, water temperature, air temperature, depth, tide, weather, collection gear, bait, species, length, tag location, tag type, tag number, barometric pressure, length at recapture, date at recapture, days at large, length increase, direction, distance, gear of recapture, and bait of recapture.

-267-
DATABASE NAME: Red Abalone
CONTACT NAME: Pete Kalvass
ADDRESS: California Dept. Fish and Game
19160 S. Harbor Dr.
Fort Bragg, CA 95437
ABSTRACT:
Type of survey: abalone picker field intercept survey. Data include numbers caught, numbers of pickers, pick hours, abalone bar cut data, number sublegals returned and shell length of retained abalones. Field survey data covers the years 1978 to present. Sampling occurs throughout the year, concentrating at key sites along the Sonoma Mendocino and Humboldt coasts. Tagging study sites included key areas of abalone abundance along the Sonoma and Mendocino coasts. Data are separated by diver and shorepicker mode, by date and site. Data have been keypunched on a microcomputer using dBaseII. It is in the process of being uploaded to the Department's DECVAX in Rancho Cordova, California. Red abalone tagging studies data are not keypunched yet. Tagging and recapture information is available for key sites in northern California. Field census data have been combined with telephone survey data collected by CIC research in San Diego for Marine Recreational Fisheries Statistical Survey (MRFSS) under NMFS.

-268-
DATABASE NAME: Reef Fish Distribution off North Carolina and South Carolina as Revealed in Headboat Catches
CONTACT NAME: Gene Huntsman
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort Laboratory
Beaufort, NC 28516
ABSTRACT:
A quantitative description of the distribution of 14 important reef fishes is presented from reports of hook-and-line catches from the outer continental shelf of North Carolina and South Carolina. These species occur on hard or live bottom in water deeper than 20 meters. Species distribution maps were prepared from records of 9,027 headboat trips made from 1975 through 1978, containing such information as the daily number of fish taken by species, the number of anglers aboard, the duration of the trips, and the location of fishing. Fishing locations were reported as positions (by alphanumeric code) on a 10-minute longitude by 10-minute latitude, polar-oriented grid.

-269-
DATABASE NAME: Reef Fish Program; FY 1980-1983
CONTACT NAME: Theodore Rice
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort Laboratory
Pivers Island
P.O. Box 570
Beaufort, NC 28516
ABSTRACT:
Reef fishes are broadly defined to include many hundreds of species whose principal habitat is coral reef or other hard substrate areas such as rock outcroppings and live bottom areas in the warm tropical and subtropical waters of the region. Throughout the region groupers (Serranidae-subfamily Epinephelinae) and snappers (Lutjanidae), porgies (Sparidae, especially Pagrus and Calamus) and grunts (Pomadasyidae) are among the most important species. However, in the Caribbean and increasingly in South Florida, numerous other species of several families (e.g, Cahetodontidae, Pomatomidae, Mullidae) are important and deep reef fisheries take tilefishes (Branchiostegidae,

especially Caulolatilus and Lopholatilus) regularly. Of course, non-consumptive users use even more species than fishermen. During the period FY 1982-1983 a continuing research need will be for catch statistics (both commercial and recreational) adequate for fisheries management. Further, while the species of interest will change, we will continue to collect and analyze biological material to provide information on growth, reproduction and foods of important reef fishes. The species emphasized will be more and more representative of the Caribbean and South Florida as we increase our ability to collect biological materials from these areas.

-270-
DATABASE NAME: Reproductive Biology, Behavior, and Population Dynamics of Black Sea Bass
CONTACT NAME: John A. Musick
ADDRESS: Virginia Institute of Marine Science
Glouchester Point, VA 23062
ABSTRACT:
Extensive data on the reproductive biology, age-growth, and feeding habits were collected on the black sea bass, Centropristis striata. The sea bass was studied from South Carolina to New York using a 36-foot yankee trawl, a 30-foot semiballoon trawl, and crab pots. Hydrographic data also were taken at each station. Sex reversal or sex lability of this hermaphroditic species was evaluated in the field and in the laboratory. Sex ratios were determined for each collection and gonad histology was examined. Stomach contents were identified to species when possible. Length-weight ratios computed seasonally for males and females.

-271-
DATABASE NAME: Republic of China Groundfish Trawl Fishery Catch and Effort Data from the Bering Sea and Northeast Pacific Ocean
CONTACT NAME: Sueto Murai
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
FDMS
Bldg. 4.
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains catch and effort data from the Republic of China trawl fishery operating in the Northern Pacific Ocean reported by month and 1/2 degree latitude by 1 degree longitude blocks. Data contain species, catch in metric tons, number of drags and hours fished, vessel size, gear type, and date.

-272-
DATABASE NAME: Research Cruise
CONTACT NAME: E. Heyerdahl
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
NECDD-N.E. Laboratory
ABSTRACT:
Research cruise data have been automated since 1962. Groundfish surveys measure species composition, length, age, distribution, and environment. Stomach samples are analyzed. Plankton/larval herring surveys and benthic communities surveys are conducted.

-273-
DATABASE NAME: Research Cruise Penaeid Shrimp Data
CONTACT NAME: Director, NMFS
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Galveston Laboratory
4700 Ave.
Galveston, TX 77551-5997
ABSTRACT:
Twenty hundred twenty six observations on shrimp catches made on 113 cruises in the Northwest Gulf of Mexico were made during 1961 to 1965. Data on species, numbers, size, sex, depth, temperature, salinity, and weight of associated fish caught in the shrimp trawls were collected.

-274-
DATABASE NAME: Research Cruise Support Files
CONTACT NAME: E. Heyerdahl
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
NECDD-N.E. Laboratory
ABSTRACT:
These data sets provide the keys to relate the various subsets of research cruise data. Includes cruise descriptions, stratification descriptions, definitions of species codes, names, l-w relationships, number of tows per cruise-stratum, and age sample locator.

-275-
DATABASE NAME: Results of Tagging Experiments of Summer Flounder, Paralichthys Dentatus, Conducted in New Jersey Waters, 1960-1967
CONTACT NAME: Principal Fisheries Biologist
ADDRESS: Division of Fish, Game and Shellfish
New Jersey Dept. of Environmental Protection
Principal Fisheries Biologist
Bureau of Fisheries
Absecon, NJ 08201
ABSTRACT:
Tagging experiments of summer flounder, Paralichthys dentatus, were conducted in New Jersey waters from 1960 to 1967 to understand seasonal movements of this species, distribution from year to year, homogeneity of summer populations, relationship between summering and wintering grounds, rates of harvest, and eventual fate in regard to fisheries.

-276-
DATABASE NAME: Rockfish Commercial and Sport Catch Samplings
CONTACT NAME: Nancy Wiley
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Tiburon Fisheries Laboratory
Tiburon, CA 94920
ABSTRACT:
This is a compilation of statistics taken from port samplings of northern and central California commercial rockfish landings of commercial passenger fishing vessels. Both catch and effort data are available. For each commercial landing and passenger vessel, there are both trip and biological information. Commercial landing trip data elements include boat identification, fishing location, fishing gear used, and pounds of fish landed. Commercial passenger fishing trip data elements include landing location, fishing location, number of anglers or passengers on board, and the number of fish caught per angler based on interviews. Biological information consists of the species identification and the weight, length, sex, and age of

the rockfish. The samplings provide rockfish landing management information as required by the Fishery Conservation and Management Department.

-277-
DATABASE NAME: Rockfish Age, Mortality and Morphometries
CONTACT NAME: Willia Lenars
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Tiburon Fisheries Laboratory
Tiburon, CA 94920
ABSTRACT:
This file contains measurements of age, sexual maturity, gut contents, fat contents, and morphometries of rockfish. Age size and degree of sexual maturity are used to study reproductive biology and seasonality. Food habits are also studied. The morphometric data measurements of body parts, shape, and length are used to obtain length-age statistics, to provide species affiliations by body shape, and to determine morphological differences between sexes. Most fish were caught in the vicinity of central California.

-278-
DATABASE NAME: Salmon Tagging Data
CONTACT NAME: Nancy Wiley
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Tiburon Fisheries Laboratory
Tiburon, CA 94920
ABSTRACT:
Data were collected and stored for salmon raised in a salmon pen-rearing project with the purpose of studying the feasibility of net pen-rearing in the San Francisco Bay. The salmon, coho, and chinook were measured, tagged and released. Tag return data, consisting of the tag number, capture location and date, and the species type are available for those that were recaptured.

-279-
DATABASE NAME: Salmon Depth Distribution Studies
CONTACT NAME: Robert Carlson
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
REFM
1065 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
From 1965 to 1969, depth distribution studies were undertaken on the Alaska and Aleutian Islands sector of the High Seas Salmon Fishery. The basic information collected was the number of fish caught by depth and mesh size. Also noted were sea conditions and water temperature. NMFS funded these studies. The gear information was recorded concerning gillnets. The number of shackles fished by mesh size were 2 inches to 1/5 inches, monofilament and brided.

-280-
DATABASE NAME: Salmon Distribution and Abundance, High Seas Girth Data
CONTACT NAME: P. Washington, R. Carlson
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
REFM
1065 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115

ABSTRACT:
File contains high seas salmon data reported by cruise number, set number, and scale card. Data contain detailed information on girth measurements taken from the regions of the eye, opercula, pectoral, dorsal, where specimen was caught in net, and the maximum girth. Data also include species, sex, maturity, gear type and size, length and weight of specimen, year, age, and position of net mark and capture type. File will be used to relate the two parameters length and girth to mesh size of nets.

-281-
DATABASE NAME: Salmon Distribution Data of the Bering Sea and Gulf of Alaska
CONTACT NAME: R. Carlson, B. French
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
REFM
1065 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains high seas salmon data reported by species, season, and 2 degree latitude by 5 degree longitude areas. The data contain detailed information on length, sex, age, gear type, gear size, bait type, gonads, mortality, various body weights, maturity measured in various ways, and tag numbers. The above data are correlated to cruise numbers, set numbers, time and dates.

-282-
DATABASE NAME: Salmon Morphology
CONTACT NAME: Murray Amos, Leona Allison
ADDRESS: Northwest Fisheries Center/NMFS/NOAA
U.S. Dept. of Commerce
2725 Montlake Blvd. East
Seattle, WA 98112
ABSTRACT:
From 1955 to 1962 extensive data were taken concerning the morphology of Pacific Salmon. The fisheries which were sampled were Japanese North Pacific Ocean, Bering Sea, and Okhotsk Sea Mothership Fishery; Western, Central, Northern and Southeastern Alaska, Hokkaido Island, Japan; Japanese Land-based Salmon Fishery; British Columbia; Washington State; Canadian, Japanese and U.S. Research vessels were used additionally. Various measurements of the fish were taken and recorded as well as sex and maturity. Species sampled were red, pink, chum, silver, king, and coho. Various kinds of gear were utilized. These studies were funded by NMFS. The gear used are reported for each fish and are commercial and experimental gill net, longline beach seine, traps, weir or rod and reel. For each fish the position or area is given as position of research vessel, or as noon position of Mothership where applicable. Each observation represents one fish.

-283-
DATABASE NAME: Scripps Marine Vertebrate Collection
CONTACT NAME: Richard Rosenblatt
ADDRESS: Scripps Institution of Oceanography
Marine Vertebrate Collection
La Jolla, CA 92093
ABSTRACT:
The Scripps fish collection contains deep sea and pelagic fishes from the world oceans and shore fishes of the Eastern Pacific, representing in total more than 3,500 species of fish. Although the collection does have samples taken as early as 1880, the bulk of the collection begins in 1945, with 60% of

the two million specimens dated after 1960. Specimens are identified to species, and the size range and number of individuals are given for each station. When available the following information is given: position, vegetation, bottom type, temperature, salinity, tide, depth of capture, depth of water, time and date of capture, method of capture, and name of collector. The collection is indexed by species, by chronological order to capture and by broad geographic localities.

-284-
DATABASE NAME: Seahurst Baseline Studies (Metro/Puget Sound)
CONTACT NAME: Jim Anderson
ADDRESS: Fisheries Research Institute
University of Washington
WH-10
Seattle, WA 98195
ABSTRACT:
Series of baseline studies from May 1982 to March 1984 were conducted in preparation for new sewage outfall near Renton, Washington. Subtidal benthos, intertidal, fish, circulation, microbiology studies were done. Data were gathered in some cases on a daily basis.

-285-
DATABASE NAME: Seamap Database
CONTACT NAME: Kenneth Savastano
ADDRESS: National Space Technology Laboratories NOAA/NMFS
Bay St. Louisa, MS 39529
ABSTRACT:
Marine resource and environmental surveys are designed to satisfy data and information needs of living marine resource management and research organizations in the Southeast region. SEAMAP encompasses marine and estuarine waters and living marine resources within the territorial sea and fishery conservation zone contiguous to the Southeastern coastal states and territories, from Texas to north Carolina, including Puerto Rico and the Virgin Islands. SEAMAP is currently using trawls, bongo, and neuston nets, purse seines, gill nets, midwater trawls, CTD's, XBT's, longline, fish traps and other devices. Data have been collected from 1982 to present. The types of data are: biological data taken from trawls, environmental data and ichthyoplankton data. Limitations: data are currently available for 1982-1985 (biological), 1982-1985 (environmental) and 1982-1983 for ichthyoplankton.

-286-
DATABASE NAME: Seaside-Casey
CONTACT NAME: Chris Bonzak
ADDRESS: Tidewater Administration
Maryland Department of Natural Resources
Tawes State Office Bldg. C-2
580 Taylor Avenue
Annapolis, MD 21401
ABSTRACT:
Type of survey conducted: 16' and 25' bottom trawl recording abundance, diversity, and presence-absence of finfish and blue crabs. Geographic extent of survey: coastal bays of Maryland. Type of sampling gear: 16' and 25' bottom trawl. Year data collected: 1973-1987. Data limitations: data recently keyed, not error checked.

-287-
DATABASE NAME: Seasonal Occurrence Distribution and Abundance of Juvenile Fish
CONTACT NAME: Louisiana State University Library
ADDRESS: Louisiana State University
Baton Rouge, LA 70803
ABSTRACT:
This study was undertaken to identify the occurrence of juvenile fish at Marsh Island, Louisiana on a seasonal basis. Seine samples were taken biweekly in conjunction with chlorinity, turbidity, water temperature and water height measurements, March 1971 to February 1972.

-288-
DATABASE NAME: Shellfish Surveys
CONTACT NAME: T. Azarovitz
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Wood Hole Laboratory
Woods Hole, MA 02345
ABSTRACT:
Shellfish surveys are of two types: sea scallops and surf clams/ocean quahogs. Conducted since 1976. Clams from Cape Hatteras, North Carolina to South NE. Scallops from Cape Hatteras to West Georges Bank. Catch in weight, length, age, also environmental data are given.

-289-
DATABASE NAME: Shiner Perch
CONTACT NAME: Ron Karpov
ADDRESS: California Dept. of Fish and Game
Marine Resources Region
19160 South Harbor Drive
Fort Bragg, CA 95437
ABSTRACT:
Type of survey: Marine Recreational Fisheries Statistics Survey (MRFSS) field creel type census for species composition, length-frequencies and catch rates with telephone census for effort estimates. Years collected: Mid 1979 to end of 1986/continuous sampling program on two month waves. Geographic extent: Pacific west coast with samplers in each of the major California port areas. Approximately 10,000 to 15,000 fishermen contacted in creel census each year in California. Sporadic data from Marine Recreational Fishery Statistical Survey-currently under organization by Karpov. Data are being summarized in northern and central California into five subregions and by quarter. Data summaries are already available for the period from the second quarter of 1984 to the end of 1986 in our Administrative report series (11 reports). A total of 30 reports are planned to be completed by the end of 1987. Data on the species listed are included in tables and figures contained in the reports. A Microcomputer Program Series is also available that allows accessing MRFSS for any of the 7 and 1/2 years for specific subregion (down to the sampled site level). Data diskettes are available through PMFC in Portland, Oregon.

-290-
DATABASE NAME: Shrimp By-Catch
CONTACT NAME: Karen A. Steidinger
ADDRESS: Bureau of Marine Research
Florida Dept. of Natural Resources
100 8th Ave., SE
St. Petersburg, FL 33701-5095

ABSTRACT:
This included identification and enumeration of species of commercial and non-commercial interest taken during normal commercial shrimp trawling operations on the Florida west coast and in Tampa Bay, below Cedar Keys, off Sanibel Island, off the Dry Tortugas, and in Tampa Bay. Gear used: 34 to 60 ft. flat and balloon trawls (mesh variable). Years collected: February 1977 to August 1978. Various trawl sizes and meshes were employed, and trawls were pulled from various periods of time (but all data were recorded). All fishes and selected invertebrates were taken for identification by personnel of Florida Department of Natural Resources.

-291-
DATABASE NAME: Shrimp and Bottomfish Program FY 1980-1981
CONTACT NAME: E. Klima
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Beaufort Laboratory
Pivers Island
P.O. Box 570
Beaufort, NC 28516
ABSTRACT:
The overall thrust of this research program is to provide the best scientific information possible to the appropriate Management Councils for developing and monitoring of Fishery Management Plans. Major research priorities established by the Councils are information on growth, mortality, migration, update estimates of MSY, and ecology of the major shrimp and bottomfish species, along with continued collection of reliable recreational and commercial catch statistics and pertinent economic information. The objectives of the Southeast Fisheries Center shrimp and Bottomfish Program for FY 1981 dealt primarily with shrimp and bottomfish populations in the Gulf of Mexico. Only two of the projects funded in 1981 were of importance to the U.S. South Atlantic Coast, in general, and the North Carolina offshore area, in particular. The first project, titled the MARMAP was designed to measure annual fluctuations in the abundance of shrimp and bottomfish stocks of the southeastern United States and to determine major environmental cause and effect relationships. This information is required to monitor the condition of fishery stocks and to predict future abundance.

-292-
DATABASE NAME: Shrimp Stock Assessment Survey
CONTACT NAME: Daniel F. Schick
ADDRESS: Fisheries Research Station
Maine Department of Marine Resources
West Booth Bay Harbor, ME 04575
ABSTRACT:
A researcher at the Maine Department of Marine Resources Fisheries Research Station in West Booth Bay Harbor has conducted a shrimp stock assessment from 1967 onward in the western Gulf of Maine. Temperature, salinity, wind, speed, direction, sky cover, weather, visibility, sea state, demersal fish length, biomass, age, and count, and benthic animal (Dichelopandalus leptocerus and Pandalus borealis) counts, biomass, sex determination, length, and length/weight ratio area among the measurements taken. They are recorded on data sheets, magnetic tape digital and punched cards.

-293-
DATABASE NAME: Shrimp Survey
CONTACT NAME: S. Clark
ADDRESS: Northeast Fishery Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Shrimp surveys are a subset of offshore groundfish surveys and some shrimp-directed cruises. Data cover the area in the West Gulf of Maine, and have been automated since 1977.

-294-
DATABASE NAME: Shrimp, Groundfish, and Crab Monitoring Program
CONTACT NAME: Barney Barrett
ADDRESS: Office of Coastal and Marine Resources
Louisiana Department of Wildlife and Fisheries
P.O. Box 15570
Baton Rouge, LA 70895
ABSTRACT:
This monitoring program utilizes plankton nets, 6' trawls and 16' trawls to monitor postlarval shrimp at the major passes into Louisiana's major lakes and bays, and to monitor juvenile shrimp, groundfish, and crabs in Louisiana's estuarine and near offshore waters. Index stations are sampled periodically and results are compared with data from other index stations and with data from previous years to determine trends of the sampled populations.

-295-
DATABASE NAME: Shrimp/Juvenile Pollock Survey, 1978, Eastern Bering Sea (Heidi-J.)
CONTACT NAME: R. Mintel, R. Bakkala
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
2067 Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains survey data of the following types; haul data describe the time, location, gear type, and conditions when catch taken; catch data describe the species composition of the haul; length-frequency data by species measure relative frequency of different size fish from the haul; and position data describe haul distance based on haul begin and end locations in latitude and longitude and in Loran position. Specimen data are part of file Id#17. The above data have shared vessel and haul numbers.

-296-
DATABASE NAME: Snapper Tagging Study
CONTACT NAME: Director
ADDRESS: Port Aransas Laboratory/NMFS
P.O. Drawer 1208
Port Aransas, TX 78373
ABSTRACT:
About 700 Red and Vermillion snapper have been tagged off the Texas coast since May 1977 in an effort to describe migration patterns of populations of the major snapper fishing areas with the aim of developing fishery management plans.

-297-
DATABASE NAME: South Atlantic Finfish/Shellfish Landings
CONTACT NAME: Nelson Johnson, Charles Krouse
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Data File Inventory ESO-Statistics
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
Monthly commercial landings are reported for Georgia, South Carolina and North Carolina (1960-1986). Files contain month, year, state, dealer, area, gear, species, pounds, value, and distance from shore.

-298-
DATABASE NAME: South Atlantic Shrimp Landings
CONTACT NAME: Nelson Johnson, Charles Krouse
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Data File Inventory ESO-Statistics
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
Monthly commercial shrimp landings are reported for Florida east coast Georgia, South Carolina, North Carolina. Files contains port, vessel, date, area, depth, species size class, effort, pounds, and value dealer (1980-1986).

-299-
DATABASE NAME: South Carolina MARMAP Program
CONTACT NAME: George Sedberry
ADDRESS: South Carolina Wildlife and Marine Resources Department
P.O. Box 12559
Charleston, SC 29412
ABSTRACT:
Type of survey: fish and invertebrate assessment, bottom long line (200 m), live bottom and shelf edge reef fish (20-60m), and groundfish trawling (5-15m). Gear type: bottom longline, hook and line, hydrographic, traps trawls underwater television. Years collected: 1973-1987. Data contain station data, length frequency, yet lacks complete hydrographic information at all stations.

-300-
DATABASE NAME: South Texas Database
CONTACT NAME: Donald E. Wohlschag
ADDRESS: The Marine Science Institute
The University of Texas
Port Aransas, TX 78373-1267
ABSTRACT:
A large multidisciplinary study sponsored by BLM (MMS) (New Orleans) for about three years. Prime Contractor was the University of Texas Marine Science Institute at Port Aransas, Texas. Four transects were established across the south Texas shelf from Matagorda Bay to the Rio Grande (10-134 m). Sampling gear used: 35 ft. flat trawl (1 in. stretch mesh). Years collected: 1975-1977. Limitations: None known.

-301-
DATABASE NAME: South Texas Outer Continental Shelf Baseline Study, Biology and Chemistry, FY 1975-1978
CONTACT NAME: Environmental Studies Section

ADDRESS: MMS Gulf of Mexico Regional Office/U.S. Dept. of Interior
Mail Stop LE4
1420 S. Clearview Parkway
New Orleans, LA 70123

ABSTRACT:
The South Texas Outer Continental Shelf (STOCS) benchmark program began in 1975 as a coordinated research effort sponsored BLM, Department of the Interior. The study began in Gulf of Mexico waters over the continental shelf off the south Texas coast for the purpose of establishing baseline information on specific marine parameters prior to mineral exploration, and for the determination of any spatial and temporal impacts on the immediate environment resulting from exploratory drilling activities. General areas of research were: sediments, biology/chemistry, and biological/physical oceanography. For summarization purposes the studies completed may be categorized into general areas: plankton, finfish, crustaceans, and physical oceanography. This study was designated to include a broad survey in terms of the number of stations and the frequency of sampling.

-302-
DATABASE NAME: South Texas Outer Continental Shelf Environmental Studies, Plankton and Fisheries, 1975-1978
CONTACT NAME: Environmental Studies Section
ADDRESS: MMS Gulf of Mexico Regional Office/U.S. Dept. of Interior
Mail Stop LE4
1420 S. Clearview Parkway
New Orleans, LA 70123

ABSTRACT:
The South Texas Outer Continental Shelf (STOCS) Benchmark Program began in 1975 as a coordinated research effort sponsored by BLM, Department of the Interior. The study began in Gulf of Mexico waters over the continental shelf off the south Texas coast to establish baseline information on specific marine parameters prior to mineral exploration, and to determine any spatial and temporal impacts on the immediate environment resulting from exploratory drilling activities. General areas of research were: sediments, biology/chemistry, and biological/physical oceanography. For summarization purposes, the studies completed may be categorized into general areas: plankton, finfish, crustaceans, and physical oceanography. This study was designed to include a broad survey in terms of the number of stations and the frequency of sampling.

-303-
DATABASE NAME: South Texas Topographic Features Study
CONTACT NAME: Francis Mitchell
ADDRESS: National Environmental Satellite
Data and Information Service/NOAA
National Oceanographic Data Center
Washington, D.C. 20235

ABSTRACT:
This study was conducted to perform mapping, monitoring, sampling and submersible observations of several topographic features in the Gulf of Mexico. These features included Stetson, 28 Fathom, East Flower Garden, Claypile, Aransas, South Baker, and Southern Hospital Banks. Detailed bathymetric charts have been prepared for these banks. Biological and geological reconnaissance studies were also conducted on these banks. Some of the studies include: transmissivity and density structure of the water column, examination of suspended sediments with the scanning electron microscopes, visual observation of suspended sediments in a submarine, clay mineralogy of the bottom sediments, sediment size, carbonate analysis, sediment cores, trace

metals, shelled microzooplankton, general microplankton, shelled microzooplankton, meiofauna, macrofauna, the effects of the nepheloid layer on distribution of epibenthic communities, hydrocarbons and heavy metals in micronekton and Spondylus, trace metals in micronekton and Spondylus, and the general description of the biota and chemistry of the brine lake at the East Flower Garden Bank.

-304-
DATABASE NAME: Southeast Alaska Trawl Surveys, 1977
CONTACT NAME: R. Mintel, S. Hughes
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains groundfish survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; catch data describe the species composition of the haul; length-frequency data by species measure relative frequency of different size fish from the haul; and specimen data contains detailed information on sex, maturity, size, age, etc. The above data types are connected through shared vessel and haul numbers.

-305-
DATABASE NAME: Southern California Sanitation Districts Monitoring Surveys
CONTACT NAME: Jeff Cross
ADDRESS: Southern California Coastal Water Research Project
646 West Pacific Coast Highway
Long Beach, CA 90806
ABSTRACT:
Southern California Coastal Water Research Project (SCCWRP) is the general repository for data and research arm of the different sanitation districts in southern California. SCCWRP does not gather its own data. The data they have go back to the early 1970s for some counties (e.g. Louisiana), late 1970s for others (e.g., Orange County), and for 5 years for San Diego and Santa Monica. Some of the counties are computerized and some are not, so the "database" at SCCWRP is actually a compilation of data in many forms and formats. In general most counties trawl two to four times per year at a fixed set of stations between 30 and 150 m, using the same methods, 25 ft net, .5" mesh with 1.25 cm cod end liner, 7.6 m head rope, 10 minute trawl, same door size. These are distribution and abundance surveys, though Orange County has done some histopathology work-as has Louisiana.

-306-
DATABASE NAME: Southwest Florida-Inshore
CONTACT NAME: Al Collins
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
3500 Delwood Beach Road
Panama City, FL 32407
ABSTRACT:
Eight seine and trawl transects run inside the Florida Everglades and to a depth of 12 m on the shelf adjacent. Sampling gear used: 16 ft flat trawl (0.75 stretch mesh); (100 ft beach seine, 6' deep)-(data from seining not included herewith). Years collected: sampling occurred quarterly (May, August, September 1971 and February 1972) for one year. This is an excellent shallow water database. The small net and fine mesh undoubtedly permitted escape of larger and more mobile species.

-307-
DATABASE NAME: Southwest Florida-Offshore
CONTACT NAME: Alan Harte
ADDRESS: Continental Shelf Associates, Inc.
759 Parkway Street
Jupiter, FL 33477
ABSTRACT:
This trawl survey was part of a 5-year study by Continental Shelf Associates (CSA), Environmental Science and Engineering (ESE) and LGL sponsored by MMS (New Orleans). Geographic extent: from about the level of Charolette Harbor to the Keys. Gear: 25 ft. semi-balloon trawl (1.5 stretch mesh). Years collected: October 1980-February 1982. All trawl samples were of very short time duration. Some of the bottoms were quite rough. However, this is the best information available for most of the southwest Florida shelf.

-308-
DATABASE NAME: Soviet Union Groundfish Trawl Fishery Catch and Effort Data from the Bering Sea and Northeast Pacific Ocean
CONTACT NAME: Sueto Murai
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
FDMS
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains catch and effort data from the Soviet Union Trawl Fishery operating in the Bering Sea and Northeast Pacific Ocean reported by month and 1/2 degree latitude by 1 degree longitude blocks. Data contain species, catch in metric tons, number of hours and days fished, vessel size, gear type, target species and date.

-309-
DATABASE NAME: Spanish Mackerel Tagging Study
CONTACT NAME: Doyle Sutherland
ADDRESS: Panama City Laboratory/NMFS/NOAA
P.O. Box 4218
Panama City, FL 32401
ABSTRACT:
A study of the migration and growth of spanish mackerel is being conducted in waters around Panama City, Florida by members of NMFS. As of August 1975, 83 mackerel had been tagged and released, 17 of these had been recaptured for data analysis.

-310-
DATABASE NAME: Specimen Collection of the South Carolina Marine Resources Center
CONTACT NAME: Bruce Stender
ADDRESS: South Carolina Marine Resources Center
Charleston Laboratory
217 Fort Johnson Rd.
P.O. Box 12607
Charleston, SC 29412
ABSTRACT:
The specimen collection housed at the South Carolina Marine Resources Center contains approximately 10,000 jars representing nearly 2,600 samples taken from South Atlantic Bight. A majority of the specimens were collected during the Marine Resources Monitoring, Assessment and Prediction (MARMAP) program (vessels R/V DOLPHIN, R/V ATLANTIC SUN, R/V OREGON) and the South Atlantic OCS

Area Living Marine Resources Study. A total of 1,775 samples were taken with neuston or bongo nets (505 micrometer mesh size) while approximately 800 unworked samples were collected using a smaller bongo array (333 micrometer mesh size). Samples collected from 1973 until 1978 have been sorted and identified. Fish are catalogued by species. Samples collected since 1978 have been sorted but not identified. It is estimated that approximately 200 fish families have been identified and are represented in the collection. This information should be considered up-to-date as of 22 January 1981.

-311-
DATABASE NAME: Specimen Research Collection
CONTACT NAME: C.E. Dawson
ADDRESS: Gulf Coast Research Laboratory
P.O. Box AG
Ocean Springs, MS 39564
ABSTRACT:
A reference collection is maintained at the Gulf Coast Research Laboratory in Ocean Springs, Mississippi. Approximately 2,000 species of marine vertebrates and 500 species of marine invertebrates have been collected from the Gulf of Mexico, Caribbean Sea, Tropical Atlantic and Pacific Oceans. Data available consist of taxonomic information, location of collection, date, and name of collector and identifier, 1901-present.

-312-
DATABASE NAME: Spiny Lobster
CONTACT NAME: John Duffey
ADDRESS: California State Fisheries Laboratory
California Dept. Fish and Game
1301 W. 12th St.
Long Beach, CA 90813
ABSTRACT:
Logbook data on the number of traps, number of legal and short lobster, depth, and F&G Block number. Years collected: 1981-1987 daily logs from October to March. Geographic extent: Southern California, Pt. Conception to U.S./Mexican border. Sampling gear used: TRAPS, mandatory fisherman logbook data. No access to fisherman name, no access to individual logs.

-313-
DATABASE NAME: Sport Fishery Evaluation from Port Aransas to Port Isabel, Texas
CONTACT NAME: Director
ADDRESS: Port Aransas Laboratory/NMFS
P. O. Drawer 1208
Port Aransas, TX 78373
ABSTRACT:
Data on the sport fishery between Port Aransas and Port Isabel, Texas were collected during 1975 and 1976 as part of a major study funded by BLM. Data were collected on numbers and species of fish caught per fisherman, per time, per type of fishing activity, per fishing area, per boat type, and per time of week, May 1975 to April 1976.

-314-
DATABASE NAME: State Bulletin Monthly Landings Data
CONTACT NAME: J. Palmer
ADDRESS: Northeast Fishery Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543

ABSTRACT:
Consists of non-weightout landings data obtained from Washington's landings file for states not participating in the northeast weightout program or from monthly and/or annual canvasses. Contain catch and value by month, dealer, gear used, and location caught. Other elements include water codes, price, distance from shore, Washington species code and NAFO codes. Data goes back to 1974.

-315-
DATABASE NAME: State Bulletin Monthly Landings Data
CONTACT NAME: J. Palmer
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
Provisional non-weighout landings data received from Washington are used as a supplement to the monthly weighout data. Contain catch and value by month, dealer, gear used and locale of catch. Other data include water codes, price distance from shore, and Washington and NAFO codes. Data presently include 81 catches from New York, New Jersey, Virginia and Rhode Island but as more states are brought into the weighout system this data set will involve data from fewer states.

-316-
DATABASE NAME: State Bulletin Yearly Landings Data
CONTACT NAME: J. Palmer
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
The annual non-weighout landings data received from Washington represent catch information obtained in State and Federal monthly and annual canvasses from those states not participating in the Northeast Weighout Program. Data include catch volume, and value by month, dealer, gear used, and locale of catch. Automated data goes back to 1974.

-317-
DATABASE NAME: Strategic Petroleum Reserve
CONTACT NAME: Gary Wolff
ADDRESS: Civil Engineering Department
Texas A&M University
Environmental Engineering Station
College Station, TX 77840
ABSTRACT:
Multi-year project to monitor environmental effects of discharging massive volumes of brine into nearshore waters of the Gulf of Mexico off mouth of Calcasieu River, Louisiana. (West Hackberry site) and off Freeport, Texas (Bryan Mound site) included hydrography, sedimentology, plankton, benthos, nekton, etc. Geographic extent: 10 miles offshore from mouth of Calcasieu River (10 m deep); 10 miles offshore from Freeport, Texas (20 m deep). Sampling gear used: 4.9 m otter trawls (with 0.6cm stretch mesh). Years collected: 1978-1985. Limitations: none known; however, some of the initial stations were deleted in later years of study.

-318-
DATABASE NAME: Striped Bass
CONTACT NAME: Nancy Wiley
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Tiburon Fisheries Laboratory
Tiburon, CA 94920
ABSTRACT:
Extensive pollution data were collected from striped bass specimens caught primarily in the San Francisco Bay. The data consist of measurement characteristics of the species which correspond to pollutant burdens. Generally, the fish were examined for body condition. The tissue and organ quantities of specific pollutants, mostly petroleum, hydrocarbons, chlorinated hydrocarbons, the heavy metals, were also measured. Specific compounds from these pollutant classes were selected for laboratory studies based on their occurrence in the natural habitat. The data were collected to gain a better understanding of the effects of chronic low-level pollutants on aquatic fisheries, April 1978 to June 1984.

-319-
DATABASE NAME: Striped Bass
CONTACT NAME: "Pete" Harold K. Chaduich
ADDRESS: California Department Fish and Game
4001 N. Wilson Way
Stockton, CA 95205
ABSTRACT:
Type of survey: mark and recapture study of adults, tow-net survey for eggs and larval abundance, tow-net survey for young in mid summer, tow-net for young in fall and winter, and health index for adult females. Years collected: annual from 1959; selected years since 1967; annual in spring since 1978. Geographic extent: Sacramento-San Joaquin Estuary, California. Sampling Gear: gillnet and syke nets, 2-4 various tow nets and trawls. Limitations of data: selected years since 1967 has major limitations associated with availability and/or vulnerability.

-320-
DATABASE NAME: Studies of Commercial Shrimp Populations in Texas
CONTACT NAME: Thomas Heffernan
ADDRESS: Texas Parks and Wildlife Department
715 S. Bronte
Rockport, TX 78382
ABSTRACT:
Since 1958 the commercial shrimp populations along the Texas coast have been monitored in an effort to estimate population size for projection of shrimp abundance, fishing seasons, growth rates, etc. Generally, data are collected on brown shrimp at weekly intervals from March-May and on white shrimp at semimonthly intervals from May to December. Samples are collected in 6 ft. pull nets, or 10 ft. or 25 ft. trawls.

-321-
DATABASE NAME: Studies on the Mid- and Outer-Shelf Reefs off the Coast of the Carolinas
CONTACT NAME: Robert Y. George
ADDRESS: Dept. of Marine Biological Research
University of North Carolina-Wilmington
Wilmington, NC 28516
ABSTRACT:
This report focuses upon the composition and dynamic structure of the benthic invertebrate communities that constitute an energy-enriched food web in the

continental benthic environment. The analysis of benthos of these live bottom areas indicate that the reef communities exhibit significant seasonal oscillations in species composition and population structure. The inner-shelf reef community is distinctly different from the outer-shelf community at the shelf break. These preliminary studies on the temperate reefs are based upon their observations in the inner reef patches in the vicinity of Cape Fear Ridge and from rock outcrops located 3 and 23 miles off Wrightsville Beach in Onslow Bay. The outer reefs were sampled by means of otter trawl. In order to achieve a better understanding of this unique ecosystem, further in situ observations and remote controlled television surveys are required both from biological and geological points of view. It is also important to understand the impact of the Gulf Stream on this ecosystem, particularly in relation to recruitment-renewal processes.

-322-
DATABASE NAME: Subsistence Harvest Monitoring
CONTACT NAME: Bob Wolfe
ADDRESS: Alaska Department of Fish and Game
Subsistence Division
P.O. Box 3-2000
Juneau, AK 99802-2000
ABSTRACT:
Since the beginning of this decade, the Division of Subsistence has been involved in issuance of salmon harvesting permits and the tabulation of the harvest data. Recently, the Division has accepted full responsibility for the processing of this information in certain regions of the state. These permits contain information related to the permit holder, fishing helpers, fishing sites, and gear types and expected catch by salmon species. Information (estimated community salmon harvest by species, effort, etc.) for nearly 150 communities for the last 30 years has been abstracted from Annual Management Reports of the Division of Commercial Fisheries. In FY 1987 the division began the process of automating these systems.

-323-
DATABASE NAME: Survey of Deep Sea Bottom Fishes, Gulf of Mexico
CONTACT NAME: Thomas Bright
ADDRESS: Department of Oceanography
Texas A&M University
College Station, TX 77843
ABSTRACT:
Deep sea bottom fish obtained through dredging in the Gulf of Mexico are reported. Data available include the identified specimens, location, depth, numbers caught, and morphometric measurements.

-324-
DATABASE NAME: Survey of Gulf Menhaden
CONTACT NAME: Director Atlantic Estuarine Fisheries Center
ADDRESS: Atlantic Estuarine Fisheries Center/NMFS/NOAA
Beaufort, NC 28516
ABSTRACT:
Ten-year survey of Gulf Menhaden from Florida to Texas, 1964 to present.

-325-
DATABASE NAME: Systematics, Ecology, and Distribution of Reef Fishes in the Eastern Gulf of Mexico
CONTACT NAME: Greg Smith

ADDRESS: Florida Department of Natural Resources
100 8th Ave., SE
St. Petersburg, FL 33701
ABSTRACT:
A program was begun in mid-1970 to describe the systematics, ecology and distribution of reef fishes in the Eastern Gulf of Mexico. Underwater photography, scuba, and fish collecting were used extensively. Concentrations of effort have been placed on red tide reef recolonization studies, Florida Middlegrounds reef fishes, and distribution range extensions.

-326-
DATABASE NAME: Tagged and Untagged Rockfish Database
CONTACT NAME: William Lenars
ADDRESS: Southwest Fisheries Center/NMFS/NOAA
Tiburon Fisheries Laboratory
Tiburon, CA 94920
ABSTRACT:
These rockfish (Sebastes) data sets are the result of a prior study which estimated the population and seasonal variability of the local brown rockfish community. Conducted at the Tiburon Fisheries Laboratory, this study provided a better understanding of the life history of this commercial important species. Data include records for rockfish caught and released, both tagged and untagged at the laboratory. Available information for those tagged includes: the date and location of capture and release, the tag number, the species type, and the length and the condition of the fish when released. Similar records were for the untagged fish with the exception that there are no identifying numbers. Mortality data consisting of the specimen's tag number, its length, weight, age, and species type, the date of death, and the location caught are also available.

-327-
DATABASE NAME: Texas Finfish/Shellfish Landings
CONTACT NAME: Guy S. Davenport, Gary Kinkle
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Data File Inventory ESO-Statistics
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
Monthly commercial landings of Texas finfish/shellfish. Files contain month, year, state, species, pounds, value and distance from shore. Some selected species data contain gear and area information (1962-1985).

-328-
DATABASE NAME: The Chesapeake Bay Surveys
CONTACT NAME: Clyde Goulden
ADDRESS: Philadelphia Academy of Natural Science
19th and the Parkway
Philadelphia, PA 19103
ABSTRACT:
This file contains survey data for the Chesapeake Bay in the vicinity Calvert Cliffs, Maryland, taken seasonally at four stations from 1968 through 1974. Data taken include counts and species determination of algae, aquatic plants, protozoans, zooplankton, fish, and benthic invertebrates.

-329-
DATABASE NAME: The Menhaden Fishery of the Texas Gulf Coast
CONTACT NAME: Library Director
ADDRESS: Department of Wildlife and Fisheries Sciences
Texas A&M University
College Station, TX 77843
ABSTRACT:
An attempt was made to analyze the menhaden fishery of the Texas Gulf coast between June and August, 1948. Observations were made on the distribution and abundance of menhaden, types of fish which feed on menhaden, and the effect of the menhaden fishery on populations of menhaden and various species of game fish. Galveston Beach, Cedar Bayou, Rockport and Port Aransas served as four collection areas. Specimens were collected with seines, syke nets and by angling. Stomach analyses were performed on species of certain fish to determine the menhaden content of their diet as well as various other diet organisms. Data in form of reprint, June 1948 to August 1948.

-330-
DATABASE NAME: The Oceanography of the New York Bight: Physical, Chemical, Biological
CONTACT NAME: Robert Nuzzi
ADDRESS: New York Ocean Science Laboratory
Drawer EE
Montau, NY 11954
ABSTRACT:
Data for the New York Bight, south of East Rockaway Inlet, on the spatial and temporal distribution of phytoplankton, and benthic fauna, as well as various chemical and physical parameters were collected from 18 stations during October and November of 1971.

-331-
DATABASE NAME: Trawl Survey of Palos Verdes Peninsula and Catalina Island
CONTACT NAME: Alan Mearns
ADDRESS: Southern California Coastal Water Research Project
1500 E. Imperial Hwy.
El Segundo, CA 90245
ABSTRACT:
Twenty-eight stations off the Palos Verdes Peninsula and Santa Catalina Island were sampled by otter trawl in May and June 1972. Tows were of 10 minute duration. Stations ranged from 23 to 167 meters in depth. Fishes were identified, counted and measured. The standard length of specimens in small catches was determined to the nearest millimeter, in large catches to the nearest centimeter. All species were examined for external signs of disease.

-332-
DATABASE NAME: Trends in Finfish Landings by Sport Boat Fishermen in Texas Marine Waters, May 1975-May 1985
CONTACT NAME: Maury Ferguson, H.R. Osburn
ADDRESS: Texas Parks and Wildlife Department
Coastal Fisheries Branch
4200 Smith Scool Road
Austin, TX 78744
ABSTRACT:
Since May 1974 private-boat fishermen have been routinely interviewed at boat-access sites. Party and headboat fishermen have been routinely monitored since May 1983 by on-site and on-board surveys. Forty percent of the 6-year mean annual coastwide private-boat bay and pass fishing pressure and 44% of the landings occurred in the Galveston Bay system. The routine sport-boat

fishery monitoring program detected a reduction in some finfish landings following a coastwide fish kill in December 1983 and January 1984.

-333-
DATABASE NAME: Trends in Relative Abundance and Size of Selected Finfish in Texas Bays, November 1975-December 1985
CONTACT NAME: Maury Ferguson, A.L. Crowe, A.W. Green, L.W. McEachran, and P.C. Hammerschmidt
ADDRESS: Texas Parks and Wildlife Department
Coastal Fisheries Branch
4200 Smith Scool Road
Austin, TX 78744
ABSTRACT:
Trends in relative abundance and size of red drum, spotted seatrout, black drum, sheepshead, southern flounder, Atlantic croaker, sand seatrout, gafftopsail catfish, Gulf menhaden, hardhead catfish, pinfish, spot and striped mullet have been monitored since 1975 using a standardized fishery independent gill net and bag seine sampling program in eight Texas bay systems. The impacts of management decisions based on optimum sustained yield, effects of catastrophic events and stock recruitment relationships can be measured by using estimates of relative abundance based on the fishery independent monitoring program.

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DATABASE NAME: Trends in Relative Abundance of Selected Shellfishes Along the Texas Coast, January 1977-March 1986
CONTACT NAME: Maury Ferguson, P.C. Hammerschmidt, and L.W. McEachran
ADDRESS: Texas Parks and Wildlife Department
Coastal Fisheries Branch
4200 Smith Scool Road
Austin, TX 78744
ABSTRACT:
Trends in relative abundance and size of brown shrimp, white shrimp, pink shrimp, blue crab and eastern oyster in Texas marine waters were monitored using a standardized fishery independent sampling program with bag seines along bay shorelines, trawls in bay water > 1.0 m deep and in Gulf water > 1.8 m deep within Texas Territorial Sea and oyster dredges in bay "reef" and "non-reef" areas.

-335-
DATABASE NAME: U.S. Army Corps of Engineers Environmental Impact Statements
CONTACT NAME: Library Director
ADDRESS: U.S. Army Corps of Engineers
Galveston District
P.O. Box 1229
Galveston, TX
ABSTRACT:
Environmental impact statements have been produced for 22 areas of coastal Texas from September 1970 through December 1976. Statements include data concerning the geology, climate, water quality, land use, population and local fauna and flora for each area. Data are in the form of environmental impact statements.

-336-
DATABASE NAME: U.S. Coast Guard Vessel Sighting Data
CONTACT NAME: Special agent in charge, NMFS
ADDRESS: Law Enforcement Branch, U.S. Coast Guard/NMFS/NOAA
P.O. Box 21668
Juneau, AK 99802
ABSTRACT:
Summary of domestic and foreign and fishing vessel sightings obtained by the U.S. Coast Guard and the NMFS Law Enforcement Branch (Juneau, Alaska) during aerial patrols of fishing activities in Alaskan waters. Data cover period from 1981-83 and provide information on harvest areas of commercially important species of fish and invertebrates in waters off the southern Alaskan coast from the Aleutian Islands to the Alaska-British Columbia border. Data pertain to adults.

-337-
DATABASE NAME: U.S. Commercial Fisheries
CONTACT NAME: M. Sissenwine
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
Woods Hole Laboratory
Woods Hole, MA 02543
ABSTRACT:
U.S. commercial catch and effort from vessels landing fish in Northeast and Mid-Atlantic Ports. Automated since 1964. Data include vessel port, area fished, gear, date, species, pounds, value, days fished, and vessel characteristics. Areas fished were Northwest Atlantic Divisions 5, 6, and 4.

-338-
DATABASE NAME: Upper Gulf Finfish/Shellfish Landings
CONTACT NAME: Guy S. Davenport, Margery Bastian
ADDRESS: Southeast Fisheries Center/NMFS/NOAA
Data File Inventory ESO-Statistics
75 Virginia Beach Dr.
Miami, FL 33149
ABSTRACT:
Monthly commercial landings for Florida (1960-1976), Alabama-Mississippi-Louisiana (1960-1986) and Texas (1960-1975) are reported. Files contain month, year, state, dealer, area, gear, species, pounds, value, and distance from shore.

-339-
DATABASE NAME: Vessel Oregon Survey, 1978
CONTACT NAME: R. Mintel, D. Rodman
ADDRESS: Northwest and Alaska Fisheries Center/NMFS/NOAA
RACE
Bldg. 4
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
File contains groundfish survey data of the following types: haul data describe the time, location, gear type, and conditions when catch taken; catch data describe the species composition of the haul; length-frequency data by species measures relative frequency of different size fish from the haul; and specimen data contain detailed information on sex, maturity, size, age, etc. The above data types are connected through shared vessel and haul numbers.

-340-
DATABASE NAME: Vessel Logbooks for Regulated Species
CONTACT NAME: M. Sissenwine
ADDRESS: Northeast Fisheries Center/NMFS/NOAA
NECDD
Woods Hole Laboratory
Woods Hole, MA 02345
ABSTRACT:
The automated portion of vessel logbooks consist of a log of logbooks received from vessels permitted to fish regulated species. Information including vessel identification and date of receipt of the logbook is maintained. The actual data from the logbooks are not maintained in an automated mode.

-341-
DATABASE NAME: Washington Department of Fisheries Commercial Landings
CONTACT NAME: Dale Ward
ADDRESS: Resource Statistics Section
Washington Dept. of Fisheries
115 General Administration Bldg.
Olympia, WA 98504
ABSTRACT:
The Washington Department of Fisheries, as other state departments of fisheries, maintains records of commercial catch statistics by species, gear type, and area landed. Computerized records go back as far as 1935. Fishery management quotas and aquaculture advances effect amounts of fish caught and sold, as do other economic and political factors. Commercial landings are not necessarily accurate indicators of absolute or relative abundance of species, but can help to mark trends.

-342-
DATABASE NAME: Washington Department of Fisheries Hydroacoustic Herring Surveys
CONTACT NAME: Norm Lindberg
ADDRESS: Washington Department of Fisheries
Marine Fish
Bldg. 4, 2129
7600 Sand Point Way, NE
Seattle, WA 98115
ABSTRACT:
Hydroacoustic data acquisition and processing is combined with midwater trawling to estimate herring stock abundance in Washington State inside waters. Standardized surveys have been conducted since 1975 on populations found in the Strait of Georgia, southern Puget Sound, the Protection Island area in the Strait of Juan de Fuca, northern Hood Canal, and the San Juan Islands. The Strait of Georgia stock is subjected to an intensive commercial sac-roe fishery and hydroacoustic-trawl surveys provide run size estimates that are used as a basis for establishing catch quotas. Studies to assess Puget Sound herring stocks using hydroacoustic techniques were initiated in 1971 by the Marine Fish Program of the Washington Department of Fisheries (WDF) in cooperation with the Sea Grant Marine Acoustics Program through the Fisheries Research Institute (FRI), University of Washington (Thorne, 1973c; Thorne and Drew, 1974 and 1975; and Drew and Thorne, 1976). In 1975 all responsibility for data acquisition was undertaken by WDF followed in 1976 by computer processing and independently maintained data storage. Program emphasis during this time shifted toward systematizing sampling design and standardizing acoustic-trawl techniques.

-343-
DATABASE NAME: Weakfish-CBSAC
CONTACT NAME: Chris Bonzak
ADDRESS: Tidewater Administration
Maryland Dept. of Natural Resources
Tawes State Office Bldg., C-2
580 Taylor Avenue
Annapolis, MD 21401
ABSTRACT:
Type of survey conducted: a) 16 ft bottom trawl, permanent stations, weakfish juvenile and subadult abundance; b) hook and line, sex and age specific composition of catch; and c) commercial pound net, sex and age specific composition of catch. Geographic extent: Chesapeake Bay in Maryland; 78 stations for trawl. CPUE for pound net and hook and line is weekly defined, data are not yet fully computerized.

-344-
DATABASE NAME: Wildlife Characterization of Coastal Texas
CONTACT NAME: Andre M. Landry
ADDRESS: Department of Marine Biology
Texas A&M University
Building 311, Fort Crockett
Galveston, TX 77550
ABSTRACT:
An attempt was made to characterize wildlife communities along coastal Texas from Louisiana to Mexico between May 1, 1978 and September 1979. This study was conducted to determine if development would endanger any species of existing wildlife. Five stations in each area where investigated for benthic animals, fish, mammals and birds.

-345-
DATABASE NAME: Wilk Cruise Data
CONTACT NAME: Director, Middle Atlantic Coastal Fisheries Center
ADDRESS: Middle Atlantic Coastal Fisheries Center
Dept. of Commerce
Sandy Hook Marine Laboratory
Highlands, NJ 07732
ABSTRACT:
Thousands of observations were recorded from August 1968 to November 1971 of salinity, temperature, count, and species determination, length, weight, and age of pelagic and demersal fish, in the areas from Eastern Long Island to Florida.

-346-
DATABASE NAME: Winter Flounder Movements, Growth, and Mortality off Massachusetts
CONTACT NAME: Arnold Howe
ADDRESS: Division of Marine Fisheries
Massachusetts Dept. of Fisheries, Wildlife, and Recreational Vehicles
Heritage Professional Bldg. Route 6A
Sandwich, MA 02563
ABSTRACT:
Arnold Howe collected data concerning winter flounder movements, growth and mortality off the coast of Massachusetts from 1960 to 1965. Twenty-one stations were located in Buzzards Bay, Vineyard Sound, Cape Cod Bay, Massachusetts Bay, Georges Bank and Nantucket Shoals. The parameters included

are: species determination, count, sex, length, mortality, migration study and growth studies of demersal fish.

-347-
DATABASE NAME: Zooplankton
CONTACT NAME: Jim Audet, Manager
ADDRESS: National Oceanographic Data Center/NOAA
U.S. Dept. of Commerce
Ocean Pollution Data and Information Network
1825 Connecticut Avenue, NW
Washington, D.C. 20235

ABSTRACT:
This file contains data from sampling and analysis of marine zooplankton. Information on zooplankton abundance, distribution, and productivity derived from these data support studies of marine populations and ecosystems. Data reported may include: cruise information, position, date, time of sampling, bottom depth, sampling depths, temperature, and salinity; gear type, volume of water filtered, total dry and wet weight, and other data for total haul, and data for subsamples by species. Data on zooplankton catch by species may include subsample size, zooplankton concentration, life history code, and numbers of adults, juveniles, eggs, and larvae. Estimated density of holoplankton and meroplankton and data on ichthyoplankton may also be reported. A text record is available for comments.

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233	234	235	236	237	238	239	240	241	243
244	246	255	256	258	259	260	261	262	264
265	271	272	274	283	284	285	286	287	292
293	301	302	303	304	305	308	310	311	313
314	315	316	321	323	325	326	328	330	331
335	336	337	339	340	344	345	347		