A Socioeconomic and Environmental Inventory of the North Atlantic Region

Sandy Hook to Bay of Fundy

TRIGOM PARC

VOL. III

BK 1

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A Socio-Economic and Environmental Inventory of the North Atlantic Region

including the Outer Continental Shelf and adjacent waters from Sandy Hook, New Jersey, to Bay of Fundy

VOLUME III

Book 1

Submitted to Bureau of Land Management, Marine Minerals Division

as partial fulfillment of Contract 08550-CT3-8

November 1974

The Research Institute of the Gulf of Maine
Box 2320
South Portland, Maine

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A. 1 UNPUBLISHED DATA

The subject of unpublished data, raw data, technical memos, and informal reports is one that offers great potential for environmental data but at the same time great difficulty in successful capture. Our principal efforts were turned toward recovery of Data Bank information (see A.2) rather than the scattered pieces of unpublished reports. However, we did make one pilot project of a concentrated study on the Maine rivers (Appendix C.5) which went into more detail than was possible for the rest of the study area. Of primary concern was the unpublished literature associated with rivers and estuaries within the coastal drainage basins in Maine. For the majority of unpublished reports reviewed we found that the level of detail was generally narrow and local and that many reports were not pertinent. This meant that such an effort was considered premature for the entire region of this study. The methods demonstrated by the pilot Maine Rivers study are, however, useful to future efforts once sits-specific data are needed.

One other area where we made extensive use of unpublished data was in the Geology of Beaches, Section 5.1 where use of the U. S. Army Corps of Engineers reports, House Documents, theses, and dissertations were all used to supplement the published scientific literature.

A.1.1 WELL LOG DATA

As an example, but by no means necessarily a typical one, we present the type of "other data sources" that are prevalent in the unpublished and less easy to obtain data. The following report presented as Attachment Al-l is a well log from Shell Mohawk No. B-93, an exploratory well drilled in 1970 southeast of the southern tip of Nova Scotia. This is the closest well drilled to Georges and Brown Bank and is 1 ocated 70 miles from Shelburne, N.S. at about 42° 50'N and 64° 30'W.

This report was furnished by the Maine Bureau of Geology. Approximately seventy such exploratory wells have been drilled in Canadian waters on leased or permitted tracks shown in Attachment A-1. The majority of these wells are referenced as P & A (plugged and abandoned) and reportedly only four are cited as being potential producers. These four were, however, on leased tracts where reporting of findings is required as opposed to permit drilling which requires no disclosure.

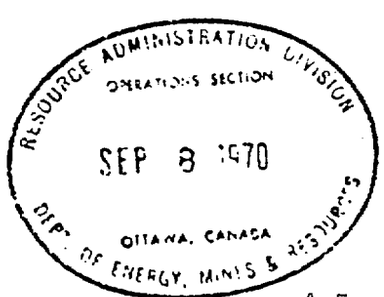
ATTACHMENT A.1

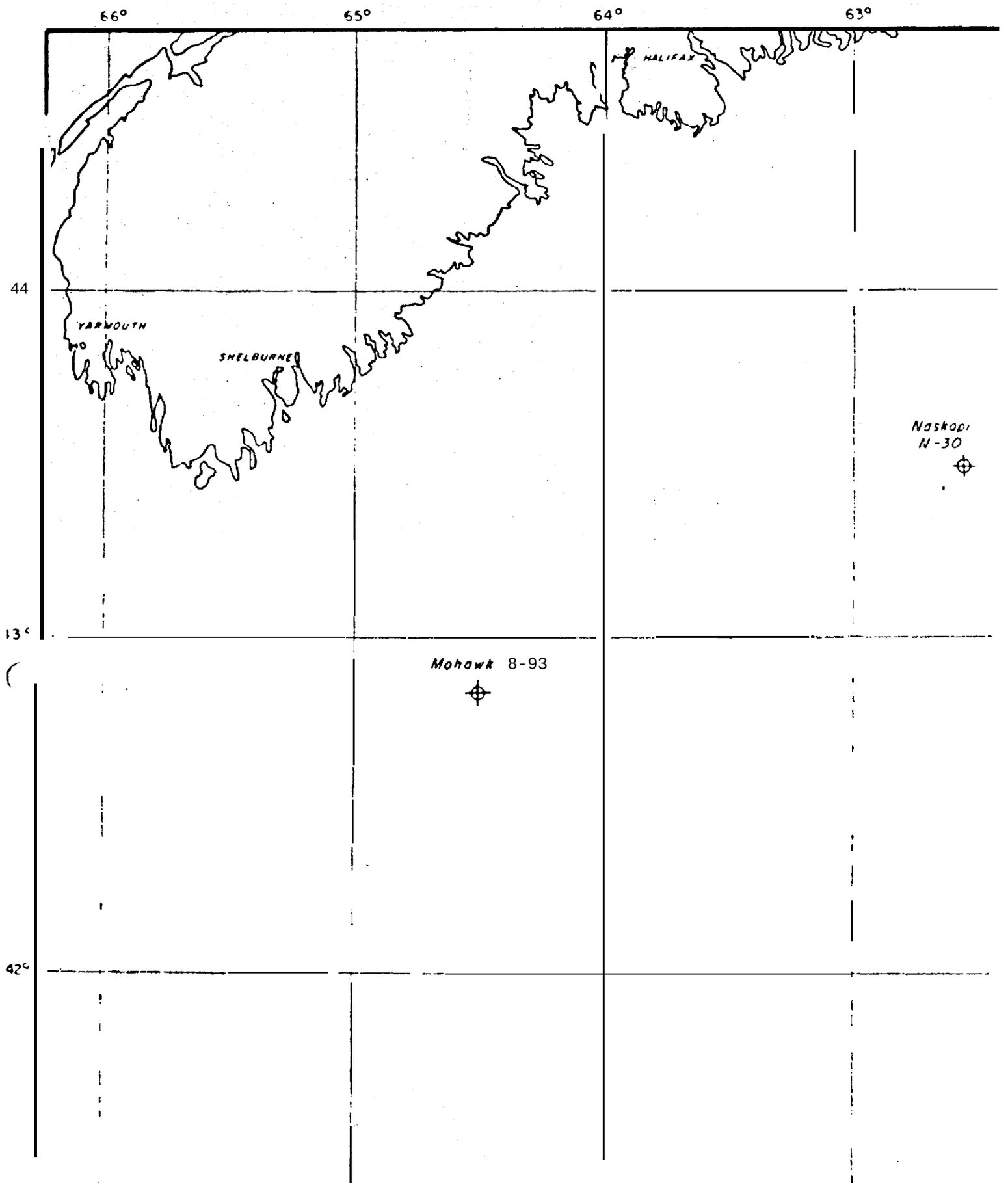
NELL HISTORY REPORT

SHELL MOHAWK B-93

SHELL CANADA LIMITED

SEPTEMBER 1970





INDEX MAP SHOWING

LOCATION OF SHELL MOHAWK B-93

INTRODUCTION

Shell Mohawk B-93 was located approximately seventy miles south of Shelburne, Nova Scotia, as shown on the attached index map. The purpose of the well was to test the un-faulted, low relief Mohawk anticlinal structure for hydrocarbon accumulations.

The drilling contractor was Southeastern Commonwealth Drilling Limited, utilizing the semi-submersible drilling vessel Sedco H. The vessel was anchored in a water depth of 384 feet. The well spudded May 3, 1970, and was drilled to a total depth of 6,975 feet. Rig release date was May 23, 1970. Protective casing strings were set at 1,148 feet and 3,488 feet.

The hole bottomed in granite after penetrating 6,930 feet of sediments. Lithology of the elastics consisted of shale, sands and dense carbonates. There were no shows and no testing was conducted.

SECTION 111 "- 'GEOLOGICAL 'DATA

(A) STRATI GRAPHIC COLUMN

Undated to 1190'

Tops	Faunal	Floral	Thickness
Oligocene	above 1190-1370		180
Eocene	1370-1600		230
Paleocene	1600-2007		407
Lower Campanian to Turonian	2007-3590		1583
Cenomanian		3590-4385	795
Lower Cretaceus		4385-4397	12
Upper Jurassic		4397-5750	1353
Upper to Middle Jurassic		5750-5900	150
Middle Jurassic		5900-prob. 6930	1030

Basement - 6930' ;T.D. - 6995'

(B) SIDEWALL SAMPLES

Refer to Pages 8 to 20.

(c) CONVENTIONAL CORE DESCRIPTION

None

(D) CONVENTIONAL CORE ANALYSIS

None

(E) SAMPLE DESCRIPTION

Refer to Pages 21 to 24.

SECTION III - GEOLOGICAL DATA -Addendum April 28, 1972

(F) FORMATION TOPS* (depths below Rotary Table)

GULLY GROUP	
Banquereau Formation @ base conductor pipe.	
Dawson Canyon Formation	2007
NOVA SCOTIA GROUP	
Shale facies included in unit above.	
MESTERN BANK GROUP	
Mi cMac - Abenaki Formations intertonguing	4397 '
Mohawk Formation	5540 '
BASEMENT (Intrusive)	6930 '

* As defined in "Cenozoic and Mesozoic Stratigraphy of the Nova Scotia Shelf". N.L. McIver (Canadian Journal of Earth Sciences, 1972, Vol. 9 #1, pp. 54-70.)

Lithologic Descriptions '-'Drill 'Cuttings

Owing to the poor reliability of drill cuttings alone, the following descriptions are generalized from cuttings, mechanical logs and sidewall samples. For details of mineralogy, compaction, visible porosity, etc., please refer to the sidewall sample descriptions which accompany this report.

1190-1350	Sand; quartz, clear grains, very coarse, smooth, rounded, interbedded occasionally with greyish brown, silty, calcareous, fine grained sandstone and glauconitic sandstone, fine to medium
1350-1385	Sandstone; pale brown, fine to medium, silty, calcareous, glauconite grains common.
1385-1505	Shale; light green, silty, sandy, occasionally calcareous, minor glauconite content.
1505-1575	Mudstone; light green, sandy, silty, slightly calcareous, minor glauconite.
1575-1632	Glauconitic siltstone; light green, very argillaceous.
1632-1675	Sandy siltstone; light green, 20 percent dispersed very fine sand.
1675-1740	Silty shale; green, argillaceous content 80 percent, slightly micaceous, glauconitic.
1740-1835	Argillaceous siltstone; grey to green; interbedded with silty sandstone, grey to green, fine, glauconitic.
1835-1904	Shale; grey to olive green, silty, sandy, minor beds of fine sandstone with no visible porosity.
1904-1970	Calcareous siltstone; olive grey, trace sand.
1970-2015	Silty sandstone; dusky olive, well sorted, angular, slight porosity.
2015-2300	Siltstone; medium dark grey, calcareous, argillaceous, glauconitic.
2300-2335	Silty sandstone; grey to brown, very fine to fine, 40 percent silt.
2335-2433	Silty shale; green, interbedded with argillaceous, calcareous siltstone.

2433-2510	Shale; light olive green, scattered glauconite.
2510-2733	Silty shale; olive grey, calcareous, glauconitic.
2733-2860	Silty mudstone; green, slightly calcareous.
2860-2920	Silty mudstone; green interbedded with argillaceous siltstone
2920-3008	Mudstone; green, silty, calcareous, grading to shale.
3008-3090	Siltstone; green, sandy, calcareous.
3090-3136	Silty, shale; greyish olive; pelecypod remains.
3136-3155	Silty sand; greyish olive, very fine, well sorted.
3155-3622	Mudstone; greyish green to olive, silt 10 percent, calcareous material 10 percent, scattered glauconite.
3622-3689	Siltstone; light grey, argillaceous, calcareous material 10 percent, glauconite 10 percent.
3689-3841	Mudstone; light grey, calcareous, silty, glaucontitic; interbedded calcareous siltstone.
3841-3910	Siltstone; grey, calcareous, interbedded occasionally with silty shale.
3910-3935	Sandstone; clear, very fine to fine, quartzose, silty.
3935-4060	Silty mudstone; grey, calcareous and shale, light grey.
4060-4102	Silty shale; grey, calcareous.
4102-4182	Glauconitic sandstone; silty, calcareous, alternating with siltstone, very argillaceous, calcareous.
4182-4395	Siltstone; greenish brown, argillaceous, calcareous, with minor argillaceous limestone stringers.
4395-4580	Limestone; grey to light brown, sandy, silty, alternating with argillaceous dolomitic limestone.
4580-4633	Limestone; light to dark brown with limonitic stains, alternating with tight, argillaceous sandy units. Pittings and solution cavities common, filled with limonite. Limestones more argillaceous in lower beds.

4633-4746	Sandstone; light brown, silty, calcareous, grading to clean coarse sandstone with decreasing silt, increasing glauconite. Interbedded with calcareous shales.
4746-4940	Oolitic limestone; light grey, micro-crystalline matrix. Oolites 50-60 percent very coarse. Interbedded calcareous shales and mudstones.
4940-5120	Oolitic and dense limestone; cream to buff, occasionally sandy, and argillaceous, (5-10 percent). Siltstone and shale interbeds.
5120-5185	Sandstone; medium-dark grey, very fine to medium, very calcareous, interbedded with micro-crystalline limestone, light grey, slightly oolitic.
5185-5265	Oolitic and dense limestone; grey, sandy, Oolites 50-60 percent coarse, in micro-crystalline matrix, grading to crypto-crystalline limestone.
5265-5412	Limestone; brown to grey, micro to cryptocrystalline, occasionally oolitic. Interbedded with sandstone, pale brown, very fine, and calcareous siltstone.
5412-5610	Sandstone; light grey to cream, fine, well sorted, porosity 10 percent, alternating with siltstones; dark grey, calcareous. Occasional calcareous shale.
5610-5790	Sandstone; white to light grey, silty, calcareous, grading to sandstone; silty, dolomitic, fine, well sorted, friable, sub-rounded, quartzose, poor Porosity. Interbedded with grey shales-and variegated siltstones. Occasional beds of coal one to four feet thick.
5790-6170	Sandstone; clear to white, upper fine to medium, silty dolomitic, calcareous. Interbedded with sandstone; well sorted, friable, well rounded, quartzose, porosity 10-20 percent variegated siltstone, and silty shale.
6170-6310	Sandstone; cream, fine to medium, moderately sorted, well consolidated, sub-angular, quartzose, very calcareous. Interbedded with limestone, grey-brown, fossiliferous. Bioclastic frame work 20-30 percent, composed of brachiopod, pelecypod, crinoid, ostracod, and shell fragments. Some calcareous siltstone.
6310-6340	Shale; green calcareous, with minor beds of sandstone, light brown, fine, followed by oolitic limestone, grey.

6340-6406	Arkosic sandstone; clear to light grey, coarse, usually unconsolidated, well rounded, well sorted, feldspar 30 percent. Occasional beds of grey calcareous siltstone.
6406-6491	Sandy siltstone; grey and variegated.
6491-6612	Feldspathic sand; clear to white, coarse, angular. Pebbles common.
6612-6695	Sand; clear, medium to coarse, interbedded with oolitic limestone, 3-10 feet thick, and with calcareous siltstone, variegated.
6695-6940	Sandstone; light grey to clear, medium to coarse, well sorted, unconsolidated to friable, angular to sub-angular, quartzose and feldspathic, silty, porosity 15-25 percent; alternating with siltstones. Grades into unconsolidated beds of very coarse angular feldspathic sandstone , interbedded with sandy siltstones. Average composition of the latter sandstone is orthoclase feldspar (pink) 40-50 percent, quartz 50-60 percent, slightly micaceous. Orthoclase percentage increases as basement is approached.

APPENDIX A.2 Data Banks and Storage Areas

A.2.1 Introduction

A.2.2 Physical-Chemical NODC, WHOI

A.2.3 Biologic-bibliographic

A.2.4 Geological-NGSDC; WI-101

A.2.5 Meteorological - NCC; EDS; Bendix

A.2.6 ENDEX - EDBD

A.2.7 Others

A. 2.1 INTRODUCTION

There are probably several dozen facilities that claim or in some way are qualified to say that they have an available data bank for open access of oceanographic or environmental data. A fairly recent review of most of these can be found in Interstate Electronics Corp. (1973) and NODC'S Environmental Data Base Directory (EDBD) (1973). However, only a few are fully operational or able to provide useful data on request. Parts of several reports were used in the present study to provide supplementary data or they were used in an evaluative process to show what might be useful in terms of the type of data stored and ease of retrieval. No attempt was made to sample or list all the available data banks. An abbreviated list is included, however, below:

FEDERAL DATA BANKS: GENERAL

United States Department of Agriculture, Soil Conservation Service: land inventory and monitoring - studies and surveys of erosion and sediment damages-, flood plain identification and utilization, land use changes and trends, and degradation of the environment resulting from improper use of soil, water and related resources; data base content: flood runoff; erosion and sediment.

United States Department of Commerce, National Oceanographic and Atmospheric Administration, Environmental Data Service: National Climatic Center; data base content: climatic publications, major climatic studies, original climatological manuscript records, digital climatological data, microfilm of climatological records (precip., snow cover, storms, synoptic).

United States Department of Commerce, National Oceanic and Atmospheric Administration: National Marine Fisheries Service; data base content: sewage sludge dumping, shellfish pollution.

United States Department of Commerce: National Weather Service: data base content: long range planning, priorities in monitoring.

United States Department of Commerce, National Oceanographic and Atmospheric Administration: National Oceanographic Data Center - Coastal Zone Data; data base content: coastal zone data.

United States Department of Commerce: National Technical Information Service; data base content: federal research and development reports.

United States Department of Commerce, Bureau of the Census: Population and Industrial Density Trends; data base content: population, national.

United States Air Force: Pollution Data Retreival System; data base content: environmental data, pollution abatement '(coordination of all environmental data for U.S. Air Force).

United States Air Force: Water and Air Quality Data Coordination; data base content: water and air quality data.

United States Department of Health, Education and Welfare: National Institute of Health; data base content: heavy metals in water, dangerous and toxic metals in water, mercury and lead in water.

United States Department of the Interior: Bureau of Sport Fisheries and Wildlife; data base content: water quality data.

United States Department of the Interior, Geological Survey: Water Resources, National Water Data System; data base content: water quality data, administrative applications, water use data, stream-flow data, ground water data.

United States Department of the Interior, Geological Survey: National Water Data Exchange (NAWDEX); a federal interagency water data handling work group developing system design requirements for national handling of water data.

United States Department of the Interior; Earth Resources Observation Systems (EROS); data base content: thermal discharge images, aerial surveillance monitoring.

United States Department of Commerce, National Oceanic and Atmospheric Administration: National Sea Grant Program; data planning, marine science research.

United States Environmental Protection Agency: National Pesticide Monitoring Program and Shellfish Growing Areas.

United States Environmental Protection Agency: Oil and Hazardous Materials Incidents File; information on spills: location, body of water, quantity and type of material, source, containment method, environmental damage.

United States Environmental Protection Agency, Region 1: data on special enforcement problems, e.g., Sobin Chlor Alkali, Orrington, Maine.

United States Environmental Protection Agency, Region 1: file of applications for a permit to discharge wastewater under the National Pollutant Discharge Elimination System (NPDES).

United States Environmental Protection Agency, Region 1: monitoring data collected under the National Pollutant Discharge Elimination System from point source dischargers.

United States National Space and Aeronautical Administration: Earth Resources Technological Satellite (ERTS A and B); data base content: algae blooms; IR detection of heavy concentrations of phosphates and nutrients.

United States Department of the Interior, Office of Water Resources Research: Generalized Information Processing System (GIPSY); data base content: water quality literature.

United States Department of Transportation, Coast Guard: Chemical Hazardous Spill Response System (CRIS); data base content: coastal zone pollution baselines, monitoring pollution, on scene oil spill clean up managers, wide range of pollution detection studies.

United States Department of Transportation, Coast Guard: Marine Environmental Protection Program; data base content: oil spill management, airborne surveillance; (developing a real time radar and IR detection and classification capability.

United States Department of Transportation, Coast Guard: Pollution incident Reporting System; data base content: pollution discharge data, oil and hazardous substance removal data, penalty action by Coast Guard.

United States Atomic Energy Commission; data base content: water quality, thermal discharge, reactor systems.

Atomic Energy Commission, Oak Ridge National Laboratory: Environmental Information System; data base content: water quality, thermal pollution, miscellaneous pollution studies.

United States Environmental Protection Agency, Office of Water Programs: Marine Baseline Planning, National Coastal Water Quality Monitoring Network; data base content: municipal sewage treatment waste discharge, water quality (STORET), indutrial discharge points, construction contract grants, fish kills, beach closure.

United States Environmental Protection Agency, Office of Water Programs: Water Quality Protection - Data Processing; data base content: National Estuarine Inventory (NEI), Dun and Bradstreet File, Office of Water Data Coordination - Department of the Interior (OWDC); (provides the data processing support of the EPA computer systems).

United States Environmental Protection Agency, Office of Water Programs: Water Quality Surveillance and Information System (STORET); data base

content: water quality properties (STORET), municipal waste discharge, industrial discharge points, construction contract grants, fish kills, state and county boundaries with overlay of sewage treatment; under development: river mile index (RMI) - AUTOMAP; Refuse Act Permit Plan (RAPP); thermal discharge points: water quality standards and specifications, general point source file for storage, manipulation, and retrieval of information on all types of point sources of water pollution and ultimately discharges will be realted to ambient water quality.

United States Federal Power Commission, Bureau of Power; data base content: information on air and water pollution emissions from steam-electric power plants; general plant information, specific plant characteristics, fuels used and composition, air quality data, water quality data.

It appears a first attempt at a complete listing of all available data sources was done as part of the MESA - New York-Bight EDBD mentioned above and described subsequently.

A.2.2 PHYSICAL AND CHEMICAL DATA

LOCATION: NATIONAL OCEANOGRAPHIC DATA CENTER, WASHINGTON, D. C.

In response to a visit and formal request to NODC we obtained parts of an unpublished atlas which was in the process of being printed, which summarizes all available NODC data on various physical and one chemical property by plotting these and providing tabular summaries.

Figure A-1 shows the three areas covered. These are Area 4, 5, and 6 in the Western North Atlantic. The following types of data are available by each of these three areas, and are presented in Attachment A-1 with tables on pages and following. These tables are:

Table A-1 Temperature-salinity, a composite for all months

A-2 Temperature vs depth by seasonal quarters

A-3 Temperature vs depth with seasonal distribution plots

A-4 Salinity vs depth with seasonal distribution plots

A-5 Salinity vs depth with seasonal plots at standard depths

A-6 Oxygen vs depth sea surface values plotted

A-7 Phosphate vs depth sea surface values plotted

Temperature (Bathythermograph)

NODC has for some time maintained computer files of thermal structure determined from mechanical BT and XBT for the upper layers. Figure A-2 shows the density of observations for the study area by one degree squares. A summary of these data are presented as a sample for one month (February; Marsden 151 one degree 37.) on Table A-8.

Current Speed

The only data available from NODC for the Gulf of Maine and south of Cape Cod are based on ship position and drift (NODC H 1-9 printout). A sample summary is shown on Table A-9. Most of those points on Marsden Square 151 (Gulf of Maine) have too few data to be computed since there are less than four observations. South of MS 151 the number of vessels passing through increases and calculations are possible. However, as is rather obvious, this type of "course steered-course made good" determination is a rough approximation and subject to many errors of which the majority are likely to be in excess of the current velocity.

Source for more information and contact at NODC: Mr. Millington Lockwood, (202) 343-8345.

WOODS HOLE OCEANOGRAPHIC INSTITUTION (WHOI)

Several visits were made to WHO1 to search for readily available physical data. It was not possible to search thoroughly but our efforts do indicate the types of data, form of storage, and general availability.

Temperature

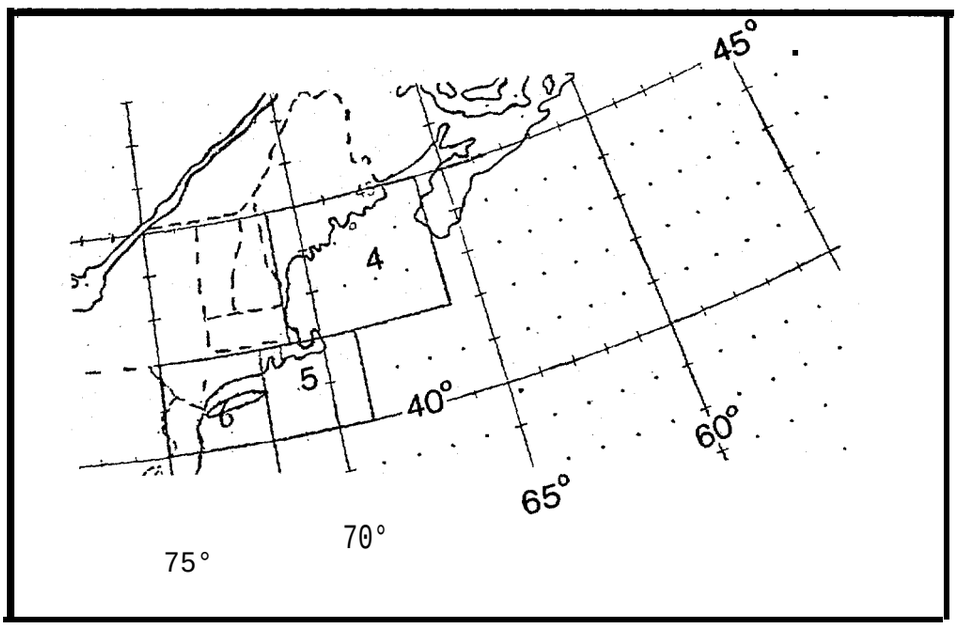
Monthly averages are available form one degree squares taken by BT and XBT. The original data and averages are recorded on 3" x 5" cards along with complete information on location and date taken. These data are also entered into data books.

Region covered: North Atlantic Ocean

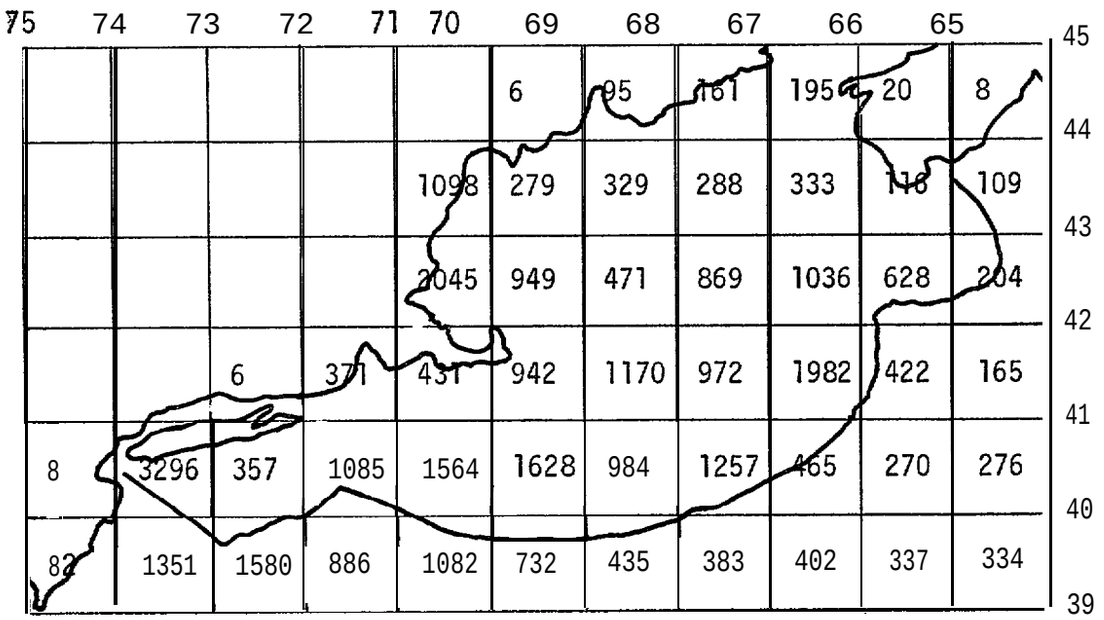
Period of coverage: 1940 to present

Quality: Most areas including inshore have sufficiently detailed average data to be reliable.

Publications: Serial Atlas of Marine Environment Folios 15 Florida Keys to Cape Cod, Walford and Wickland, American Geological Society, Serial Atlas Marine Environment Folio 21 - Average Monthly Sea Mater Temperature, Nova Scotia to Long Island 1940-1959, J. R. Colton and R. Stoddard, American Geological Society, 1972.

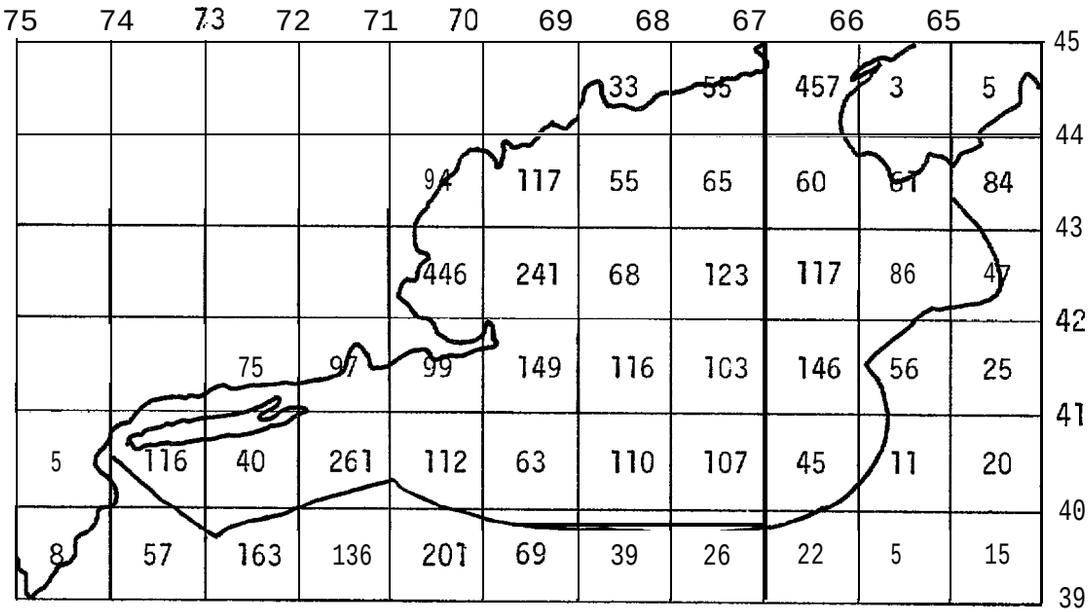


A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION		
TRIGOM PARC	FIGURE A-1	Physical and Chemical Data for Areas 4, 5 and 6



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

IGOM PARC	FIGURE A-2	Bathythermograph Station Data



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

IGOM PARC	FIGURE A-2a	Oceanographic Station Data

Contact at WHOI: Dr. Elizabeth Schroeder

Salinity

Similar to the temperature data, salinity measurements made by survey vessels of WHOI are recorded on data books and averaged by month and by one degree squares for the entire Atlantic Ocean.

'Period of coverage: 1940 to present

Quality: Good; most areas have sufficient coverage for reliable averages (above 12 data points as a minimum). New data are frequently entered from recent cruises.

Contact at WHOI: Dr. Elizabeth Schroeder

Currents

Relatively few current measurements from towers, buoys, or bottom mounted instruments appear to be available. A larger listing of data was available but since the majority of these records were U. S. Coast Guard data, the original data were not transmitted to us. Also, data older than 10 years were considered to be invalid as they were "taken under primitive conditions" (personal communication, Ms. Susan Tarbell, WHOI). Those few data that were made available are for south of Georges Bank (due south of Nantucket Island), inshore of Jeffreys to Ledge, and at Woods Hole. Table A-10 presents these data. The stations are also plotted along with other bottom current data in Chapter 3, Figure 3-54A.

Additional Physical Data: Other bits of physical data obviously are taken, although probably not with any sizable length of record. A better summary can be found in the Environmental Data Base Directory (EDBD) issued by NOAA/NODC in 1973 and discussed subsequently in this text.

A.2.3 BIOLOGICAL DATA

NODC appears to have attempted the only file system for biological data readily available, although some specialized systems may exist at either private or institutional levels. The NODC capability is only bibliographic. A request for the complete printout for Marsden 151 and 152 produced 778 biological preferences from a total of 16,392 titles searched. The results of this printout will be integrated into the report bibliography and appear in a separate volume. An earlier request for this bibliographic printout in 1973 using subject codes of "Gulf of Maine", "Passamaquoddy Bay", and "Bay of Fundy" produced 38 titles from a total search of 13,899 titles. Only a few of the latter are included in the broader larger search of all ocean areas using Marsden

Squares 151 and 152 indicating the difference resulting from the use of place name subject codes and the Marsden numbers.

Contact for more information: Milling-ton Lockwood, NODC
(202) 343-8345

A.2.4 GEOLOGICAL DATA

NATIONAL GEOPHYSICAL AND SOLAR-TERRESTIAL DATA CENTER (NGSDC)

Data that was formerly stored at NODC was transferred to NGSDC about 1972. A formal request to NGSDC for data located in the study area produced an old catalog (NODC, 1968) which inventoried data up to 1967. Three inventory charts show these data (Figure A-3 to A-5). Listed are cores and grab samples. The actual printout was examined but we determined that it was too raw a form to be of any immediate use. A more up-to-date catalog has been produced by NGSDC (1972). This document, Marine Geophysical Data Catalog, shows data for navigational bathymetric, magnetic, gravity, and seismic data.

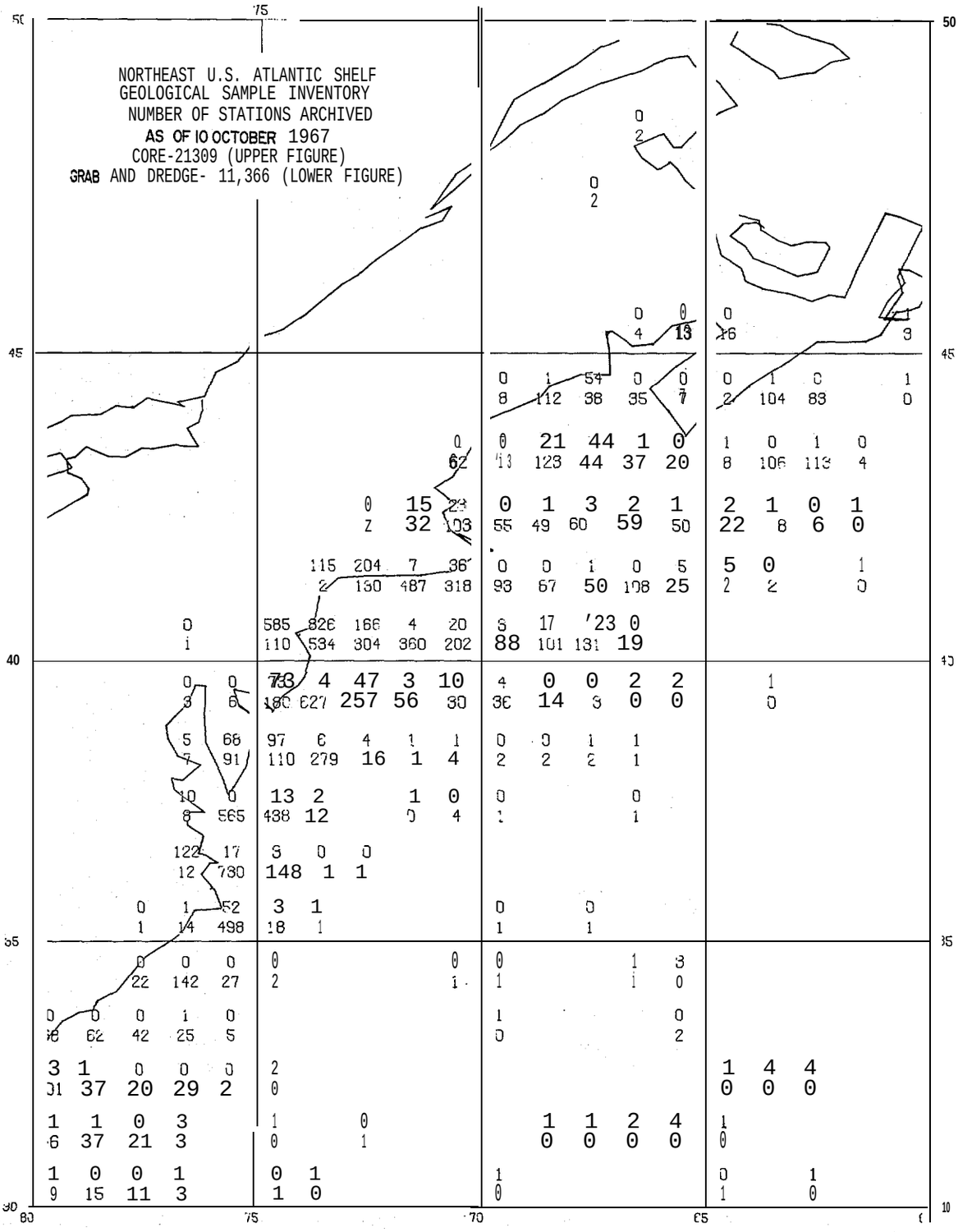
NODC

Part of the geologic data system still within NODC is the bottom photograph records. A large number of bottom photographs have been compiled in a computer access system. A request to this system produced 10 photo-citations in which only one was located in the Gulf of Maine. A section of the printout is given in Table A-12 as a sample.

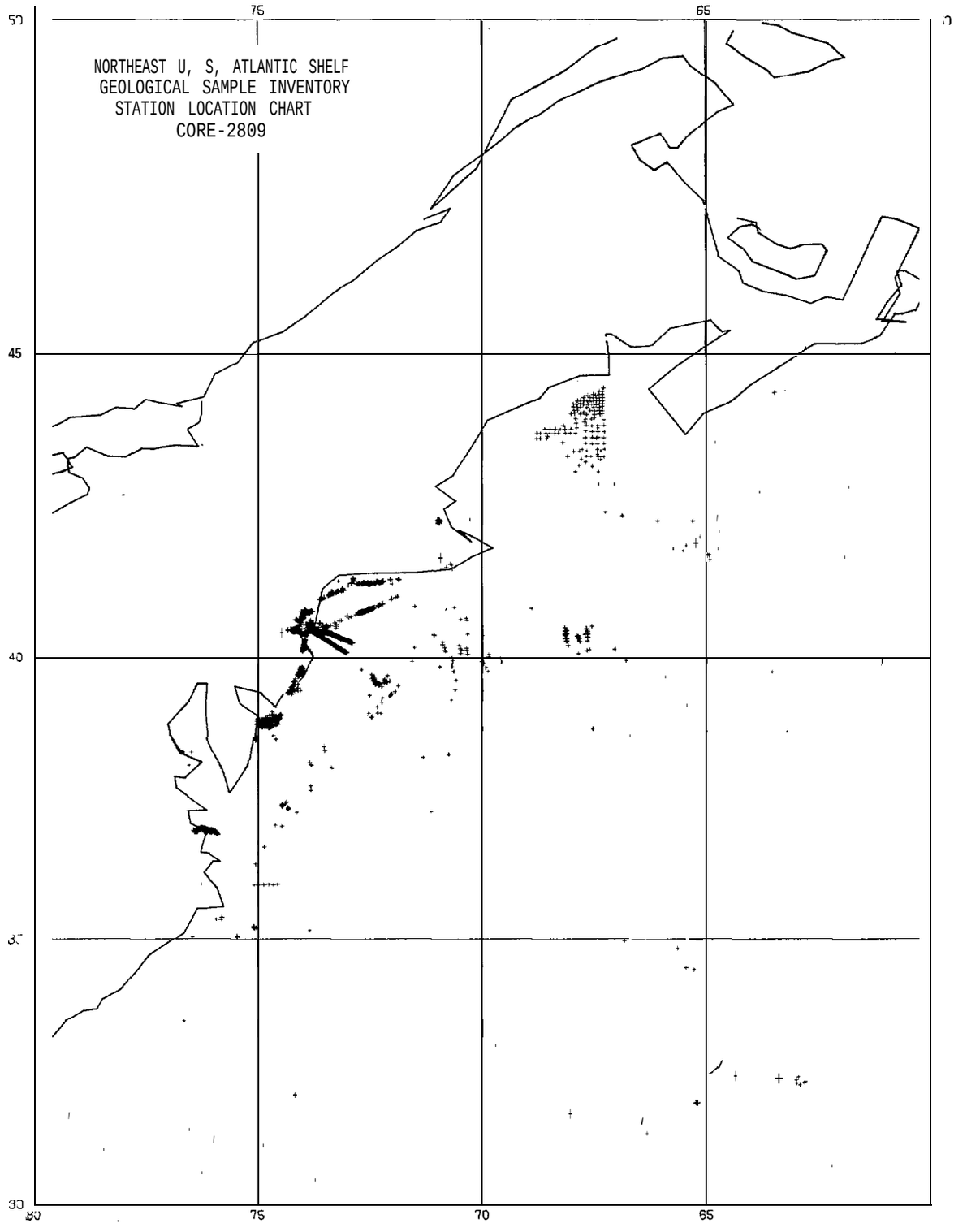
WHOI

Probably the best data bank and precise cataloging of geologic samples is to be found at WHOI where data from the Continental Margins Program collected under auspices and funding of U. S. Geological Survey are stored. An exhaustive listing of samples including a variety of geological properties is given in a single summary document (Hathaway, 1971). Figure A-6 shows the sample location and distribution while Table A-13 describes the actual sediment properties available. An updated description of the techniques used in curating, digitizing, and photographic documenting can be found in Driscoll (1973), Johnson and Driscoll (1972), and Gilman (1973) respectively. A list of cores taken by WHOI-ONR submersible ALVIN of samples collected in the study area is presented on Table A-14.

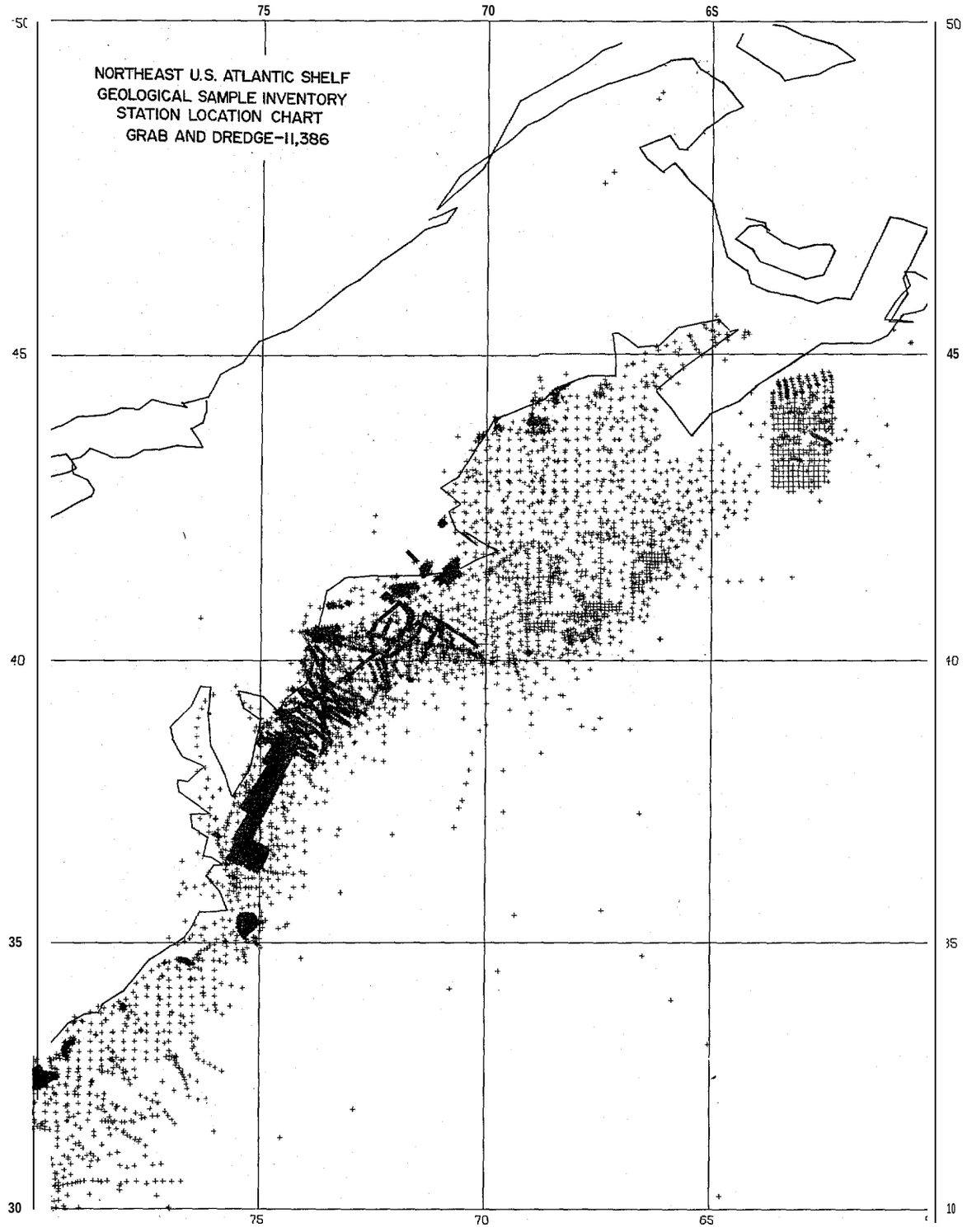
Contact at WHOI: Dr. Alan Driscoll, Supervisor of Core Lab.



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION		
TRIGOM PARC	FIGURE A-3	Northeast U.S. Geologic Sample Inventory - Number of Stations

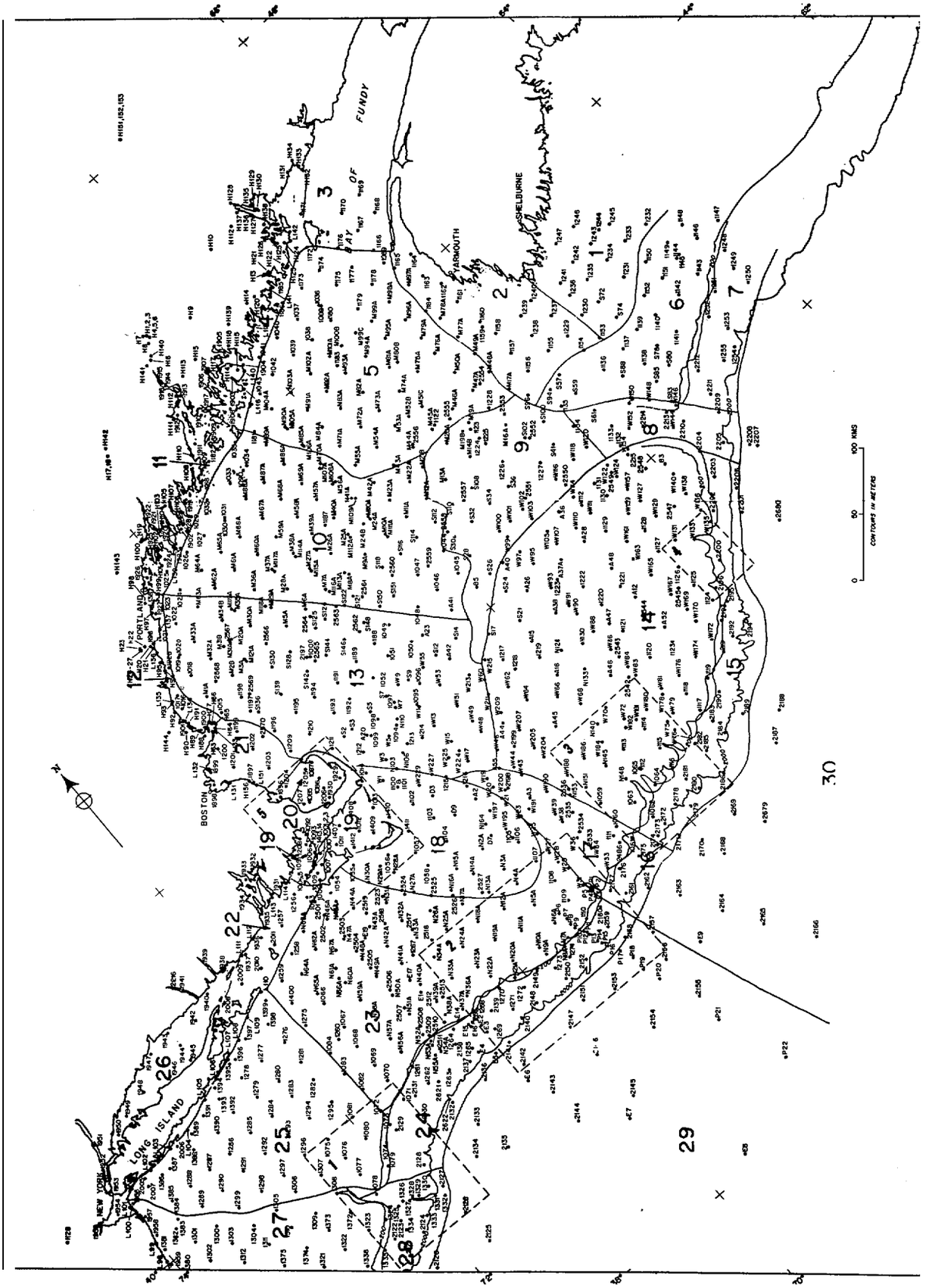


A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION		
TRIGOM PARC	FIGURE A-4	Northeast U.S. Geologic Sample Inventory - Station Location Chart-Core



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC	FIGURE A-5	Northeast U.S. Geologic Sample Inventory - Station Location Chart-Grab and Dredge



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC

FIGURE A-6

Station Index Map (Hathaway, 1971)

A.2.5 METEOROLOGY

NATIONAL CLIMATIC CENTER, ASHVILLE (NCC)

The summary of synoptic meteorological observations (SSMO) is based on marine information from ships in passage reporting weather in standard forms, (includes cloud cover, wind, temperature, and pressure, generally taken every four hours.

Areas 6, 5, 4 (western North Atlantic) are well covered. Historically, records-start in the mid 1800's and continue to the present with " periods of few observations during WWI, WWII, and the Depression when there was little shipping. However, some quantum leaps in the volume of data appear around 1900, also after WWII and around 1961.

Each of the 30 or 40 major maritime nations collects the forms from commissioned ships. Data are then copied and mailed to other nations. For mailed data there is a lag of 3 to 4 months for U. S. ships, and up to two years for foreign ships. However, National Climatic Center also receives all radioed weather information from ships and has since April 1973 automatically put this information on magnetic tape. Although the data are current, the quality of this information i's poorer than the written forms.

NCC also has synoptic data for a large region from the Synoptic Data File (useful only on large regions with inferences made from missing data points). They also have a large bank in microfilm and microfiche of satellite-gathered data. Parameters that might be extracted from these data are: cloud cover, wind (inferred), and sea surface temperatu re.

Skew points are usually cleaned from SSMO data before summarizing. NCC can provide many different formats and types of pointouts and plots. Old SSMO's should be carefully examined because the cleaning process was not done.

A sample of the type of data available for each one degree square follows on Table A-15. SSMO's are produced in collaboration with Naval Weather Service Command. We did not consider it within the scope of our study to obtain all 29 one degree squares necessary to cover our study area, but included the sample data only. Several atlases contain many of the basic data and are readily available.

In addition, all historical data for weather stations can be extracted by hand. Such an effort was outlined for one" station, Eastport, Maine as a sample by NCC. The type of data (i.e., barograms, thermograms, wind records) were listed by each yea-r which they are available. Estimates for the actual search were about $400 per station to produce all back records (W. T. Hodge, Personal Communication). Table A-16 is a

listing of the normally available data.

Contact at NCC: (704) 254-0961

ENVIRONMENTAL DATA SERVICE, NOAA (EDS)

EDS is a relative of the NOAA family and closely allied with NCC. The raw data are compiled by NCC and EDS analyzes these for specific locations and make probability charts for storm frequencies and the like. They also help with revisions of National Ocean Survey publications including coast descriptions, navigational hazards, and weather. A machine produced, annotated bibliography was prepared for TRIGOM primarily for physical oceanography. A similar special search could be done for meteorological data. These particular titles were used for the physical oceanography sections 3.2 and 4.3 of this report and appear in the KWIC bibliography in a separate volume at EDS: Bob Freeman (202) 343-7614.

BENDIX COMMERCIAL SERVICE CORP.

A specialized ship routing service is conducted by Bendix using basic U.S. Weather Bureau data. Contact at Bendix: Fred Pickhardt (201) 288-1550.

A.2.6 ENDEX-EDBD

A part of the EDS capability has been to prepare a special directory of data called Environmental Data Base Directory (EDBD) for the New York Bight Area. This program was compiled by NOAA/NODC for MESA (Marine Ecosystem Analysis). EDBD (1973) is a computer access system that lists the availability of oceanographic and environmental data that relate to the New York Bight. The major topics included are:

Physical/Chemical Oceanography

Biological/Chemical Oceanography

Geology/Geophysics and Sediment Chemistry

Chemistry (Water Column)

Air/Water Pollution

Meteorology

General

The first edition of the Directory was issued in September 1973 and contained information on data at 124 facilities, all with data pertaining to New York Bight. While there was the stated intent to produce subsequent updated versions of EDBD as of our last discussion in April 1974, there is no second version contemplated (Millington Lockwood, personal communication).

As an extension to EDBD, an additional task has been assigned requiring a visit to each of the 18 principal data repositories in the New York Bight region (mainly within our study area) to catalog in greater detail and more accuracy the available data contained at each facility. This activity should show up in On-going Research, Appendix C.3.

A.2.7 OTHER NATIONAL DATABANKS

As we mentioned previously, at the outset we did not intend to locate, assess, or evaluate all the data banks. One of the more recent studies that has done a credible job of this sort of listing is Interstate Electronics Corporation (1973} in a review of data sources for water quality. We have contacted a portion of these sources for information not only on water quality but for physical and chemical data. Table A-17 lists those data banks believed to be useful for BLM. We have not verified these data sheets compiled by IEC. A more thorough investigation of several of these data banks was conducted as part of our analysis of Maine rivers including water quality and environment. These can be reviewed in our pilot study described in Appendix C.5.

STATE DATA BANKS

An increasing trend among state governments, faced with a growing information overload and access problem, is the development of comprehensive resource data banks. We were able to find three states in the study region which have moved in this direction. These are: Maine, Rhode Island, and New York. These will be briefly discussed below. Others may exist in the study area but were not evident in our investigation.

Maine: 'MIDAS

The Maine Information Display Analysis System (MIDAS) originally was developed by the Maine State Planning Office in cooperation with the Departments of Inland Fisheries and Game and Marine Resources. It is a computerized information system including the natural resources area with some subsystems relating to socio-economic considerations. A list of the files contained in MIDAS is presented below:

Accident Subsystem	Fish and wildlife, boating, hunting and snowmobile accident reports.

Species subsystem	Fish and wildlife population and condition of their habitat such as wetland inventory.
Harvest subsystem	Fish and wildlife harvesting information. Information is also available on the hunter and the fisherman.
License subsystem	Catalog of licenses obtained for fish and wildlife harvesting. Characteristics will be available on hunters and fishermen for 1971.
Land-Use Subsystem	Data available on current land and related water use. Wetland and deer wintering area information partially available.
Pollution Subsystem	Water quality data
Prosecution subsystem	Detailed information about the characteristics of the crime and the disposition of the cases. For 1971-1972.
U.S. Census Subsystem	The 1970 Census of Population and Housing Characteristics by city and town, county and State. Income data available also.
Master Indicies	City, town, county, river, lake, and other name and geographical area listings.

These files are drawn from records of a number of Agencies, including the Maine Departments of Environmental Protection, Forestry, Health and Welfare, Marine Resources, Inland Fish and Game, Bureau of Taxation; U.S. Departments of Agriculture, Commerce and Interior (Bureau of Sport Fisheries and Wildlife). A more detailed listing of data contained in each file is available from the Maine State Planning Office. Data may be retrieved for many of the files by town, county, or state planning unit. Access may be obtained through the State Planning Office by contacting Mr. Al Goodwin (telephone: 207/289-3261).

Rhode Island: Environmental Inventory

The Rhode Island Statewide Planning Program, in response to a directive from the Governor issued January 4, 1972, recently began the development of a computerized statewide environmental data bank. It will include "any element which is either a part of the environment or may have an effect upon the environment." (written communication, R.I. Statewide Planning, 1974). The system is based spatially on the Universal Transverse Mercator System (UTM) which is organized

by a grid with rid lines spaced one kilometer apart and subdivided into smaller units. The cell unit in Rhode Island is approximately 10 acres. Information is currently being transcribed to this grid system and computerized. The following is a list of elements already coded along with elements tentatively planned for future codings: (written communication, R. 1. Statewide Planning, 1974).

FY 73 general soil types (twelve groups)
classification of present water quality (ten groups)
1961 land use (thirteen types)
public water service areas
public sewer service areas
traffic zones (685 for entire state)

FY 74 topography
vegetation
historic sites and areas
municipal zoning
fresh water wetlands
flood hazard areas

FY 75 urbanized areas (1965 & 1970)
1970 land use
transportation data (road type, volumes, access, etc.)
watershed areas
unique natural areas

New York: LUNR Inventory

The Land Use and Natural Resources (LUNR) Inventory was developed by by Corne 11 University for the State Department of Environmental Conservation in 1969. It., like Rhode Island, is based on the UTM coordinate system, and contains land use information on over 120 categories which break down generally into residential , industrial, agricultrual , forested uses and natural characteristics including soils, geology, topography, and hydrology (the hydrologic information is now in pilot study status, not accessible). Table A-18 details some of the information available. Data may be accessed by UTM grid, or by county. System access may be obtained through LUNR User Service, Cornell" University, 468 Hollister Hall, Ithaca, New York 14850 (607) 256-3364.

A.2 REFERENCES

Driscoll, Alan H., 1973: Digitization of geological sample data at sea for use with MUDDIE program. WHOI-72-54, Woods Hole Oceanographic Institution, Woods Hole, Mass. for Office of Naval Research and National Science Foundation.

Gilman, Jeffrey A., 1973: Procedures for photographing W.H.O.I. sediment cores. Technical memorandum WHOI-1-73, Woods Hole Oceanographic Institution, Woods Hold, Mass.

Hathaway, John O. (cd.), 1971: Data file: continental margin program, Atlantic Coast of the United States. Ref. No. 71-15, Woods Hole Oceanographic Institution, Woods Hole, Mass. in cooperation with U.S. Geological Survey.

Johnson, D. A. and A. H. Driscoll, 1972: The curating of W.H.O.I.'s geological collections. Technical memorandum WHOI-2-72, Woods Hole Oceanographic Institution, Woods Hole, Mass.

National Geophysical and Solar-Terrestrial Data Center, 1972: Key to geophysical records documentation No. 1: marine geophysical data catalog. Boulder, Colorado. U.S. Government Printing Office, Washington, D.C.

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National Oceanographic Data Center, 1973: User's Guide to NODC's Data Services; key to oceanographic records documentation No. 1, NOAA U.S. Department of Commerce.

Weiss, Martin, 1968: Project description - geological sample inventory: U.S. North Atlantic Continental Shelf, 1 July, 1966 - 30 June, 1967. Publication G-16, NODC General Series, National Oceanographic Data Center, Washington, D.C.

AREA 4

AREA 4

TEMPERATURE - SALINITY CONTOUR
ALL MONTHS

AREA 4

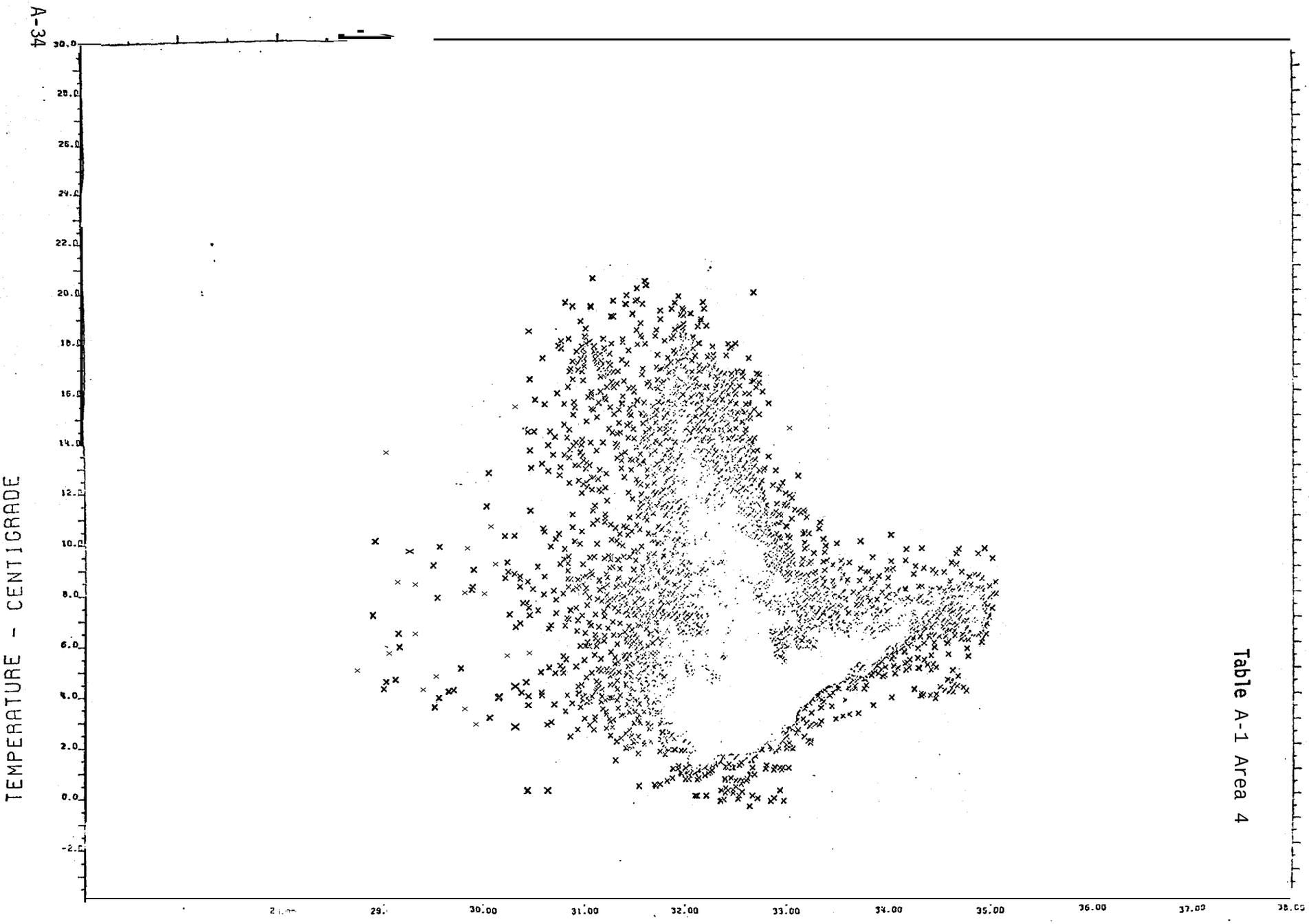


Table A-1 Area 4

Tab e A-1 Area 5

AREA 6

AREA 6

TEMPERATURE - SALINITY COMPOSITE
ALL MONTHS
AREA 6

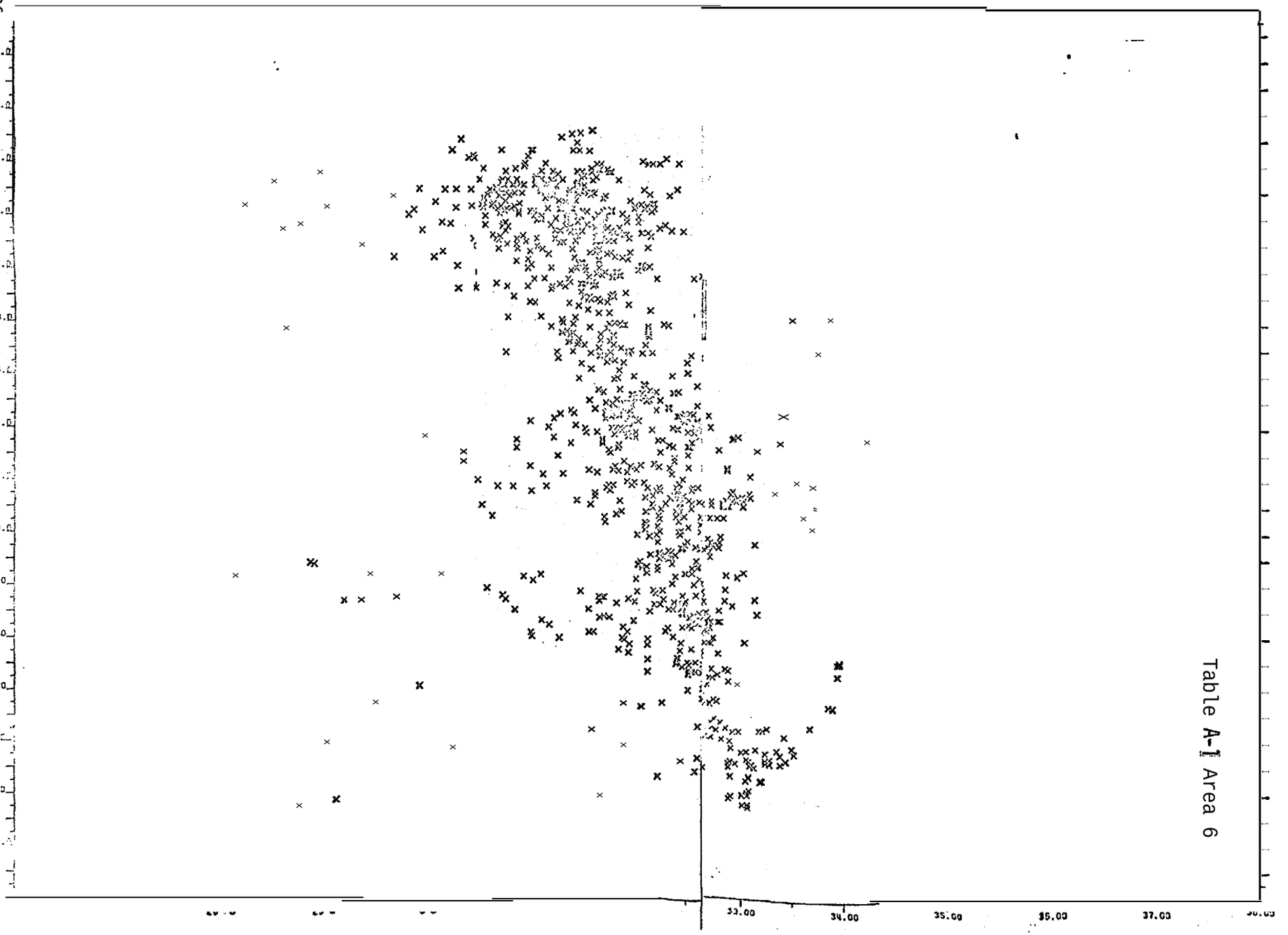
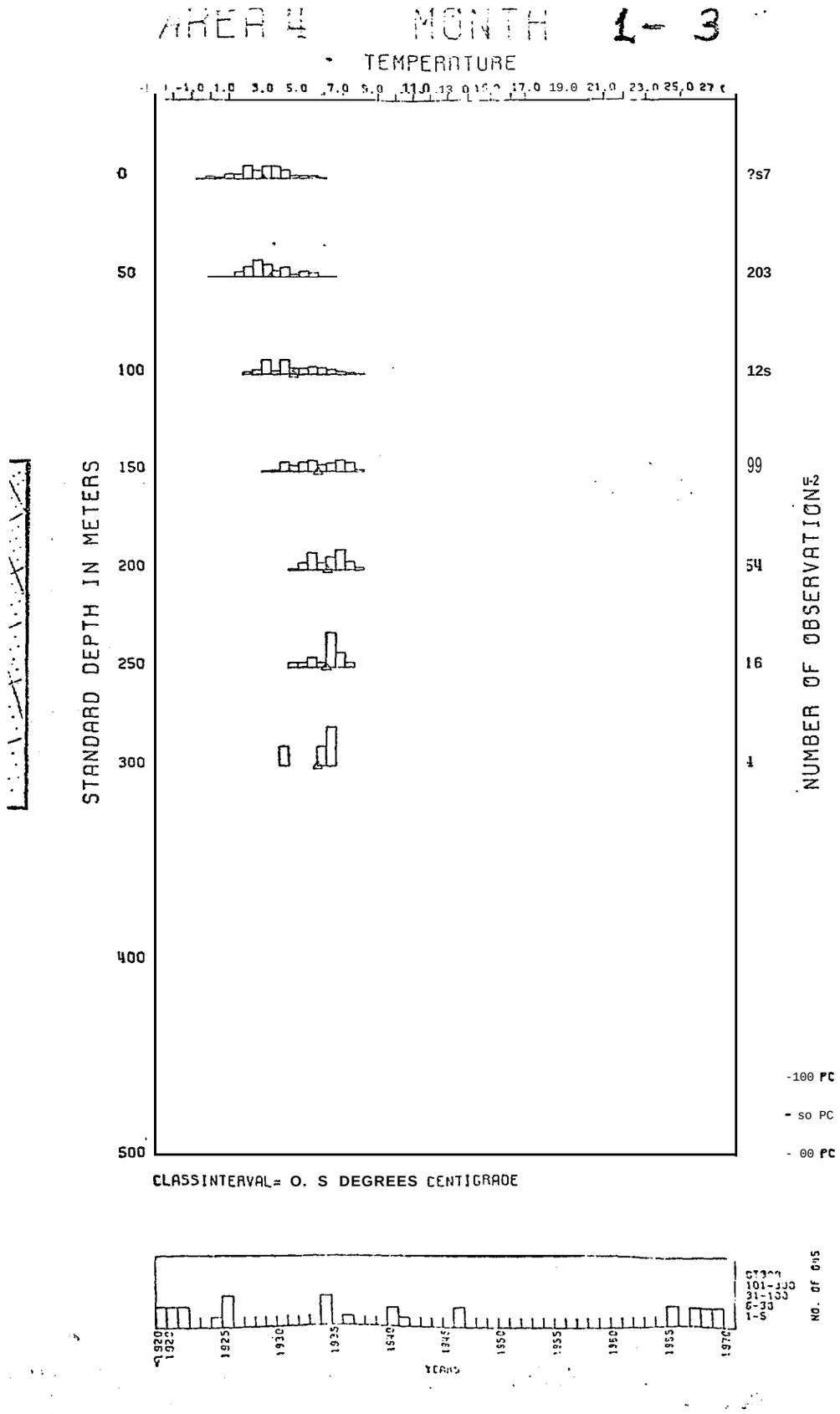
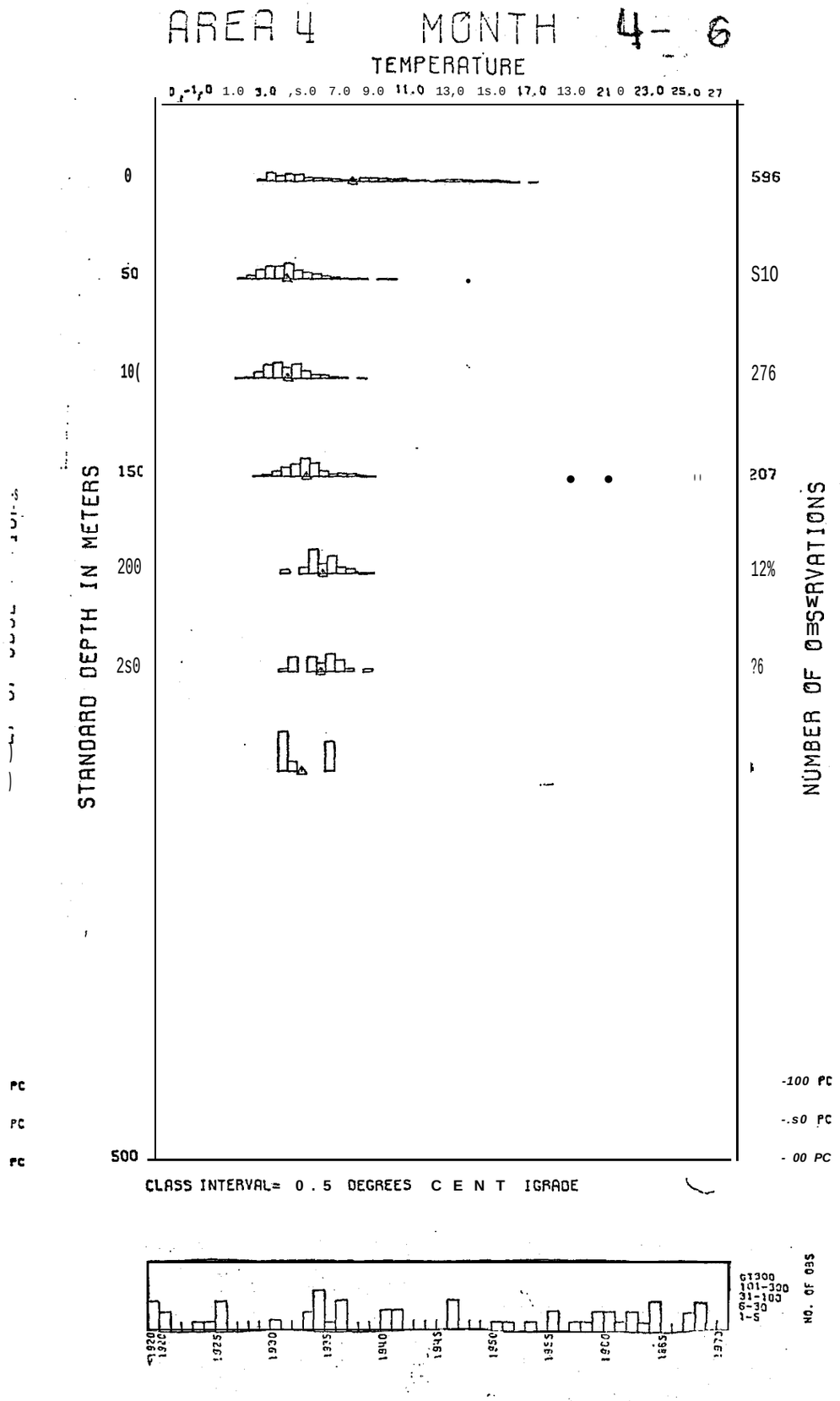
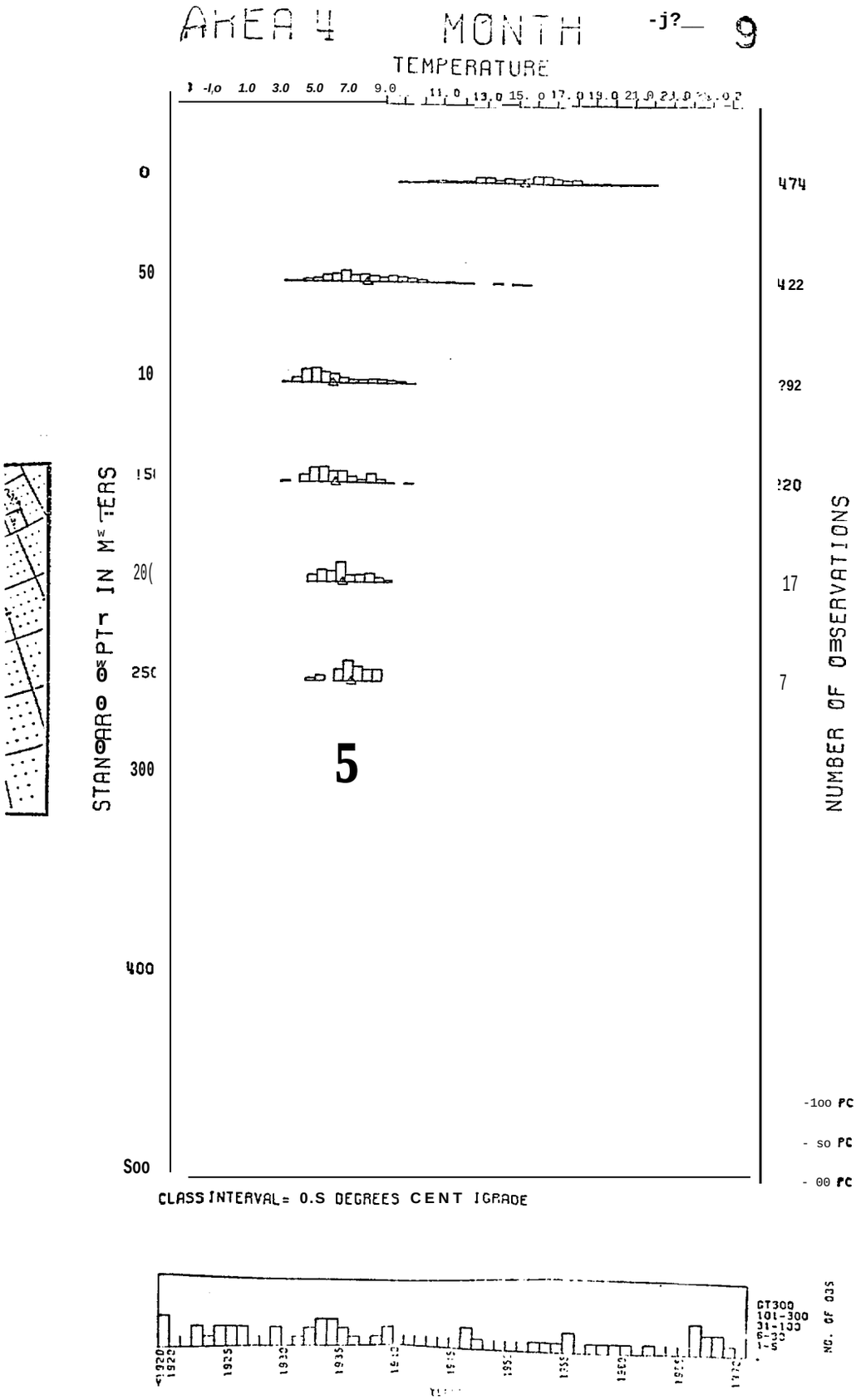
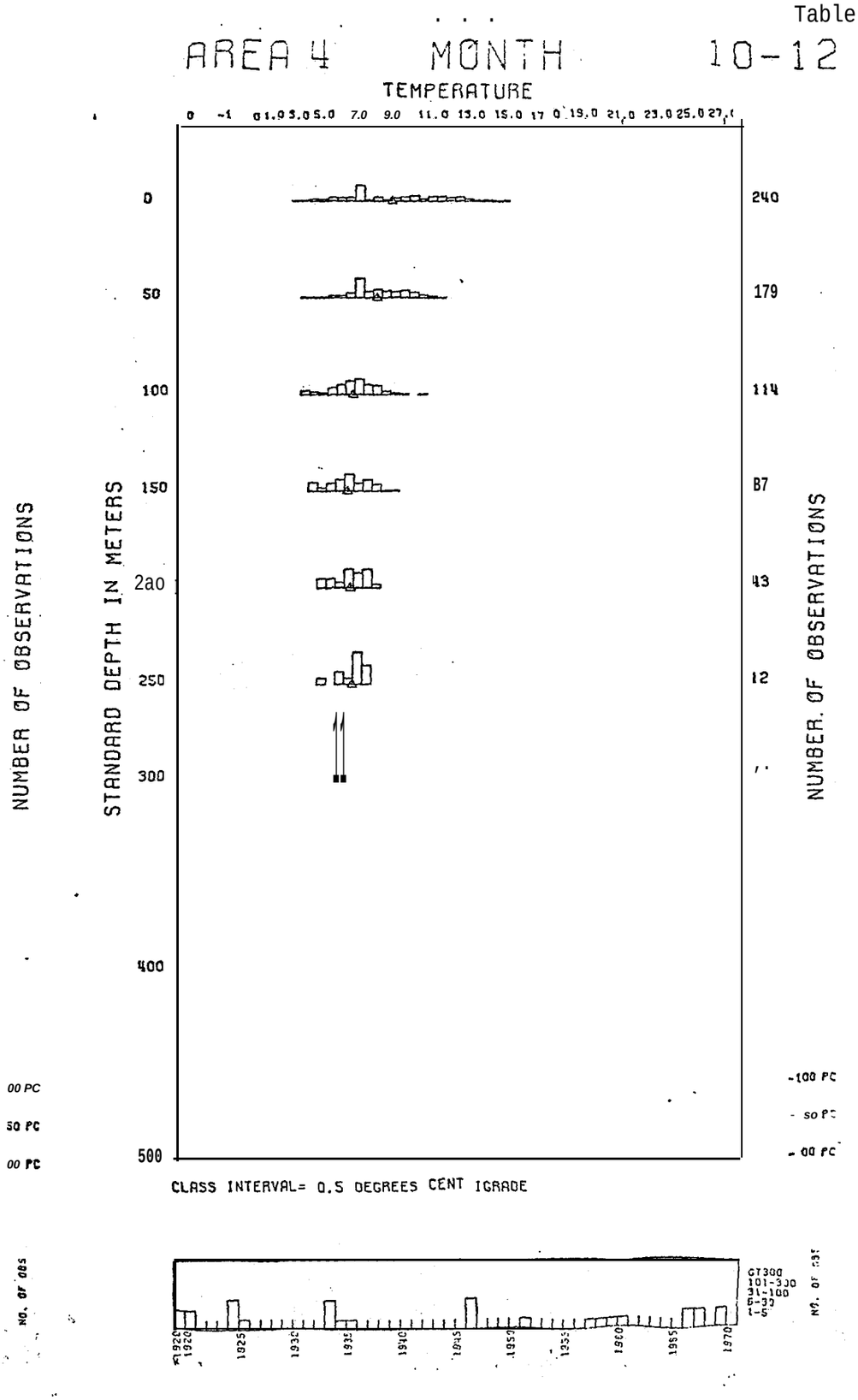


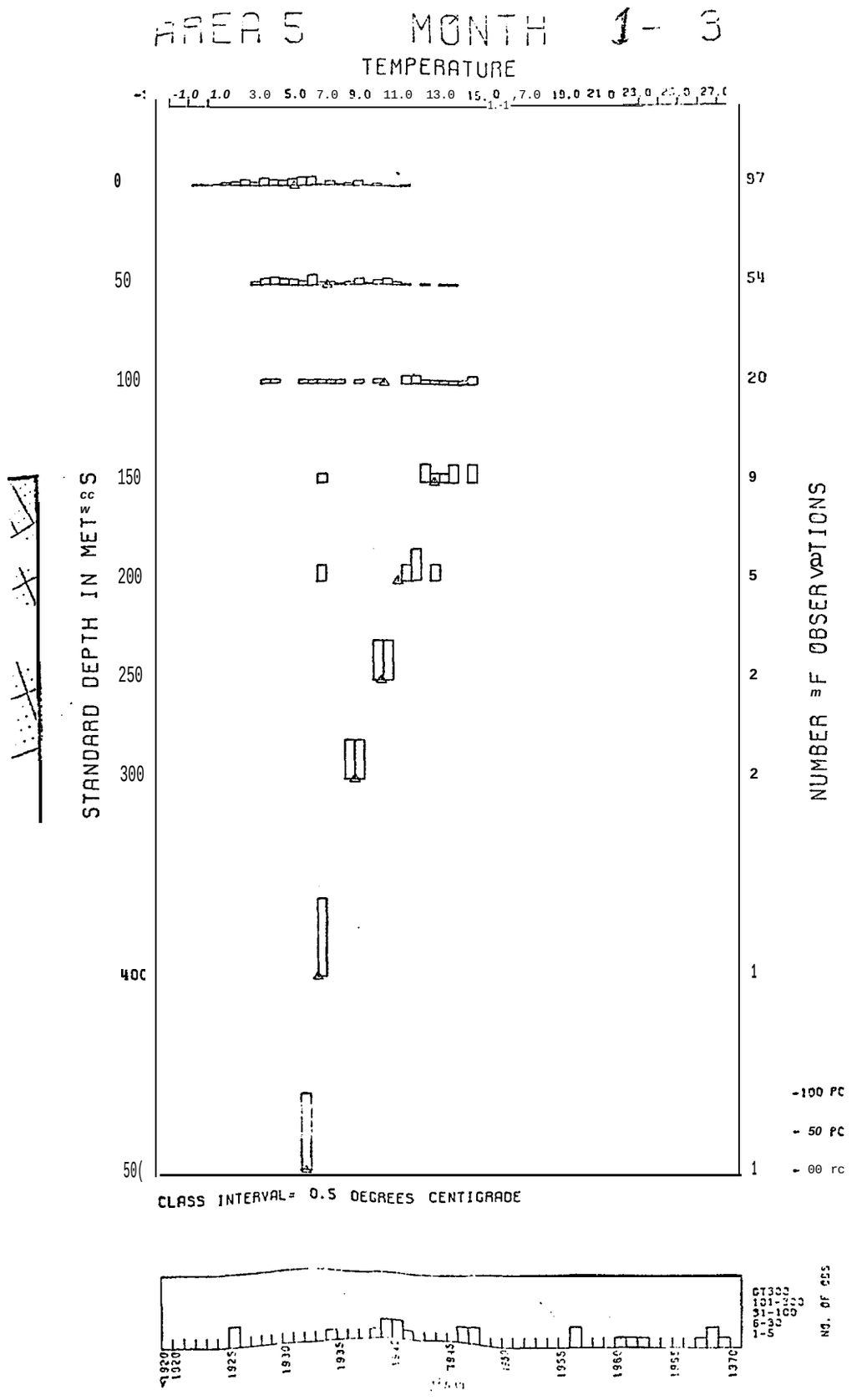
Table A-1 Area 6

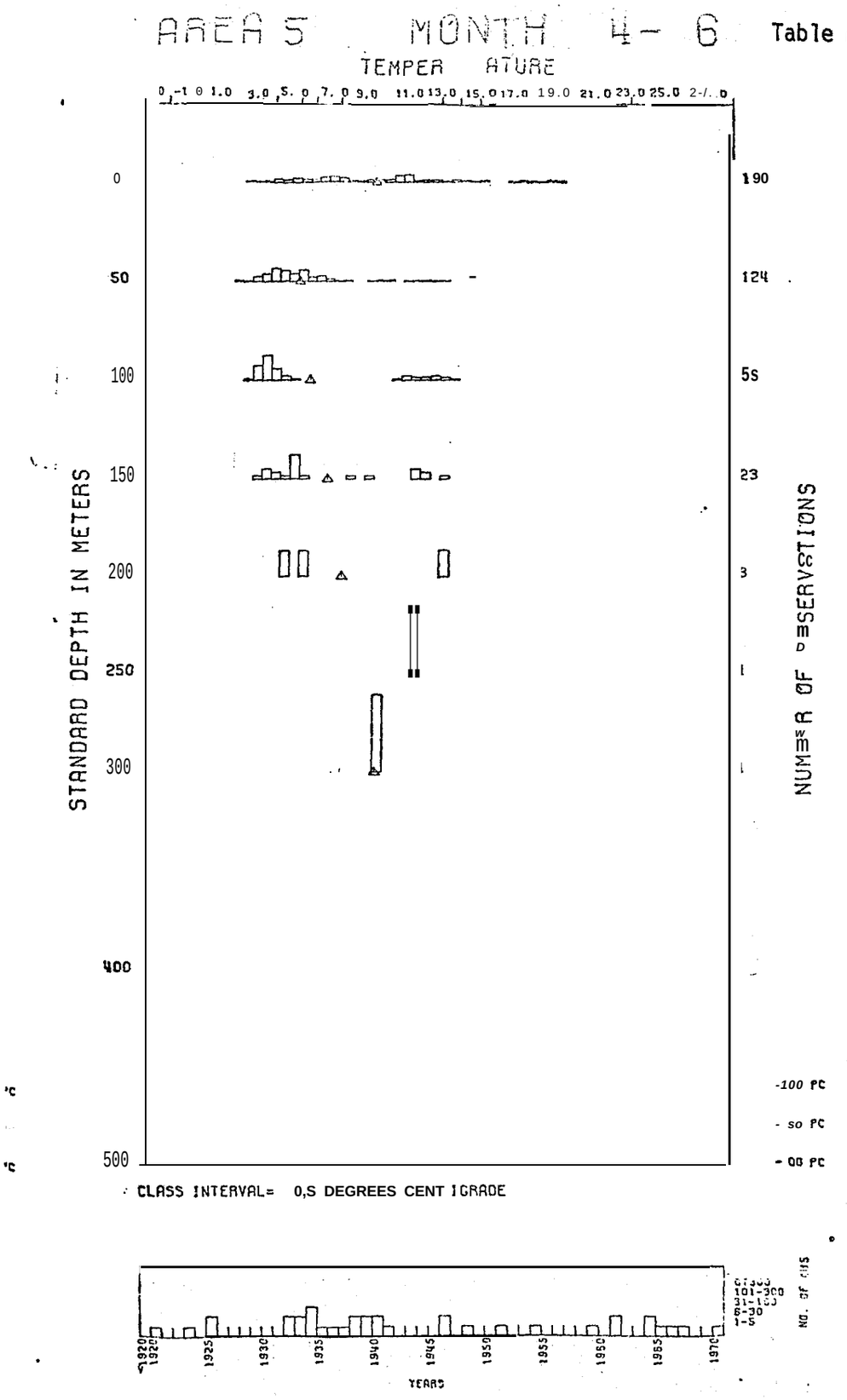

AREA 4 MONTH 1- 3
TEMPERATURE
-1.0 1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27.0
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
?s7
203
12s
99
54
16
1
NUMBER OF OBSERVATIONS
-100 PC
- so PC
- 00 PC
CLASSINTERVAL= O. S DEGREES CENTIGRADE
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS
NO. OF OBS
1-5
6-30
31-100
101-


AREA 4 MONTH 4- 6
TEMPERATURE
1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27
0
50
100
150
200
250
500
596
510
276
207
12%
76
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
-100 PC
-.50 PC
- 00 PC
CLASS INTERVAL= 0.5 DEGREES C E N T IGRADE
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
NO. OF OBS


AREA 4 MONTH -j?— 9
TEMPERATURE
-1.0 1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0
0
50
10
151
20(
25C
300
400
Soo
474
422
?92
220
17
7
5
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
-100 PC
- so PC
- 00 PC
CLASS INTERVAL= 0.S DEGREES CENT IGRADE
GT300
101-300
NO. OF OBS

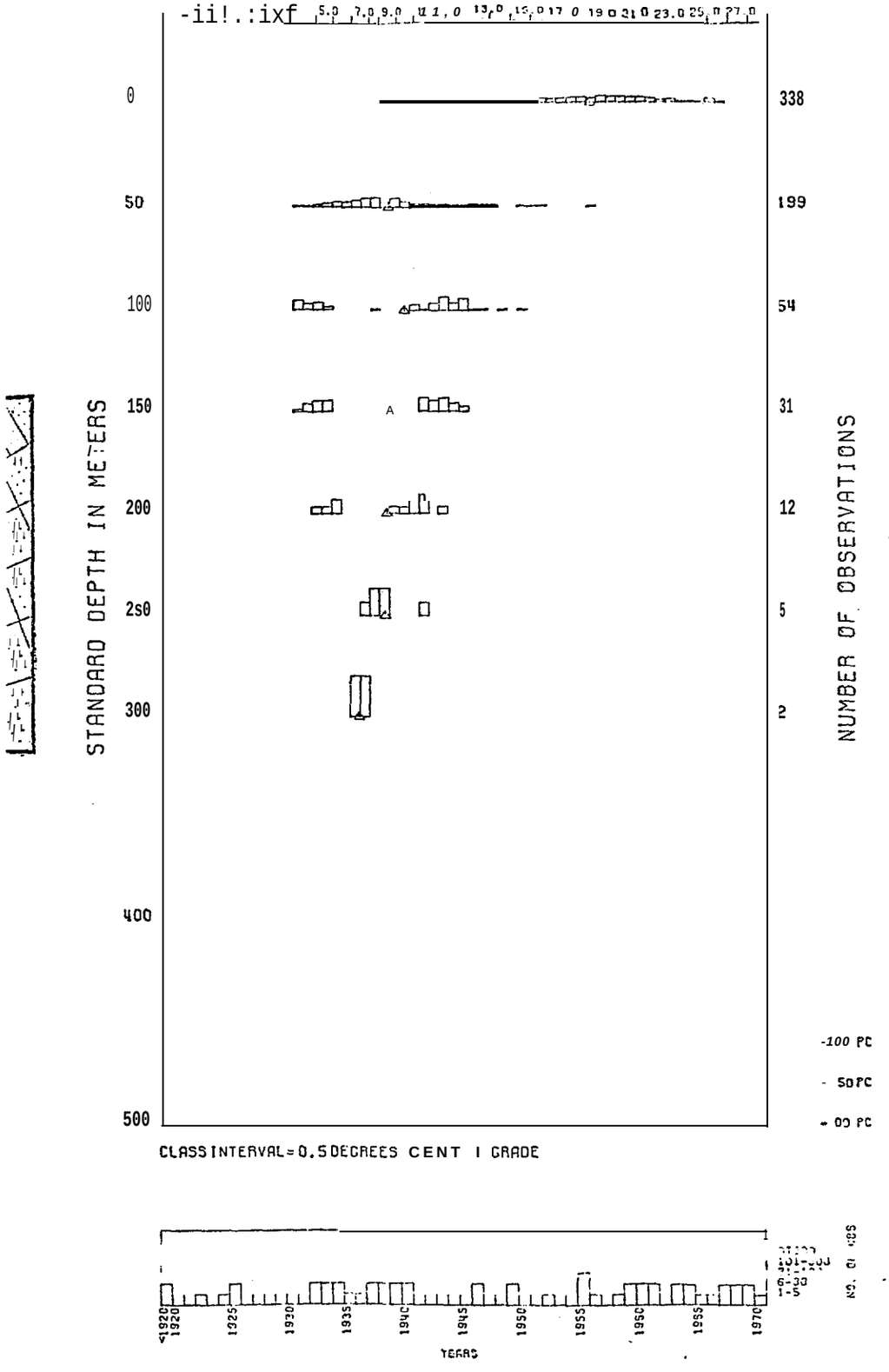

AREA 4 MONTH 10-12
TEMPERATURE
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STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
NUMBER OF OBSERVATIONS
240
179
114
87
43
12
NUMBER OF OBSERVATIONS
100 PC
50 PC
00 PC
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
GT300
101-300
31-100
6-30
1-5
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970

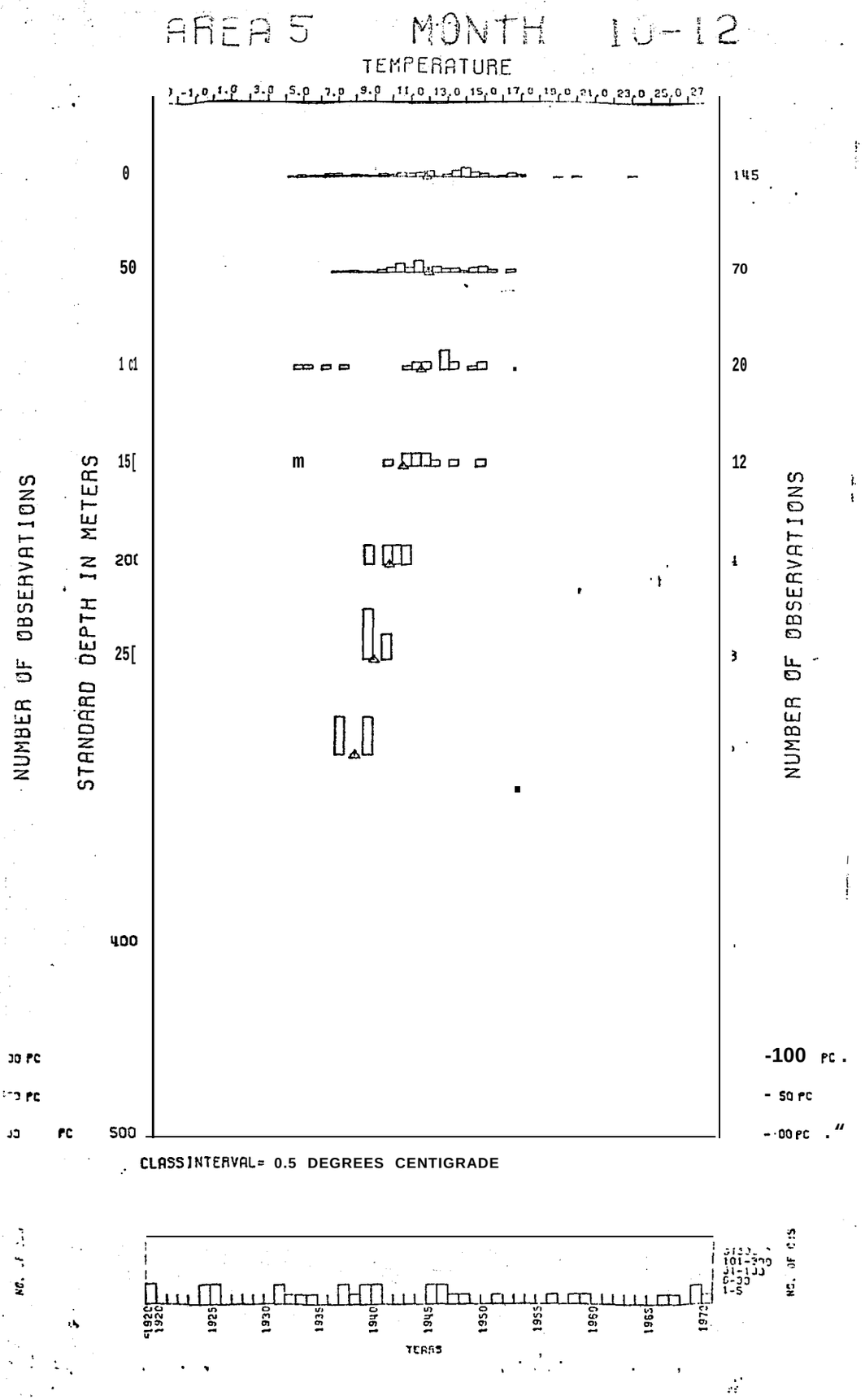

AREA 5 MONTH 1- 3
TEMPERATURE
-1.0 1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METRES
97
54
20
9
5
2
2
1
1
NUMBER OF OBSERVATIONS
100 PC
50 PC
00 PC
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
1920
1925
1930
1935
1945
1955
1960
1970
NO. OF OBS

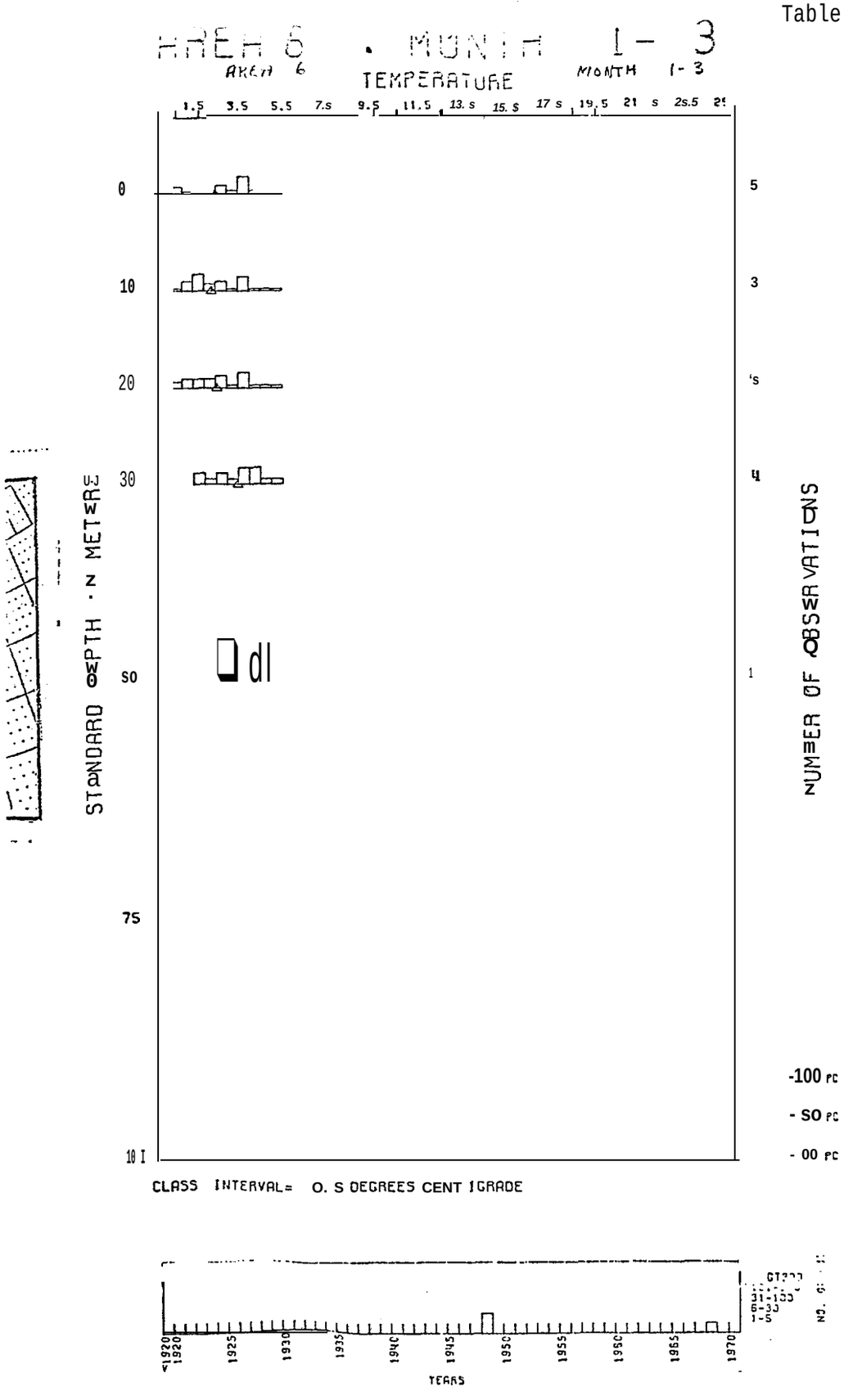

AREA 5 MONTH 4- 6
TEMPERATURE
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0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
190
124
5S
23
3
NUMBER OF OBSERVATIONS
-100 PC
- so PC
- 00 PC
CLASS INTERVAL= 0,S DEGREES CENTIGRADE
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS
NO. OF OBS

AREA 5 MONTH 7 - 9

AREA 5 TEMPERATURE MONTH 7 - 9




AREA 5 MONTH 10-12
TEMPERATURE
-1.0 1.0 3.0 5.0 7.0 9.0 11.0 13.0 15.0 17.0 19.0 21.0 23.0 25.0 27
0
50
100
150
200
250
400
500
NUMBER OF OBSERVATIONS
STANDARD DEPTH IN METERS
145
70
20
12
4
3
-100 PC .
- 50 PC
-00 PC .
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS


AREA 6 • MONTH 1-3
AREA 6
TEMPERATURE
MONTH 1-3
1.5 3.5 5.5 7.5 9.5 11.5 13.5 15.5 17.5 19.5 21.5 25.5
0
10
20
30
50
75
100
STANDARD DEPTH IN METERS
5
3
1
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
<1920
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS

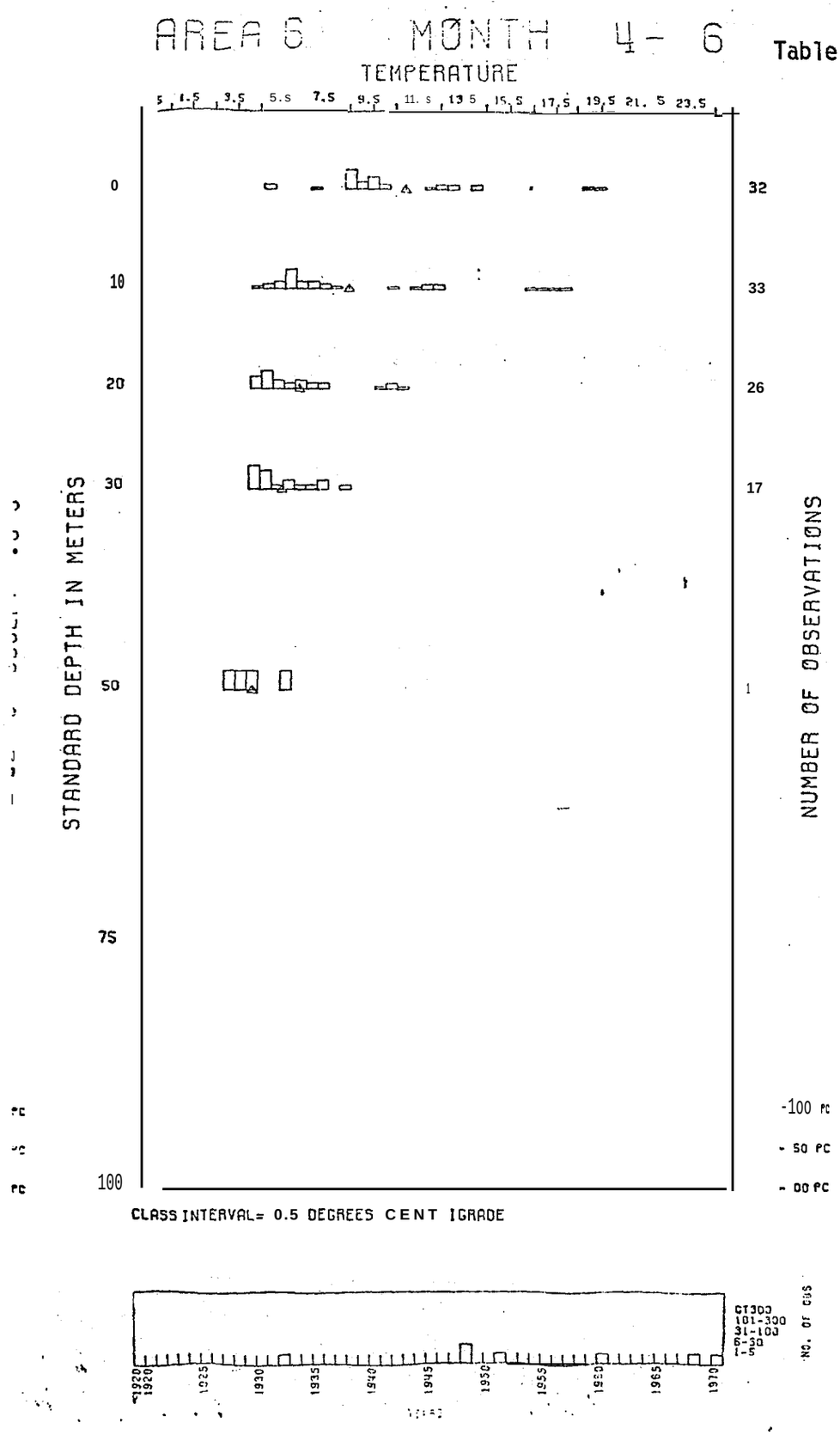
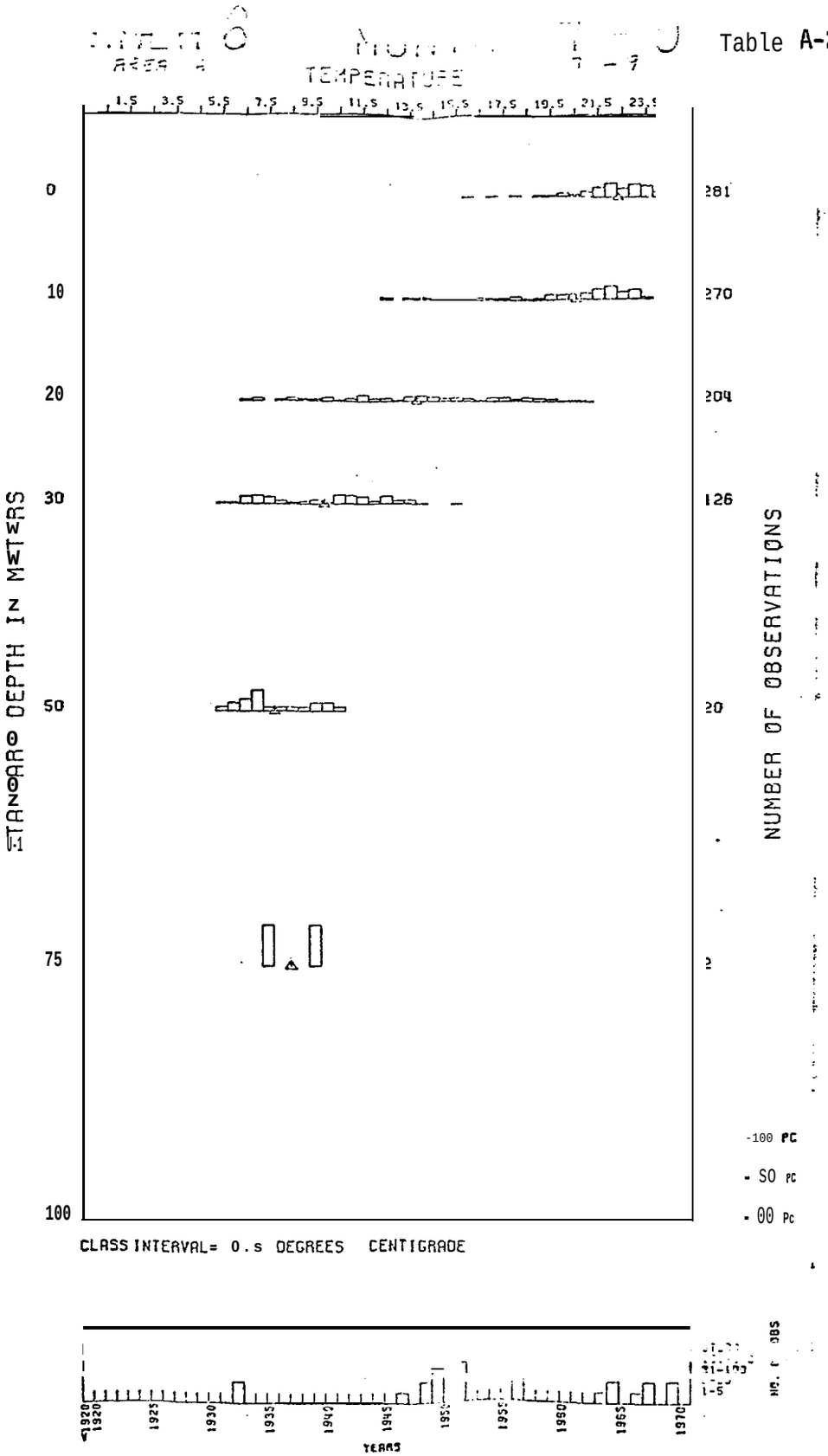
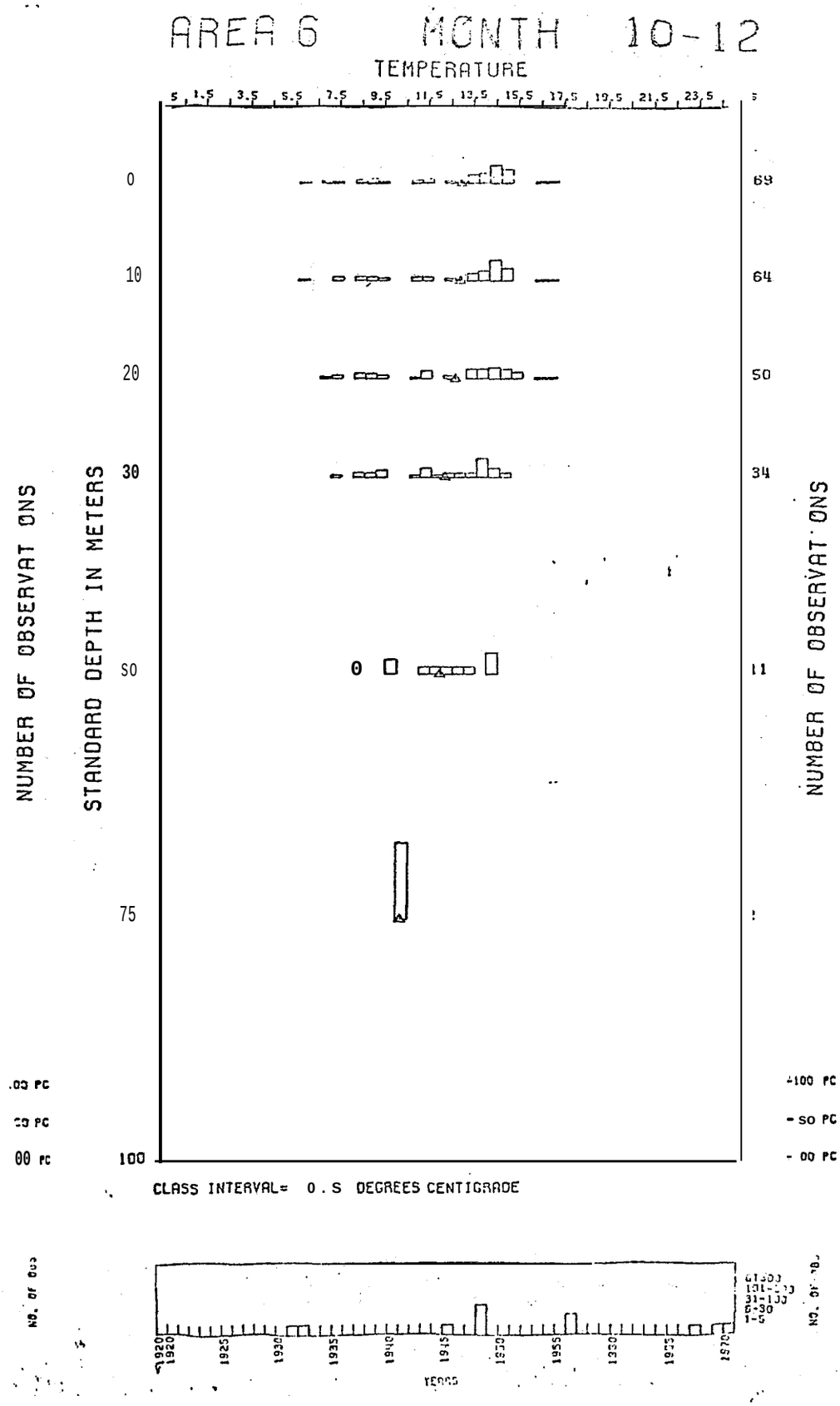
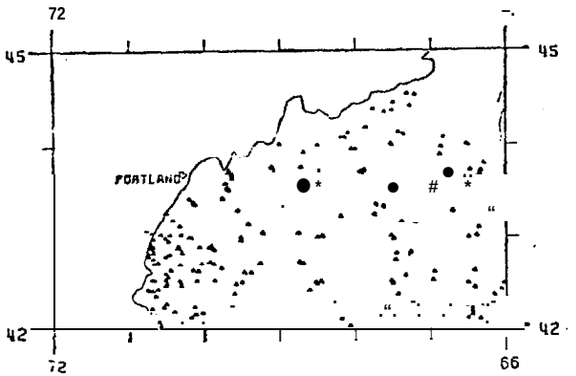

AREA 6 MONTH 4 - 6
TEMPERATURE
1.5 3.5 5.5 7.5 9.5 11.5 13.5 15.5 17.5 19.5 21.5 23.5
0
10
20
30
50
75
100
32
33
26
17
1
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
100 PC
50 PC
00 PC
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
NO. OF OBS

Table **A-2** Area 6 (cent.)




AREA 6 MONTH 10-12
TEMPERATURE
1.5 3.5 5.5 7.5 9.5 11.5 13.5 15.5 17.5 19.5 21.5 23.5
0
10
20
30
50
75
100
69
64
50
34
11
NUMBER OF OBSERVATIONS
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
CLASS INTERVAL= 0.5 DEGREES CENTIGRADE
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS



MONTHS 1 - 3

AREA 4 BOSTON

42-45N 66-72H

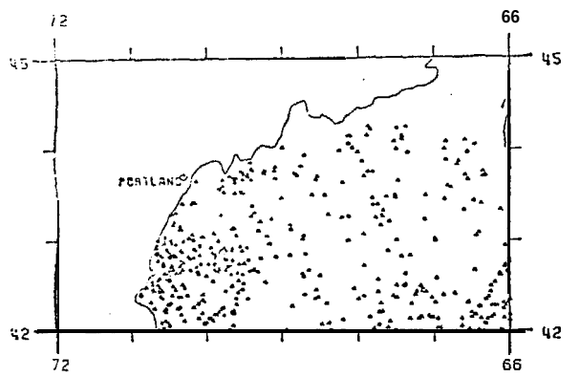
TEMPERATURE

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0"	5.83	2.82	"-0.50	257	1..27
10	5.95	2.81	-0.42	259	1..29
20	5.78	2.83	-0.22	254	[.27
30	5.54	2.93	-0.17	241	1.27
50	6.71	3.19	0.0	203	1.33
75	7.23	3.7(3	0.0	160	1.33
100	7.94	4.47	1.77	125	1.49
125	a. 08	5.21	2.00	107	1.40
150	8.15	5.79	3.23	99	1.74
200	7.93	6.33	4.3?	54	0.86
250	7.27	6.26	4.27	16	0.78
300	6.48	5.78	4.14	4	1.11

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	09s	SDEV
17.05	7.37	2.36	596	3.83
15.43	6.45	1.92	596	3.17
12.54	5.33	1.79	539	2.23
10.79	4.54	1.71	563	1.82
9.34	3.89	1.5?	510	1.20
8.16	3.78	1.35	373	1.09
8.15	4.03	1.67	276	1.11
9.11	4.50	1.95	239	1.16
8.68	5.09	2.42	207	1.13
8.31	5.99	3.96	128	0.99
8.56	5.97	3.83	26	1.10
6.43	5.01	4.08	9	1.13



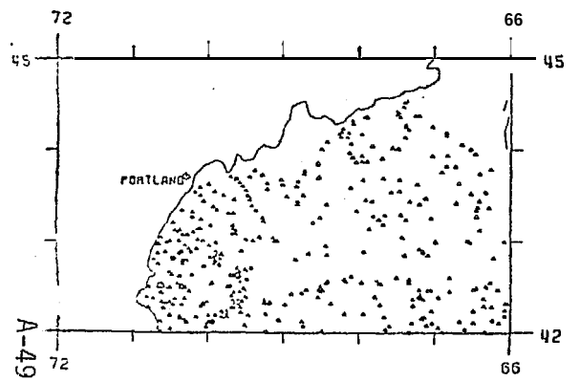
MONTHS 4 - 6

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

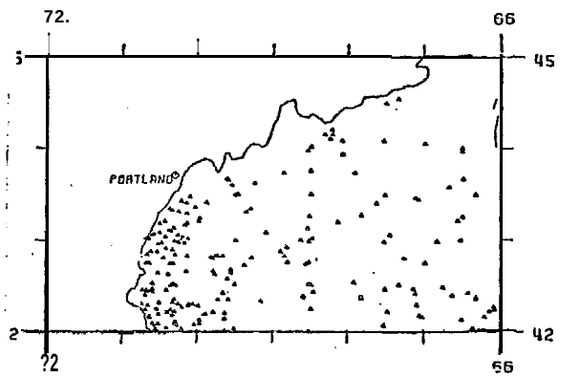
DEPTH	MAX	AVG	MIN	OBS	SDEV
0	21.09	15.30	9.30	474,	2.53
10	21.09	13.92	7.68	476	2.50
20	19.76	11.41	5.-JO	473	2.36
30	16.44	9.32	-5.99	452	2.25
50	15.59	7.14	.2.89	427	2.06
75	13.76	5.9'5	-3.11	342	1.79
100	9.53	5.41	2.81	292	1.49
125	9.70	5.41	2.91	256	1.31
1s0	9.73	5.64	2. 96	220	1.23
290	8.70	6.11	4.61	117	1.04
250	8.12	6.67	4.74	27	0.90
300	7.10	6.60	6.16	6	0.34

MONTHS 10 - 12 MONTHS PRESENT 10, 11, 12

MAX	AVG	MIN	'39s	SDEV
15.22	8.77	2.50	240	2.66
14.66	8.70	2.59	240	2.48
14.59	8.58	3.80	239	2.29
12.86	8.57	3.58	213	1.92
11.39	7.96	4.93	179	1.48
11.00	7.14	3.66	138	1.38
10.26	6.67	3.75	114	1.26
9.73	5.36	3.99	97	1.17
9.15	6.40	4.26	97	1.09
7.99	6.59	4.99	43	0.s5
7.63	6.73	5.14	12	0.74
6.16	6.16	6.16	1	0.0



MONTHS 7 - 9

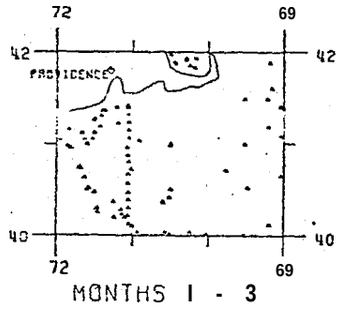


MONTHS 10-12

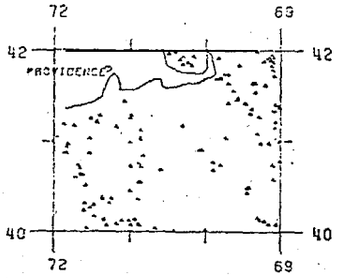
Table A-3 Area 4

Distribution of stations reporting sea-surface temperature values.

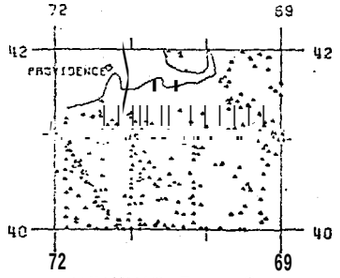
AREA



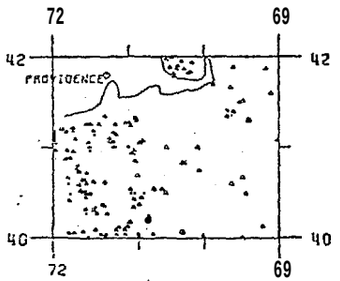
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

...of seafloor topography and mean sea-surface temperature values.

AREA 5 GUSNSET POINT

40-42N 69-72W

TEMPERATURE

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	10.34	4.59	-0.70	97	2.47
10	10.34	4.63	-1.41	98	2.55
20	10.59	4.95	-1.50	91	2.49
30	11.18	5.04	-0.86	83	2.51
50	12.81	6.30	2.54	54	2.69
75	14.37	7.79	2.70	30	3.45
100	14.10	9.33	2.76	20	3.57
125	14.48	10.14	3.51	15	3.63
150	14.03	11.96	6.05	9	2.41
200	11.97	10.05	6.11	5	2.32
250	9.36	9.15	8.94	2	0.29
300	7.94	7.77	7.60	2	0.24

MONTHS 4 - 4* MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
18.81	9.23	2.72	190	3.71
18.05	8.72	2.41	194	3.39
17.16	7.32	7.13	184	2.66
15.43	6.14	2.02	164	2.27
14.69	5.32	2.02	124	2.23
14.16	5.40	2.31	83	3.03
13.33	5.73	2.38	55	3.74
13.10	6.64	2.92	36	3.88
13.00	6.74	2.04	23	3.40
12.80	7.53	4.29	3	4.59
11.47	11.47	11.47	1	0.0
9.40	9.40	9.40	1	0.0

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	25.50	18.94	7.22	338	3.5a
10	25.81	17.62	6.32	340	3.86
20	25.17	14.37	5.40	323	3.94
30	23.53	11,23	4.90	292	3.07
50	18.93	8.57	3.99	199	2.50
75	16.62	9.72	3.72	100	2.78
100	15.49	9.46	3.35	54	3.50
125	13.14	8.93	3.39	40	3.52
150	12.31	8.90	4.06	31	3.1s,
200	11.30	8.64	5.13	12	2.31
25(3	10.34	8.53	7.57	6	0.96
300	7.37	7.20	7.94	2	0.23

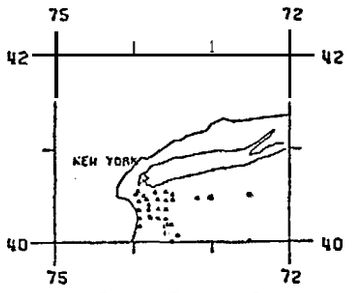
MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
23.18	11.87	4.25	145	3.57
23.17	11.79	4.43	147	3.53
21.57	11.92	4.53	141	3.37
19.93	12.07	4.58	129	3.1s
16.63	12.05	6.91	78	2.18
16.71	12.26	5.80	28	2.86
16.91	11.74	4.95	20	3.73
15.84	11.20	4.83	16	3.15
14.91	10.80	4.80	12	2.99
10.99	10.11	9.17	4	0.79
10.11	9.30	8.76	3	0.71
9.03	8.34	7.65	2	0.97

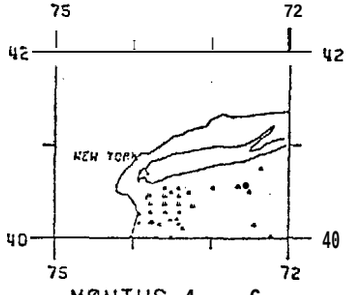
MONTHS 1- 12 MONTHS PRESENT 1

DEPTH	MAX	AVG	MIN	OBS	SDEV
400	5.77	5.77	5.77	1	0.0
500	5.00	5.00	5.00	1	0.0

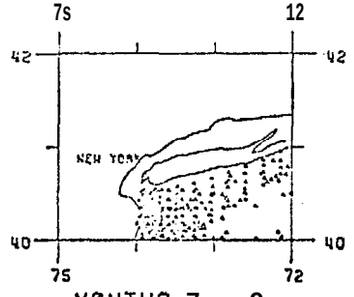
Table A-3 Area 5



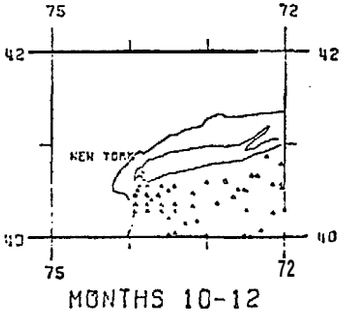
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

AREA 6 New YORK

40-42N 72-75W

TEMPERATURE

MONTHS 1 - 3 MONTHS PRESENT 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	5.06	2.12	-0.44	37	1.47
10	5.08	2.01	-0.79	34	1.40
20	5.13	2.21	-0.39	26	1.44
30	5.06	3.23	1.66	14	1.08
50	4.61	3.14	2.64	4	1.01

MONTHS 4 - 6 MONTHS PRESENT 4, 5, b

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	19.37	9.91	5.92	32	3.82
10	17.92	8.56	4.71	33	3.93
20	10.06	6.44	4.59	26	1.93
30	6.63	5.71	4.34	17	1.26
50	5.98	4.52	3.54	4	1.03

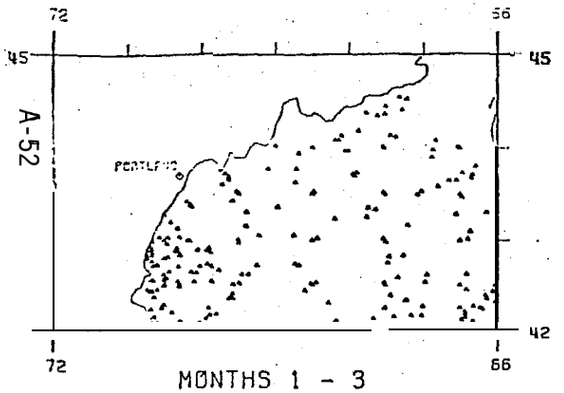
MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	25.13	22.29	16.133	281	1.42
10	25.17	20.56	12.71	270	2.45
20	21.24	13.78	6.28	204	3.70
30	15.39	9.96	5.61	126	2.35
50	10.60	7.75	5.42	20	1.56
75	9.36	3.47	7.59	2	1.25

MONTHS 10 - 12 MONTHS PRESENT 10,11,12

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	16.85	12.97	6.29	69	2.52
10	16.54	12.93	5.23	64	2.54
20	15.77	12.76	6.75	50	2.64
30	14.83	12.33	7.54	34	2.22
50	14.56	12.19	8.59	11	2.02
75	10.66	10.47	10.28	2	0.25

Table A-3 Area 6



AREA 4 BOSTON

42-45N 66-72W

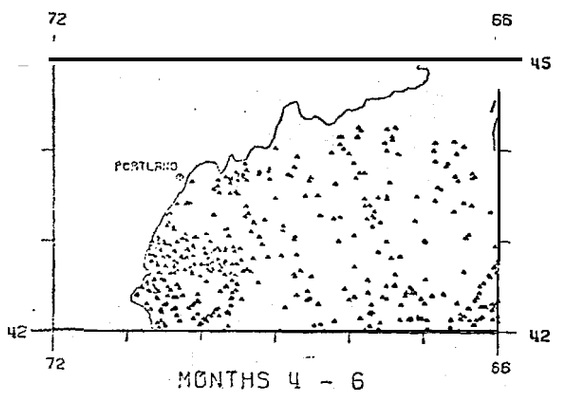
SALINITY

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.49	32.46	30.44	226	0.46
10	33.49	32.52	30.64	226	0.41
20	33.49	32.56	31.26	223	0.38
30	33.53	32.60	31.28	218	0.37
50	34.08	32.67	31.47	188	0.35
75	34.25	32.85	31.81	154	0.37
100	34.74	33.12	32.24	124	0.46
125	34.81	33.45	32.43	106	0.51
150	34.95	33.73	32.52	98	0.57
200	34.96	34.28	33.44	53	0.42
250	34.98	34.57	34.00	16	0.35
300	34.94	34.89	34.78	4	0.07

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
33.08	31.71	28.75	550	0.84
33.12	31.90	29.17	548	0.63
33.39	32.13	29.55	544	0.49
33.32	32.30	30.96	527	0.40
33.48	32.50	31.06	465	0.34
33.85	32.73	31.27	359	0.34
34.52	33.01	32.08	270	0.36
34.81	33.29	32.29	235	0.41
34.94	33.58	32.49	207	0.46
35.02	34.15	33.32	126	0.36
34.99	34.53	33.92	25	0.34
34.91	34.70	34.57	8	0.12

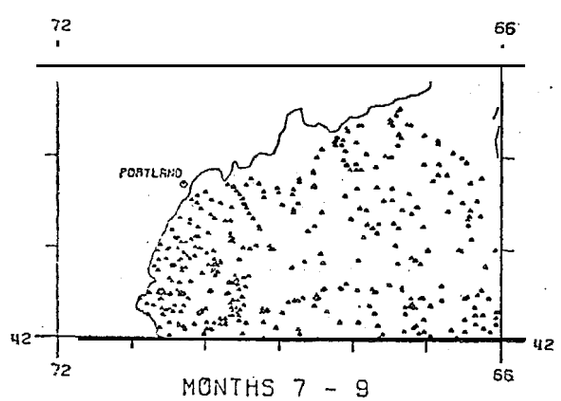


MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.06	31.95	30.48	401	0.52
10	33.14	32.04	30.75	402	0.45
20	33.22	32.23	30.82	402	0.38
30	33.29	32.39	30.96	394	0.35
50	33.55	32.65	31.23	369	0.33
75	34.20	32.90	32.13	310	0.37
100	34.69	33.15	32.16	267	0.44
125	34.91	33.41	32.10	235	0.51
150	35.05	33.74	32.05	200	0.52
200	35.08	34.13	33.50	112	0.45
250	35.08	34.57	33.79	25	0.42
300	34.97	34.87	34.77	6	0.06

MONTHS 10 - 12 MONTHS PRESENT 10, 1, 2

MAX	AVG	MIN	OBS	SDEV
33.15	32.39	31.15	197	0.43
33.12	32.42	31.47	196	0.39
33.24	32.47	31.56	199	0.35
33.16	32.55	31.85	190	0.32
33.40	32.72	32.06	170	0.27
34.05	32.96	32.18	137	0.33
34.49	33.25	32.34	114	0.45
34.78	33.52	32.42	100	0.54
34.97	33.80	32.66	89	0.55
35.04	34.37	33.53	42	0.44
35.01	34.64	33.85	12	0.43
34.94	34.94	34.94	1	0.0



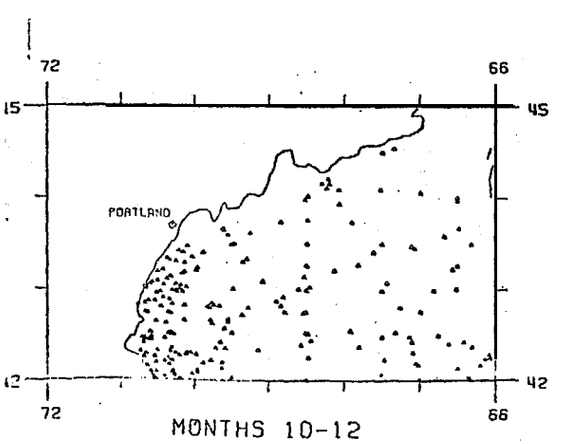
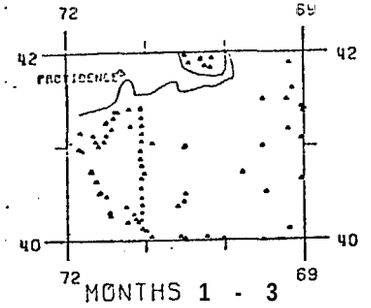
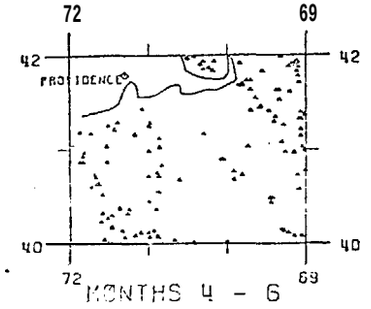


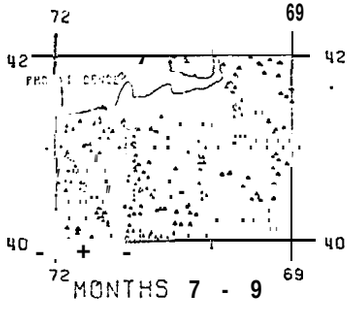
Table A-4 Area 4

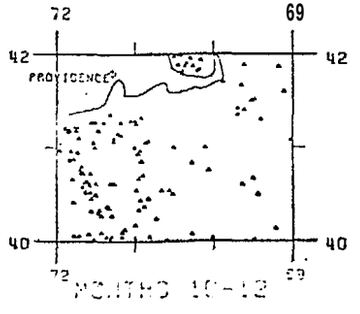
Distribution of stations reporting sea-surface salinity values.

AREA 4









Distribution of stations reporting sea-surface salinity values.

AREA 5 QUONSET POINT

40-42N 69-72W

SALINITY

MONTHS 1 - 3 MONTHS PRESENT 1, 2,3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.80	32,50	30.93	83	0.55
10	33.78	32,52	30.92	85	0.54
20	33.77	32,58	30.38	79	0.51
30	34.00	32,70	31.62	73	0.43
50	34.57	32,99	32.24	49	0.48
75	35.38	33,46	32.38	27	0.75
100	35.48	34.94	37.85	18	0.88
125	35.35	34,29	32.99	13	1.01
150	35.55	35.10	33.42	8	0.69
200	35.42	34.88	33.64	4	0.83
250	34.95	34.95	34.95	1	0.0
300	34.86	34.96	34.86	1	0.0

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
35.23	32.20	30.30	147	0.81
35.10	32.25	30.47	149	0.80
35.14	32.48	30.60	144	0.72
35.22	32.68	30.69	132	0.65
35.32	33.05	32.23	93	0.62
35.65	33.41	32.35	59	0.89
35.55	33.78	32.54	40	1.10
35.51	33.9s	32.53	37	1.10
35.46	34.04	37.99	24	0.95
35.43	34.15	33.38	3	1.11
35.32	35.32	35.32	1	0.0
35.13	35.13	35.13	1	0.0

MONTHS 7 - 9 MONTHSPRESENT 7, 8, 9

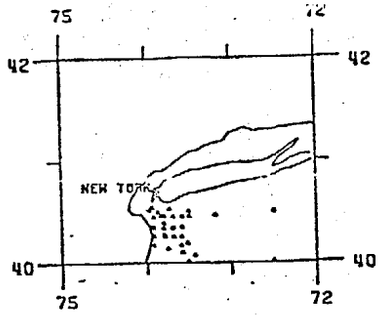
DEPTH	MAX	A/G	MIN	OBS	SOEV
0	34.97	32.30	30.23	292	0.87
10	34.97	32.42	30.39	290	0.85
20	35.28	32.62	30.44	276	0.90
40	35.16	32.75	31.48	259	0.65
50	35.29	33.08	31.96	178	0.66
75	35.61	33.77	31.96	89	0.90
100	35.79	34.44	32.66	53	1.02
125	35.68	34.52	32.79	38	1.09
150	35.57	34.67	32.86	29	0.97
200	35.41	34.76	32.68	12	0.71
250	35.31	35.12	34.97	6	0.12
300	35.03	35.02	35.02	2	0.0

MONTHS 10- 12 MONTHS PRESENT 12,11,12

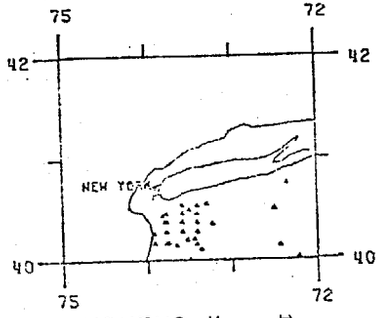
MAX	AVG	MIN	OBS	SDEV
35.38	32.69	30.38	116	0.37
35.34	32.70	30.91	116	0.75
35.30	32.76	30.90	114	0.85
35.33	32.90	30.90	109	0.82
35.46	33.42	32.09	69	0.82
35.54	34.25	32.58	36	0.96
35.76	34.79	32.76	19	0.96
35.85	34.95	32.97	15	0.97
35.98	35.01	33.06	11	0.94
35.39	35.29	35.19	4	0.03
35.28	35.20	35.15	3	0.07
35.17	35.13	35.09	2	0.05

MONTHS 1 - 12 MONTHS PRESENT 1

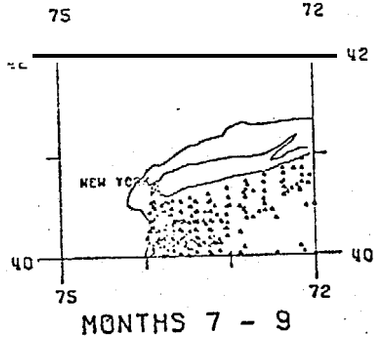
DEPTH	MAX	AVG	MIN	OOS	SDEV
400	34.76	34.76	34.76	1	0.0
500	34.78	34.78	34.70	1	0.0



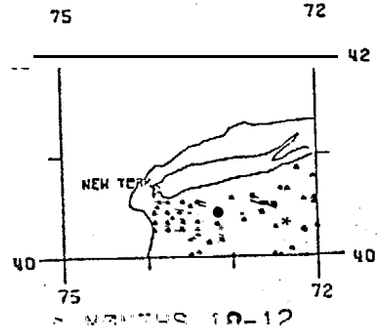
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

AREA 6 NEW YORK

40-42N 72-75W

SALINITY

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.98	32.40	28.73	39	1.25
10	33.98	32.81	29.08	36	0.76
20	33.98	33.04	32.05	26	0.40
30	33.96	33.14	32.49	13	0.50
50	33.96	33.47	32.76	3	0.62

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
32.54	30.66	28.13	33	0.6
32.75	31.57	30.34	33	0.64
32.89	32.37	31.70	26	0.32
33.19	32.58	31.73	17	0.35
33.08	32.84	32.64	4	0.22

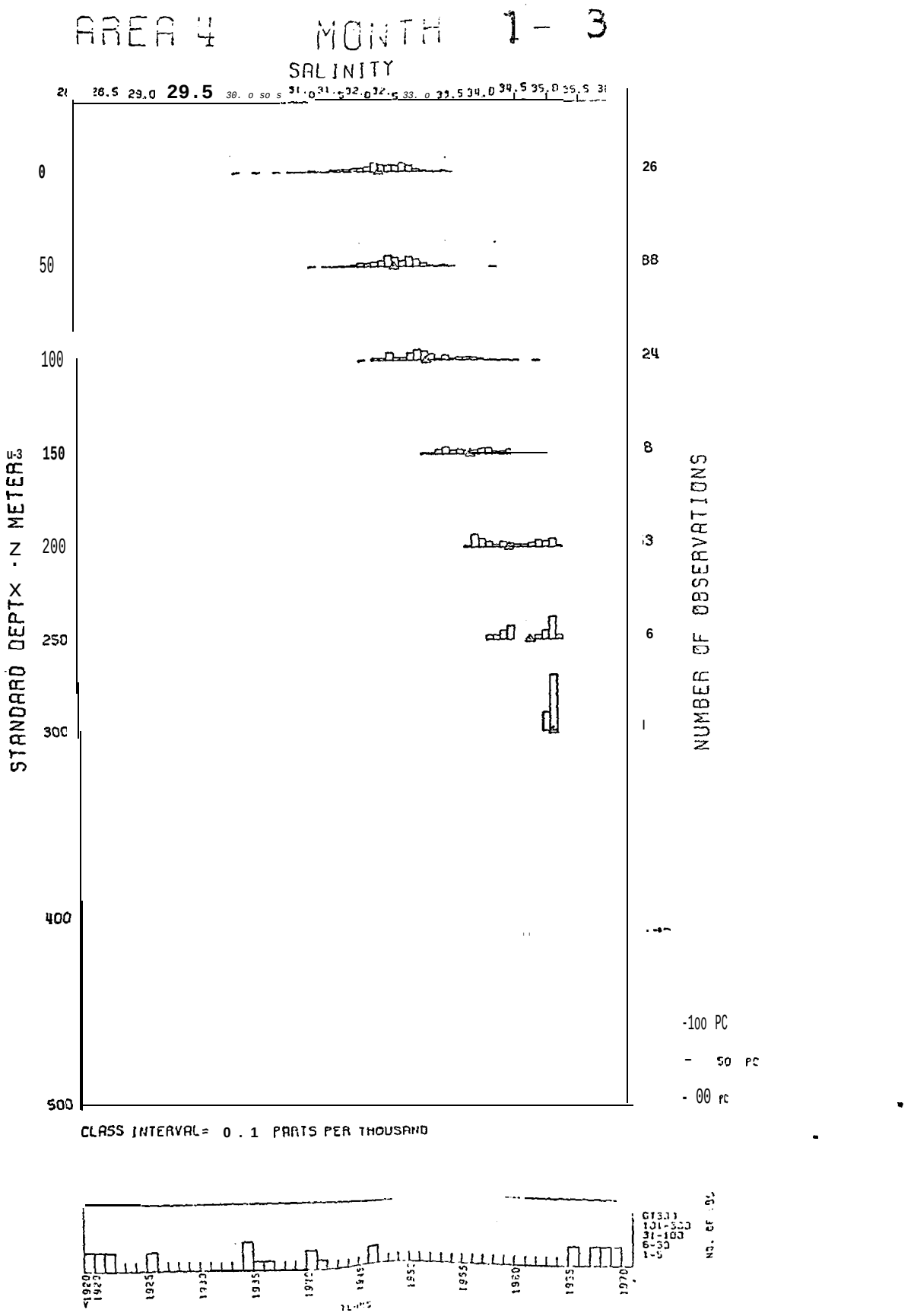
MONTHS 7 - 9 PRESENT 7, 8, 9

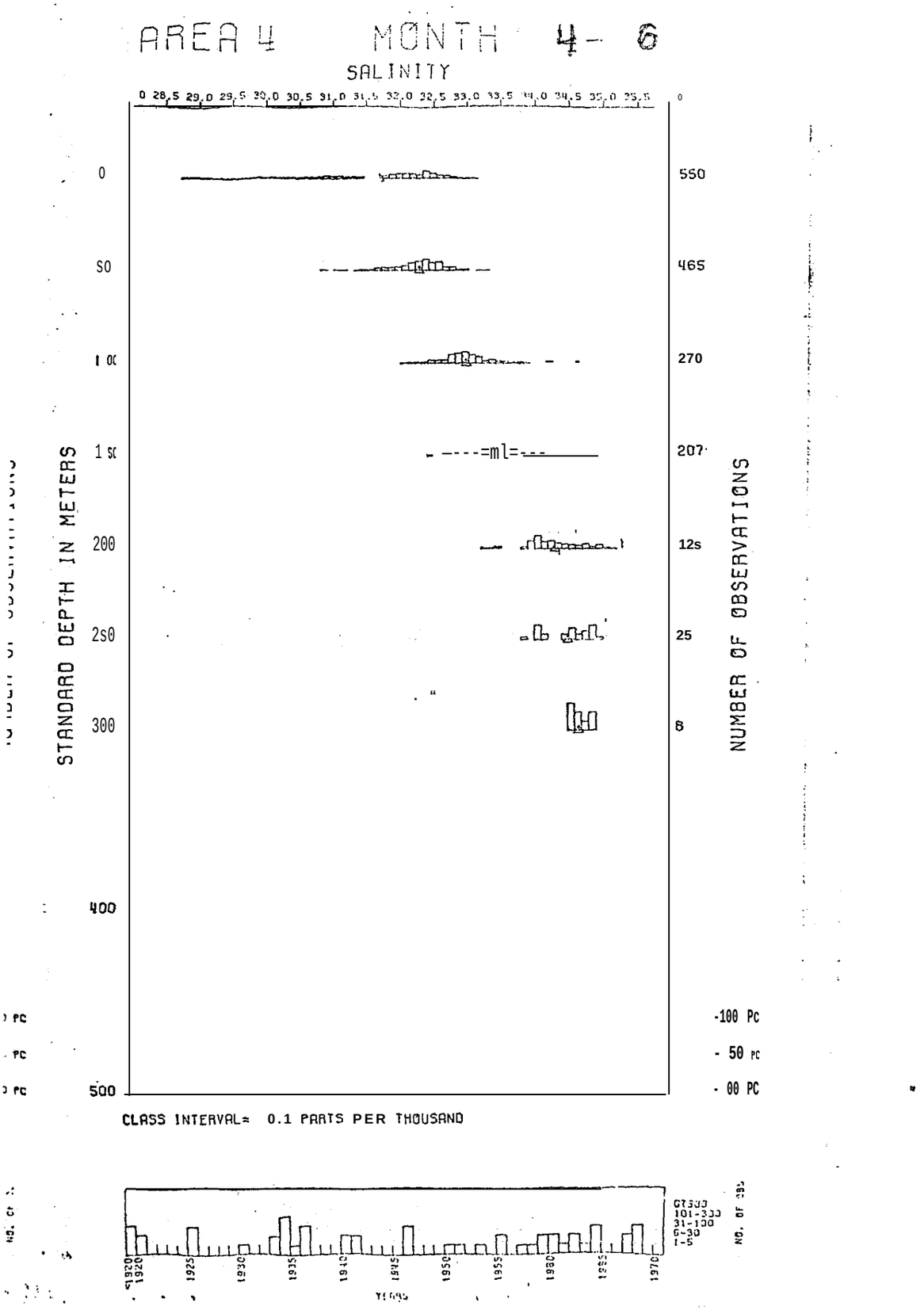
DEPTH	MAX	AVG	MIN	OBS	SDEV
0	33.55	31.15	28.20	276	0.68
10	33.91	31.46	30.13	261	0.45
20	33.80	32.01	30.74	201	0.40
30	33.43	32.29	30.85	125	0.42
50	33.18	32.60	31.69	20	0.29
75	33.17	32.92	32.60	3	0.29

MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SDEV
33.45	32.14	29.97	69	0.59
33.45	32.21	31.21	66	0.47
33.45	32.41	31.64	50	0.43
33.58	32.55	31.64	34	0.45
34.26	33.01	31.98	11	0.68
33.72	33.68	33.65	2	0.04

Table A-4 Area 6


AREA 4 MONTH 1- 3
SALINITY
28.5 29.0 29.5 30.0 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5
0
50
100
150
200
250
300
400
500
26
88
24
8
3
6
1
STANDARD DEPTH - METERS
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.1 PARTS PER THOUSAND
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970


AREA 4 MONTH 4- 6
SALINITY
0 28.5 29.0 29.5 30.0 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5
0
SO
1 0C
1 SC
200
2s0
300
400
500
STANDARD DEPTH IN METERS
550
465
270
207
12s
25
8
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.1 PARTS PER THOUSAND
<1920
1920
1925
1930
1935
1940
1945
1950
1955
1980
1985
1970
GT300
101-300
31-100
6-30
1-5

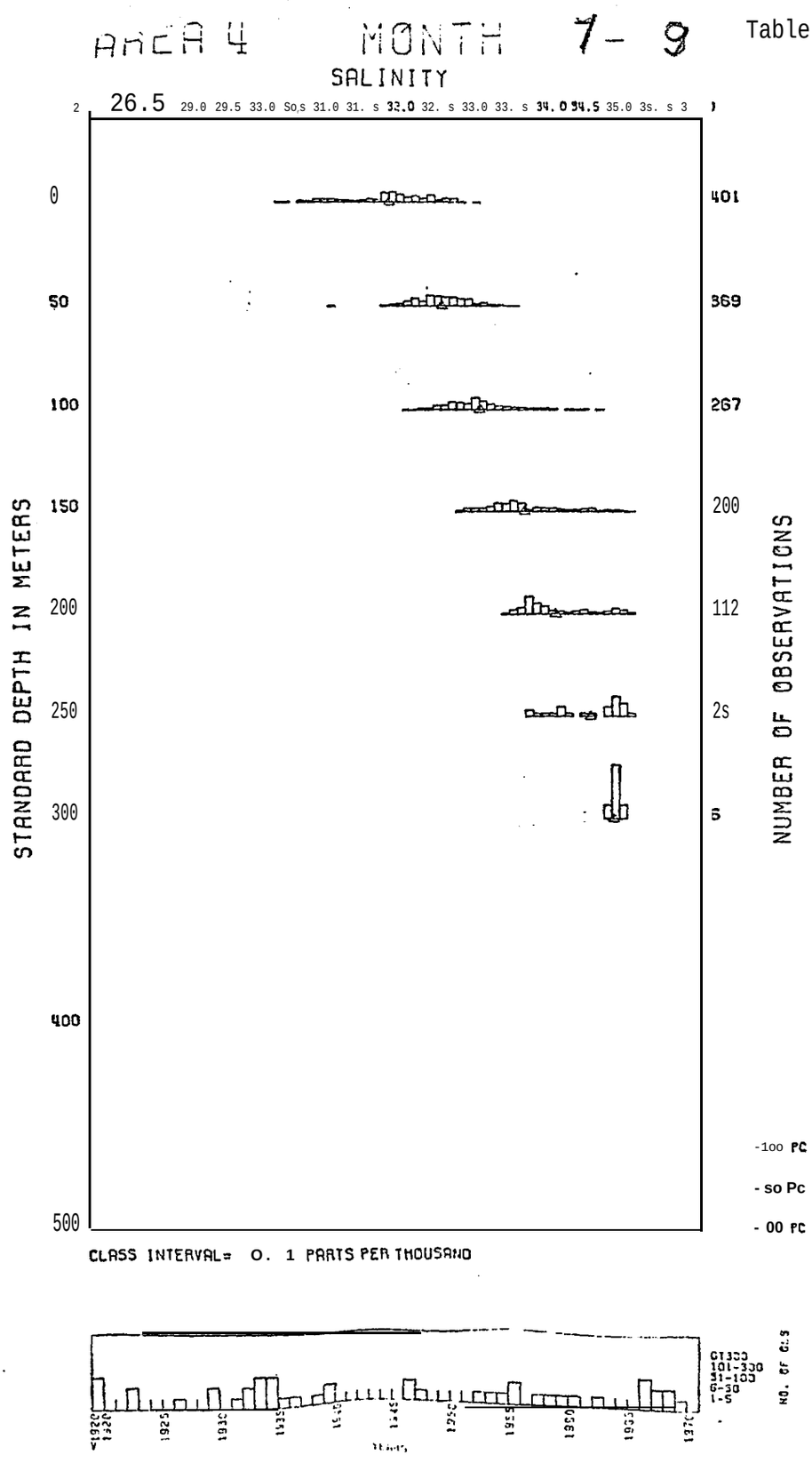
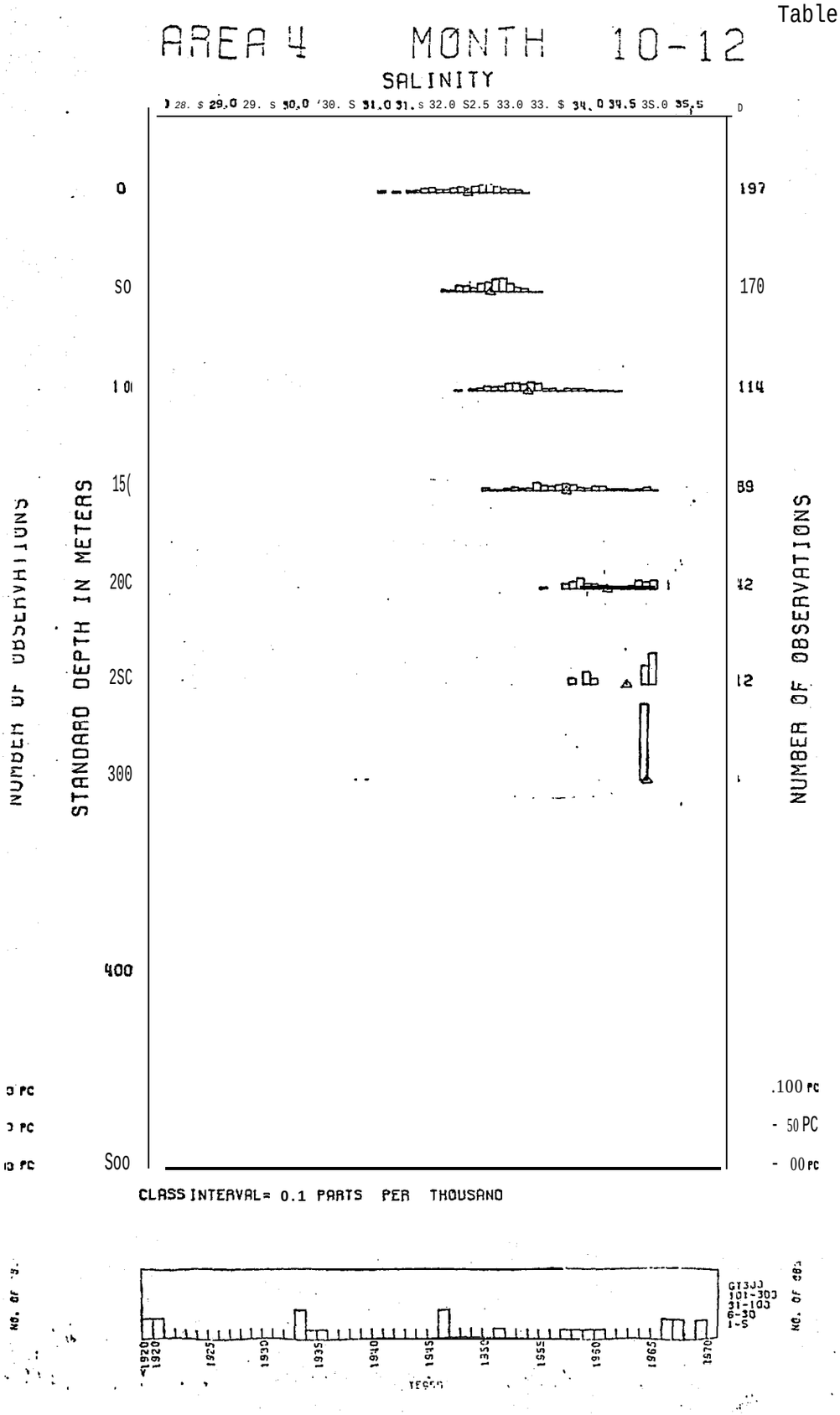

AREA 4 MONTH 7- 9
SALINITY
26.5 29.0 29.5 33.0 31.0 31. 32.0 32. 33.0 33. 34.0 34.5 35.0 3s.
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
401
369
267
200
112
2s
5
NUMBER OF OBSERVATIONS
-100 PC
- so Pc
- 00 PC
CLASS INTERVAL= O. 1 PARTS PER THOUSAND

Table A-5 **Area** 4 (cont.)



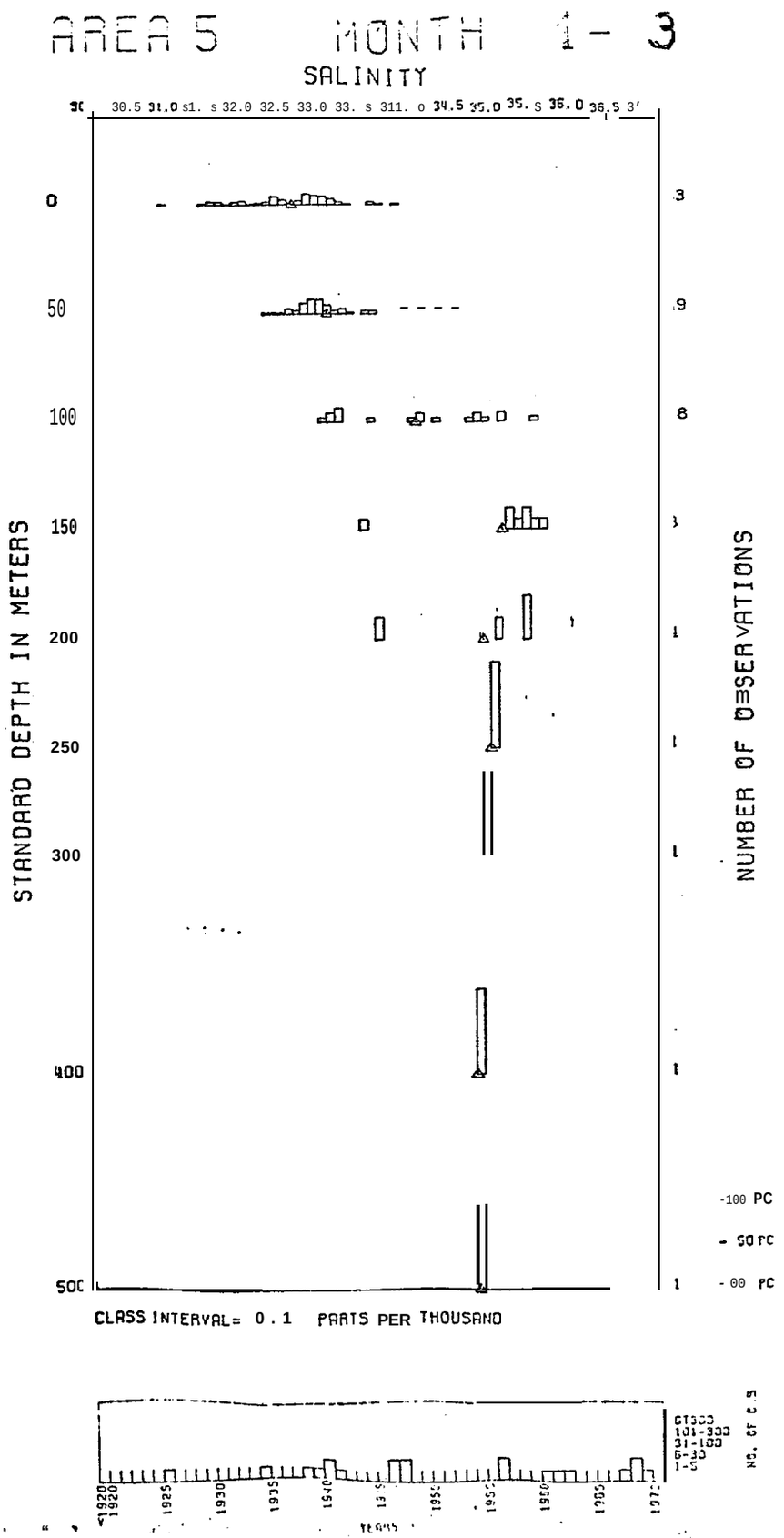
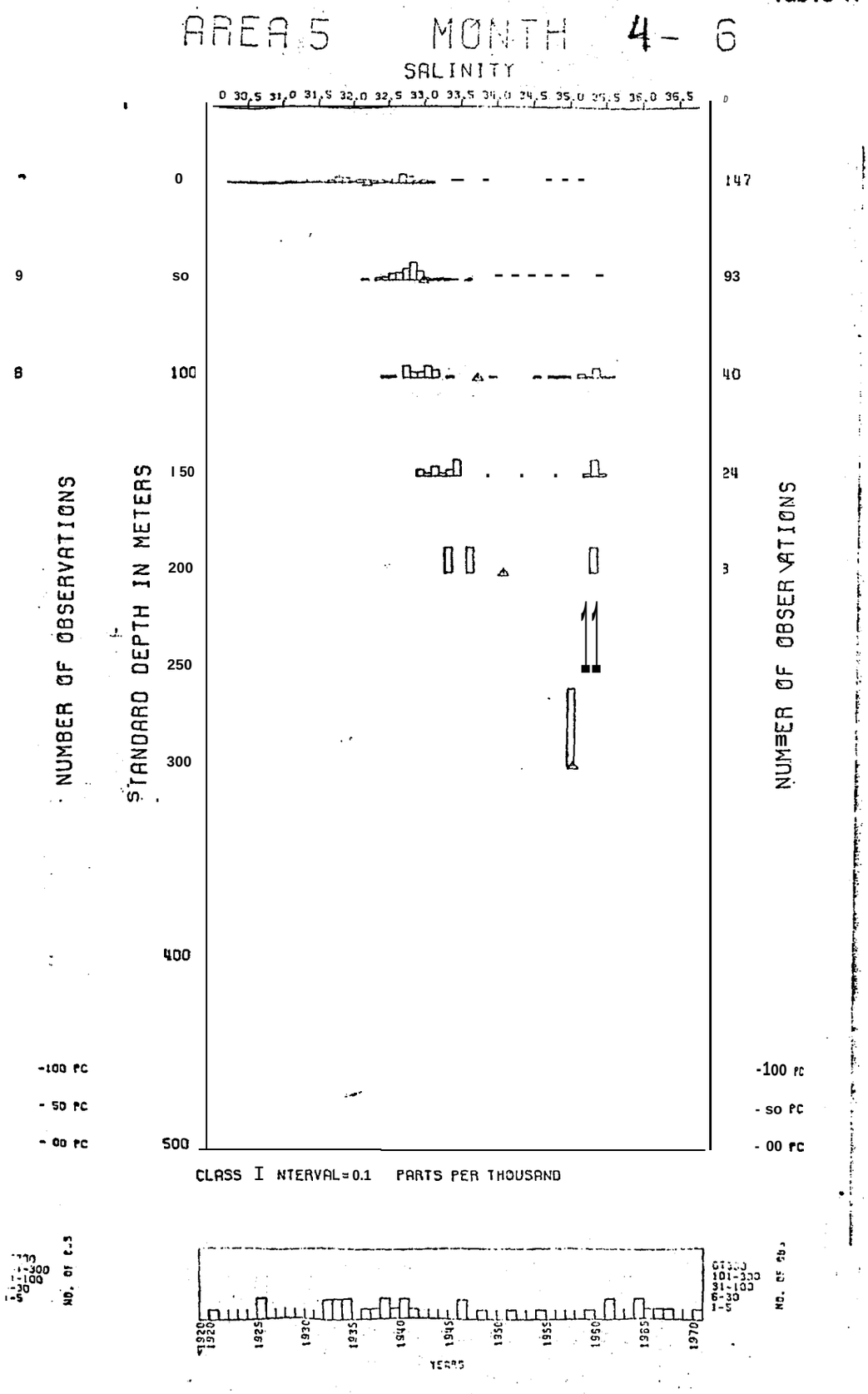

AREA 5 MONTH 1 - 3
SALINITY
30.5 31.0 31. 32.0 32.5 33.0 33. 311. 34.5 35.0 35. 36.0 36.5
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
CLASS INTERVAL= 0.1 PARTS PER THOUSAND

Table A-5 Area 5 (cont.)



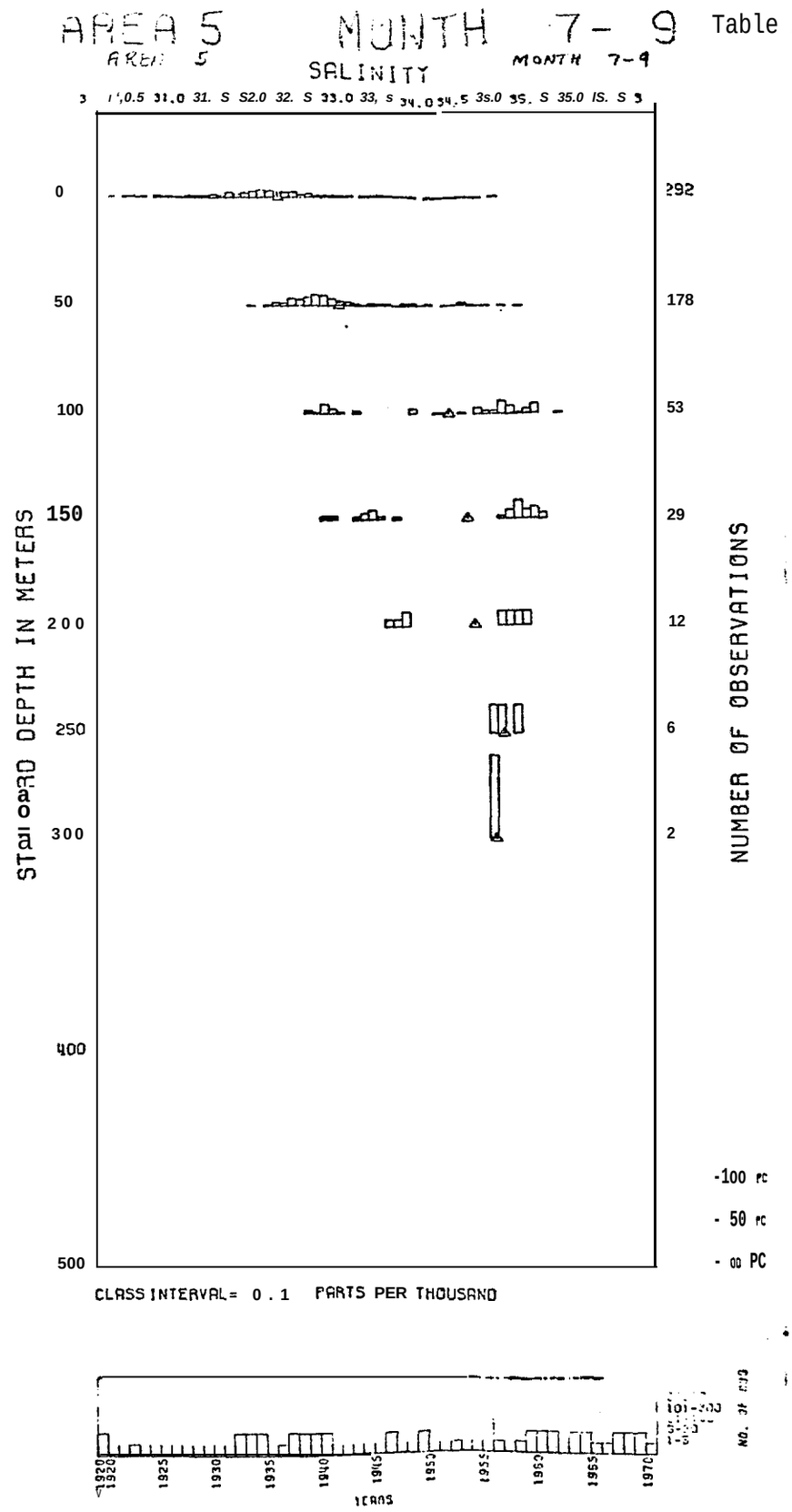
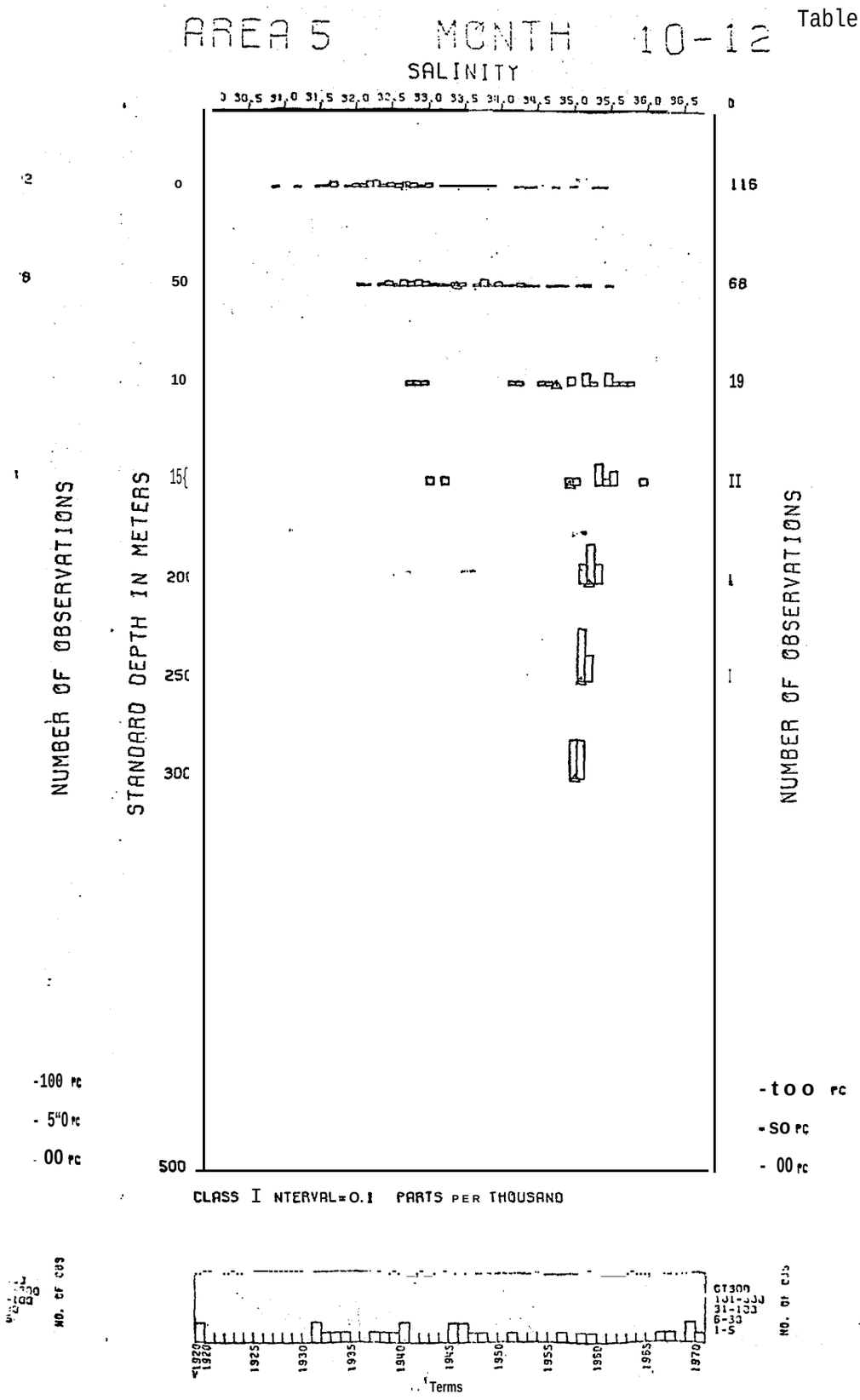
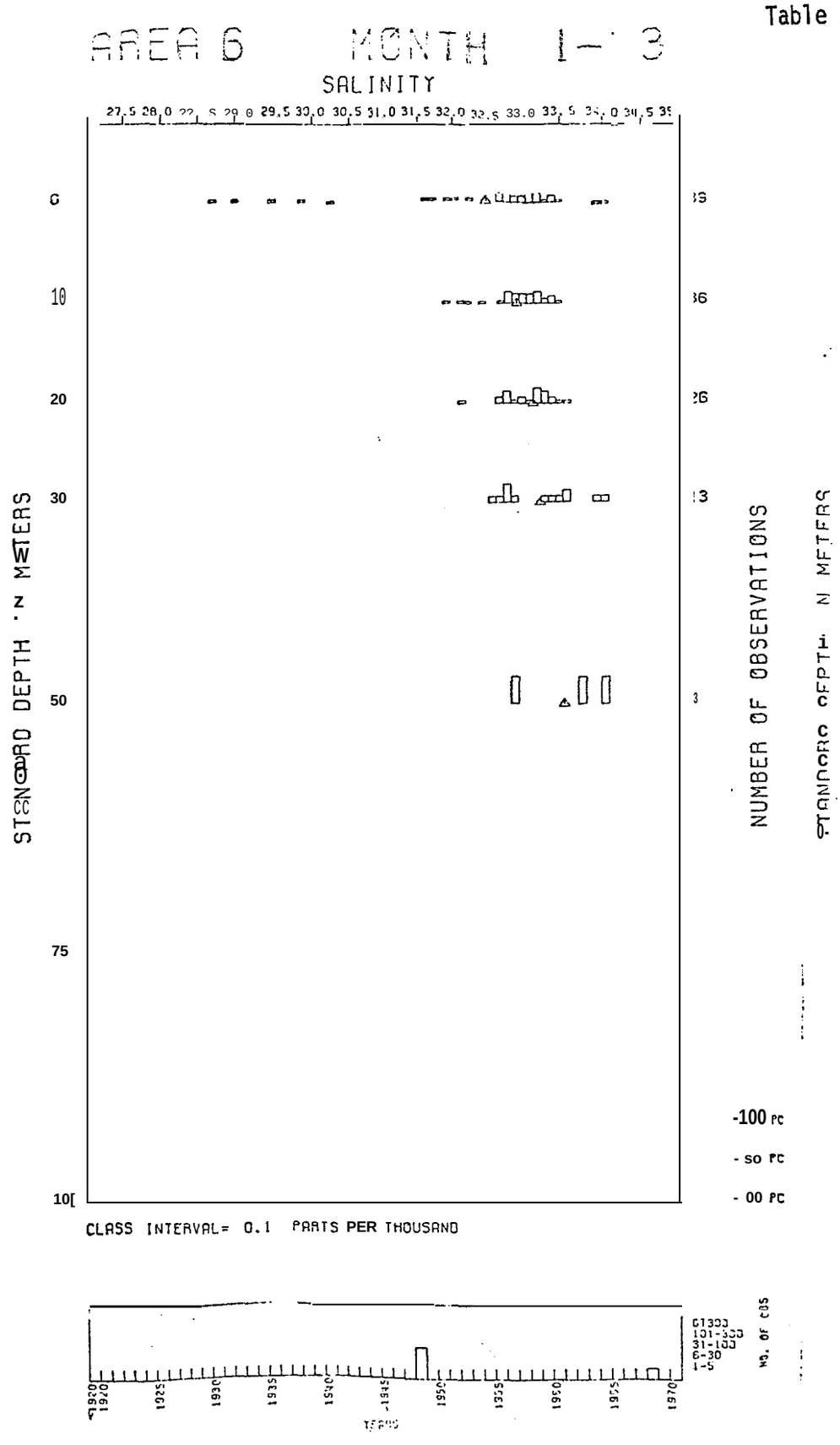
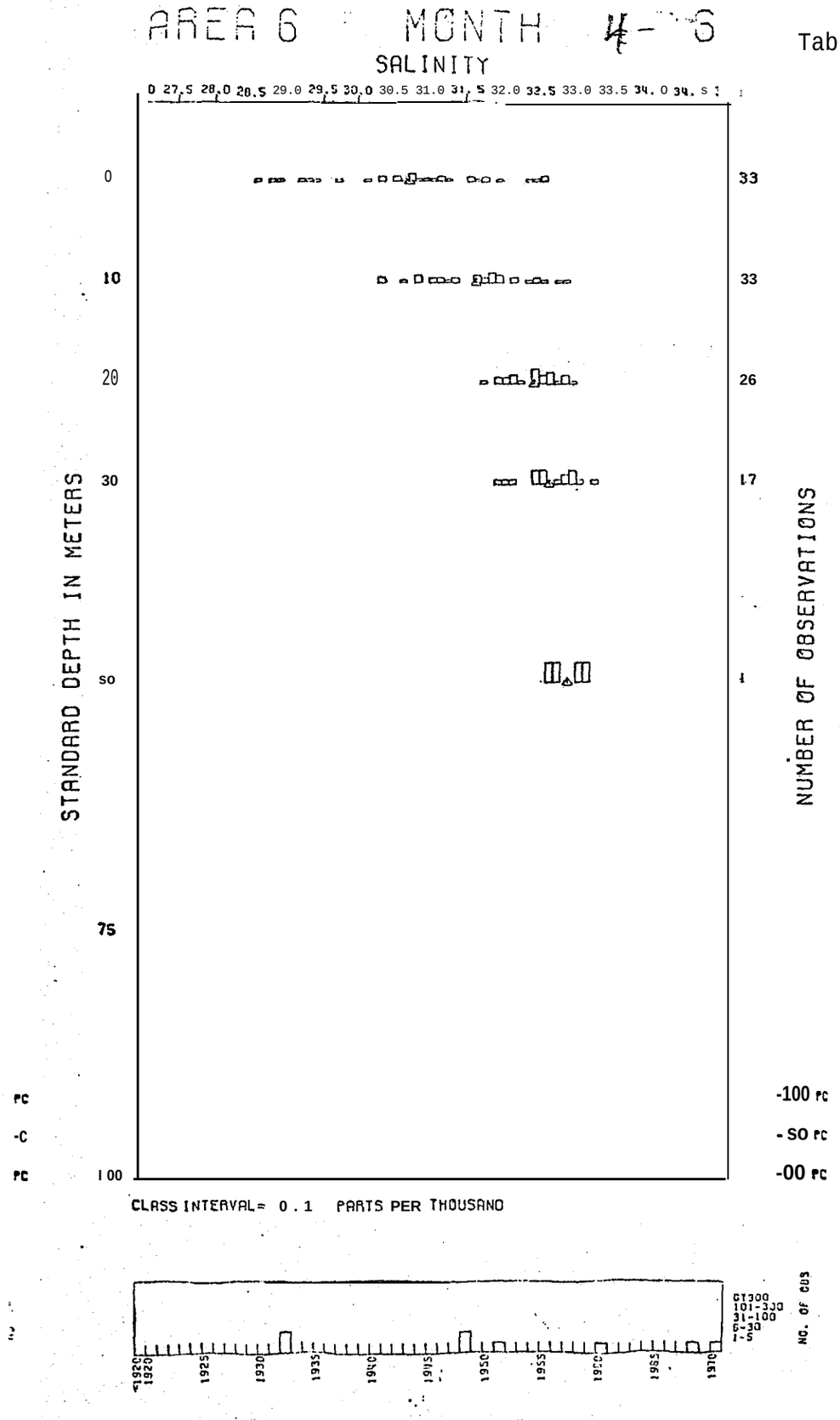
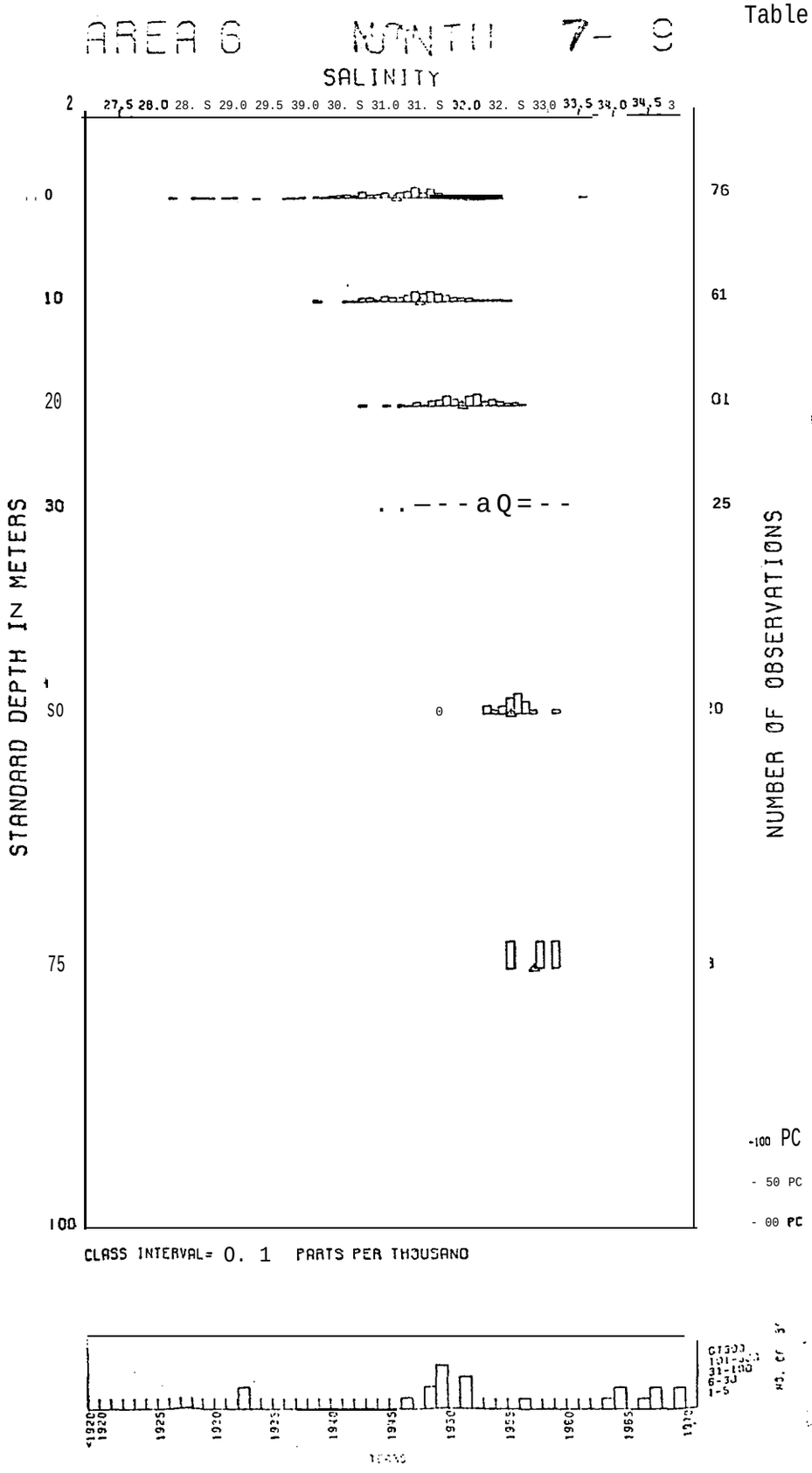

AREA 5 MONTH 7-9
AREA 5
SALINITY
MONTH 7-9
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
292
178
53
29
12
6
2
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.1 PARTS PER THOUSAND
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS

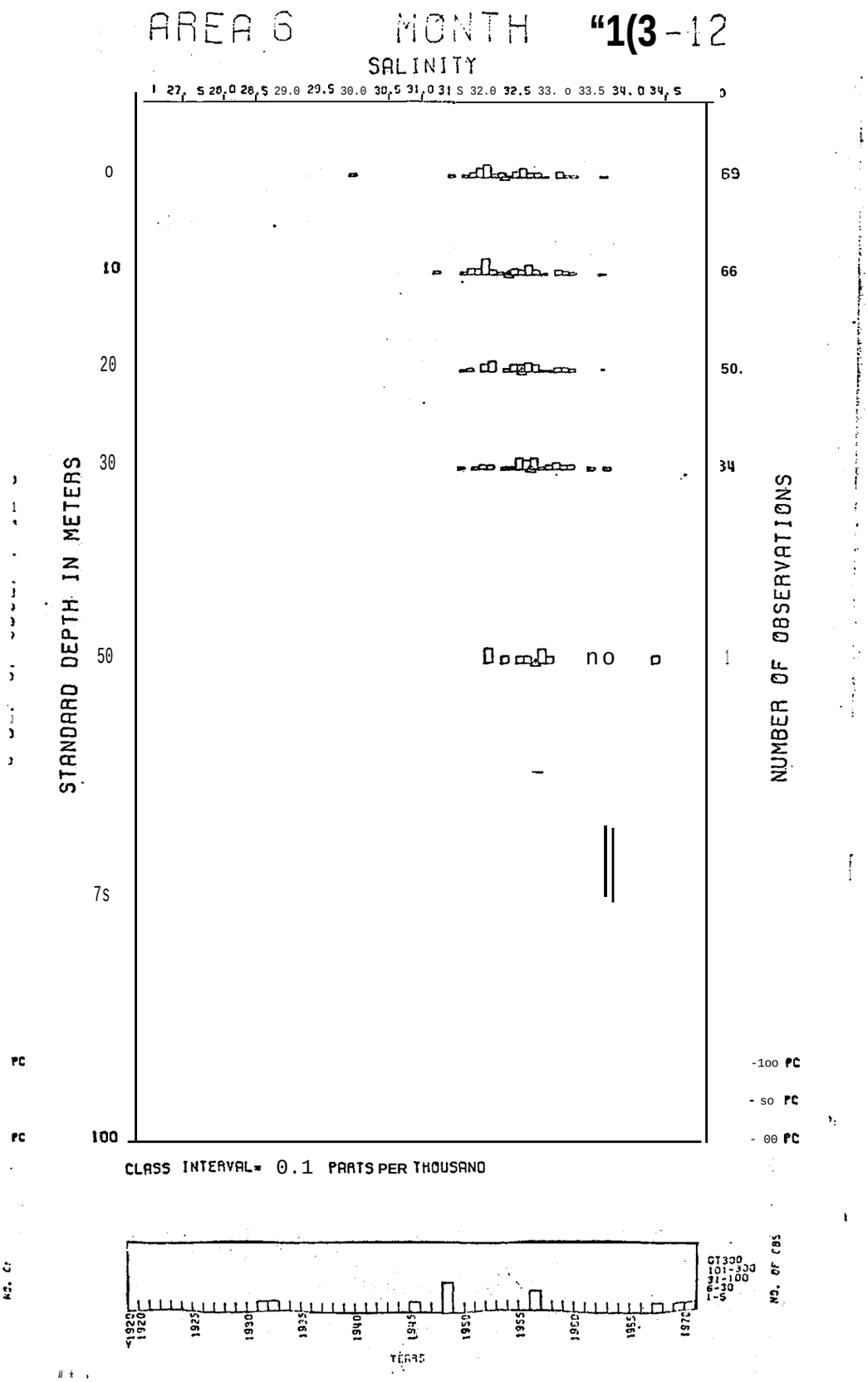
Table A-5 Area 5 (cont.)

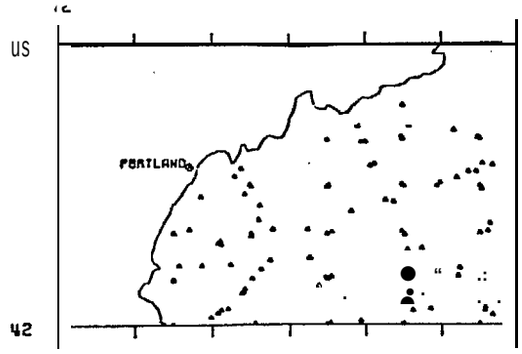



SALINITY
27.5 28.0 29.0 29.5 30.0 30.5 31.0 31.5 32.0 33.0 33.5 34.0 34.5
STANDARD DEPTH IN METERS
0
10
20
30
50
75
100
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.1 PARTS PER THOUSAND
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970


AREA 6 MONTH 4-6
SALINITY
0 27.5 28.0 28.5 29.0 29.5 30.0 30.5 31.0 31.5 32.0 32.5 33.0 33.5 34.0 34.5
0
10
20
30
50
75
100
33
33
26
17
4
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
-100 PC
-50 PC
-00 PC
CLASS INTERVAL= 0.1 PARTS PER THOUSAND
GT300
101-300
31-100
6-30
1-5
NO. OF OBS


AREA 6 MONTH 7- 9
SALINITY
27.5 28.0 28. S 29.0 29.5 39.0 30. S 31.0 31. S 32.0 32. S 33.0 33.5 34.0 34.5
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
0
10
20
30
50
75
100
76
61
01
25
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0. 1 PARTS PER THOUSAND
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965


AREA 6 MONTH "1(3-12
SALINITY
27, 5 28,0 28,5 29.0 29.5 30.0 30,5 31,0 31 S 32.0 32.5 33. o 33.5 34. 0 34, 5
0
10
20
30
50
7s
100
69
66
50.
34
1
no
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
-100 PC
- so PC
- 00 PC
CLASS INTERVAL= 0.1 PARTS PER THOUSAND
GT300
101-300
31-100
6-30
1-5
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1972
YEARS



MONTHS 1 - 3

AREA 4BOSTON

42-45N 66-72W

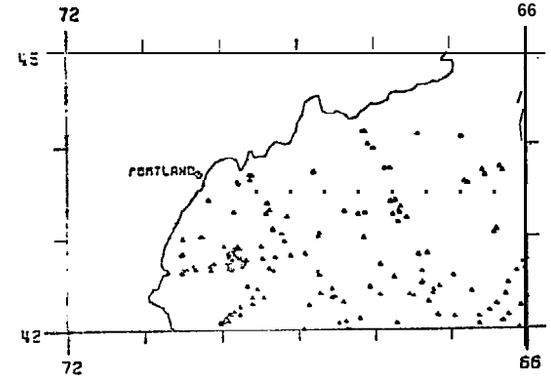
OXYGEN

MONTHS 1 - 3 MONTHS PRESENT 1* 2, 3

DEPTH	MAx	AVG	MIN	00 s	SDEV
0	8.61	7.43	5.78	112	0.40
10	8.60	7.47	5.85	113	0.40
20	0.70	7.46	6.07	113	0.40
30	8.59	7.43	6.56	113	0.39
50	8.13	7.28	5.96	107	0.43
75	7.95	7.00	5.04	102	(1.55
100	7.55	6.52	4.69	86	0.69
125	7.31	6.01	4.56	73	0.77
150	6.99	5.48	4.25	67	0.71
200	5.33.	4.66	4.17	38	0.28
250	4.77	4.60	4.20	12	0.23
300	4.96	.4.75	4.61	3	0.12

MONTHS 4 -6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
9.96	7.95	6.22	196	0.72
9.70	7.88	6.28	203	0.67
9.23	7.83	6.86	203	0.49
9.18	7.67	6.64	205	0.45
9.01	7.40	6.47	201	0.43
8.46	7.09	5.90	185	0.42
7.83	6.73	5.30	167	0.55
7.71	6.28	4.97	152	0.62
7.10	5.75	4.69	141	0.59
6.17	4.76	3.77	89	0.49
5.99	4.88	3.62	19	0.55
5.97	5.36	4.60	8	0.60



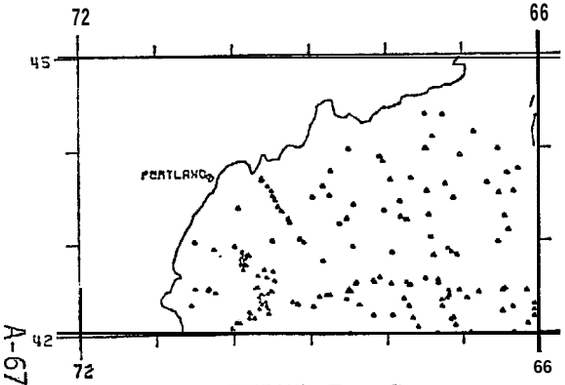
MONTHS 4 - 6

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

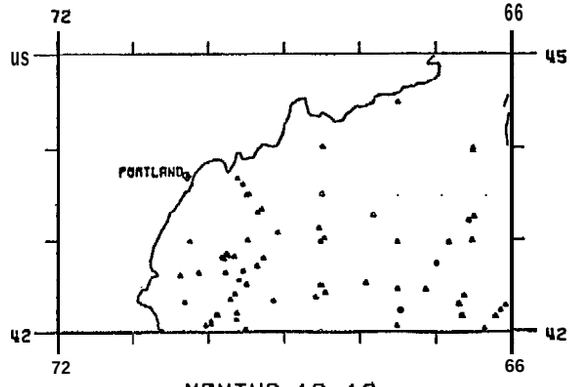
DEPTH	MAX	AVG	MIN	OBS	SDEV
0	7.77	6.17	5.40	177	0.34
10	7.71	6.30	5.57	177	0.43
20	7.70	6.55	5.65	178	0.45
30	7.66	6.53	5.58	170	0.42
50	7.39	6.26	5.27	171	0.43
75	7.14	6.11	4.96	158	0.46
100	6.91	5.86	4.52	143	0.52
125	6.87	5.56	4.24	132	0.53
150	6.35	5.16	4.03	122	0.45
200	5.12	4.61	3.93	64	0.26
250	4.84	4.41	4.01	14	0.25
300	4.86	4.61	4.46	3	0.21

MONTHS 10 - 12 MONTHS PRESENT 10,11,12

MAX	AVG	MIN	OBS	SOEV
7.16	6.50	5.75	71	0.24
6.89	6.47	5.75	72	0.23
6.76	6.41	5.63	72	0.23
6.09	6.34	5.67	71	0.29
6.91	6.10	5.16	69	0.39
7.12	5.*7	5.01	61	0.49
6.95	5.60	4.57	56	0.51
6.09	5.21	4.36	49	0.47
5.79	4.98	4.11	45	0.44
5.09	4.65	3.89	27	0.28
5.16	4.62	4.25	9	0.27



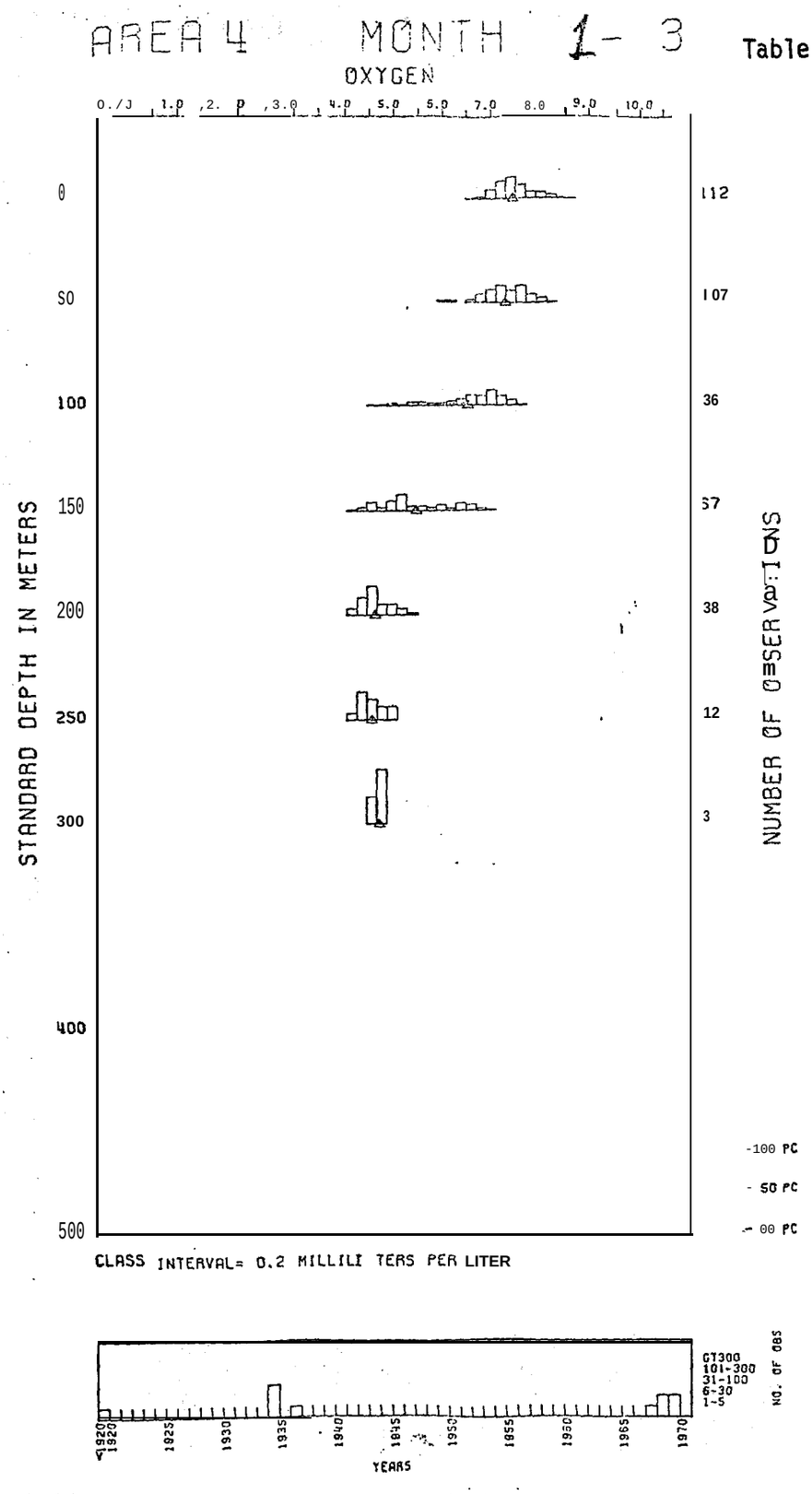
MONTHS 7 - 9



MONTHS 10-12

Distribution of surface-surface oxygen values.

Table A-6 Area 4


AREA 4 MONTH 1- 3
OXYGEN
0./J 1.0 2. P 3.0 4.0 5.0 5.0 7.0 8.0 9.0 10.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
112
107
36
37
38
12
3
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.2 MILLILITERS PER LITER
GT300
101-300
31-100
6-30
1-5
NO. OF OBS
<1920
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS

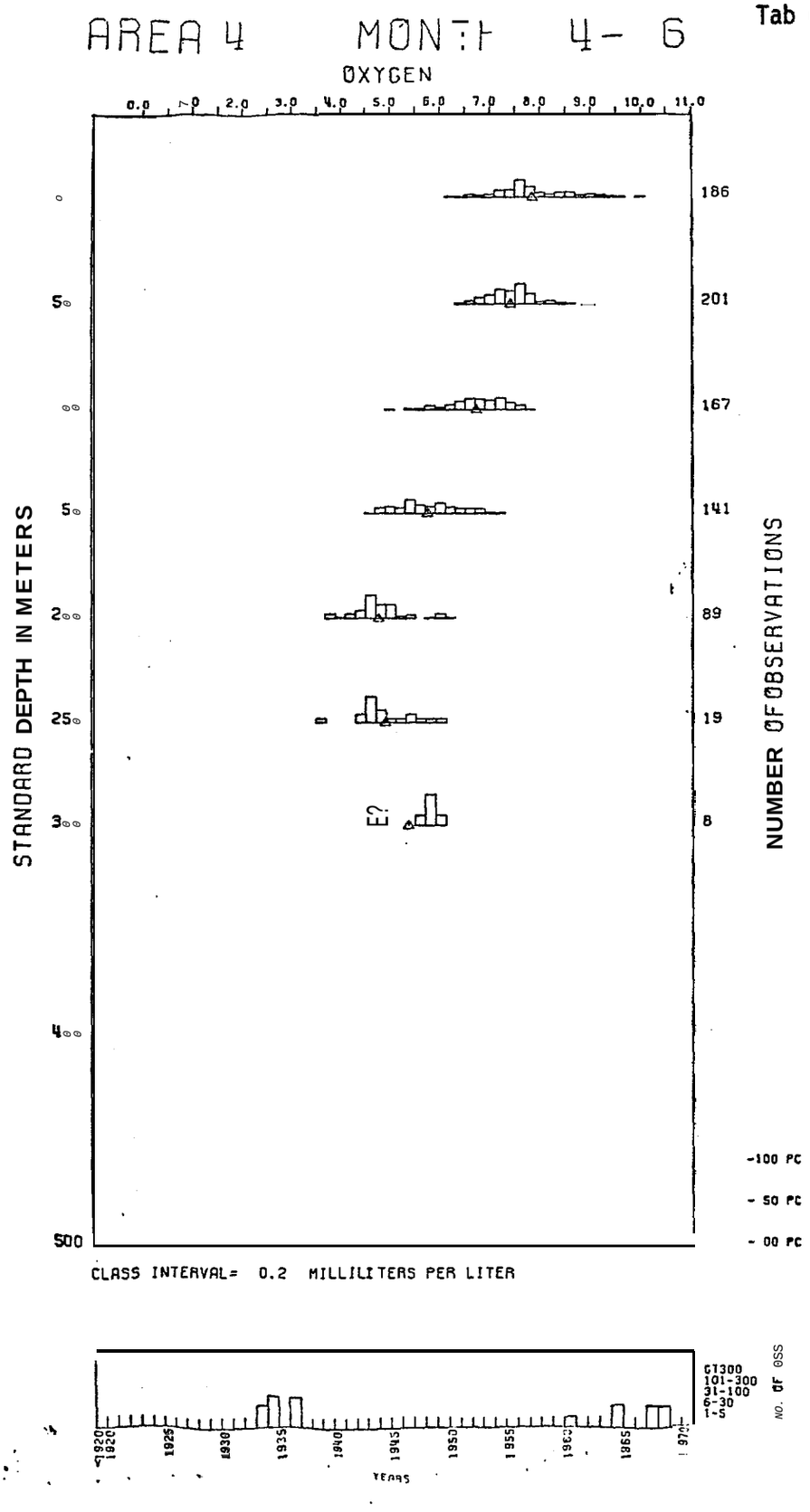
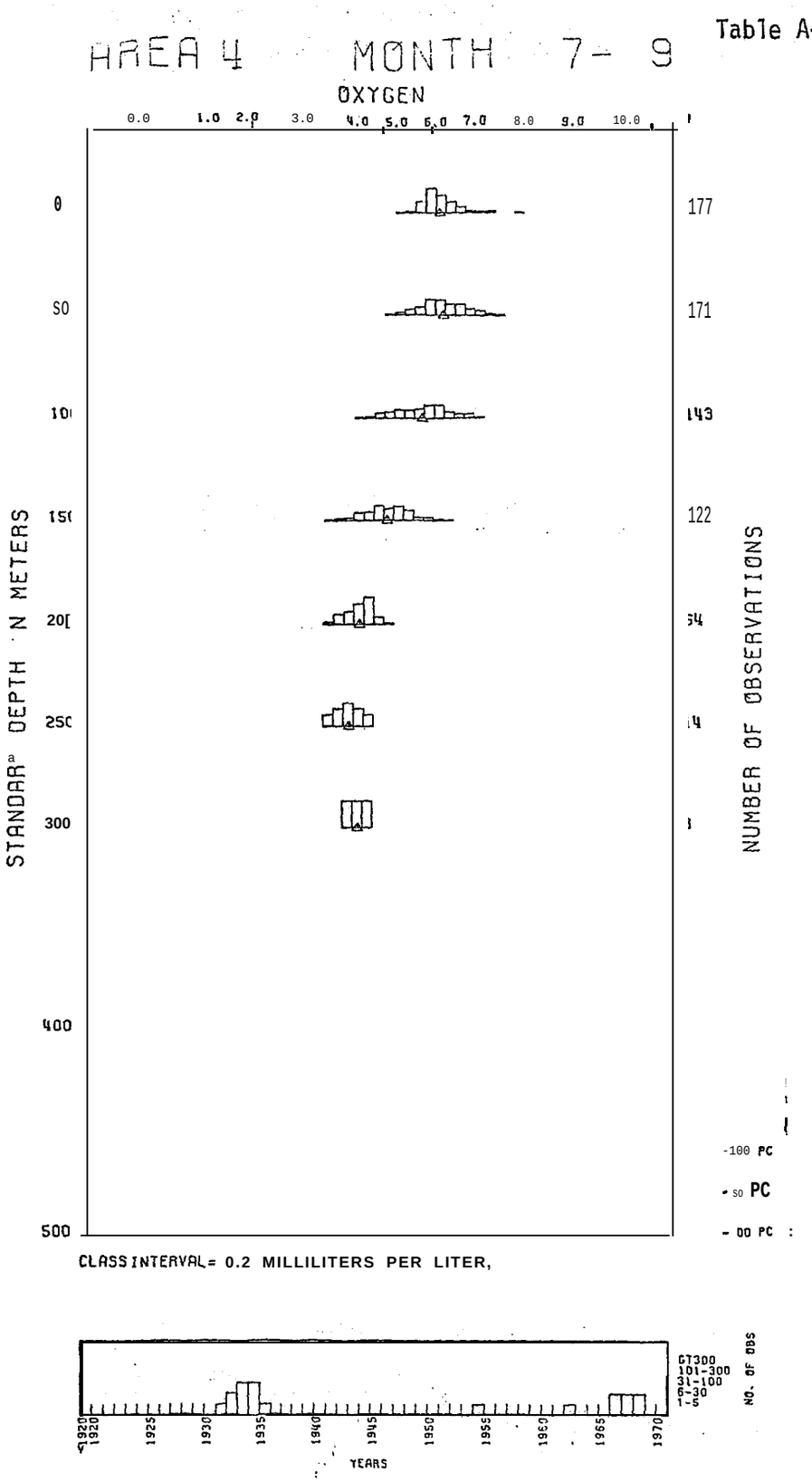
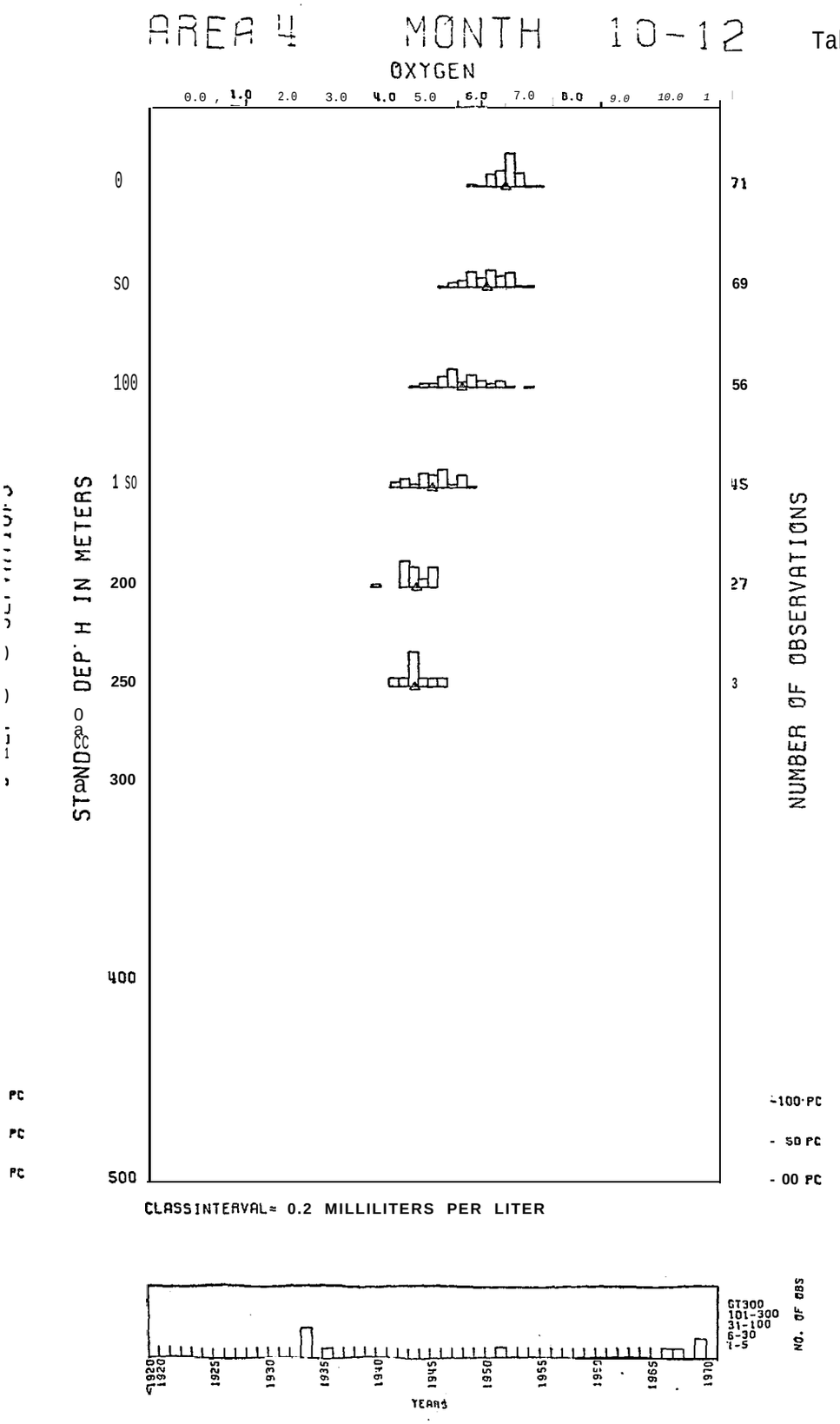
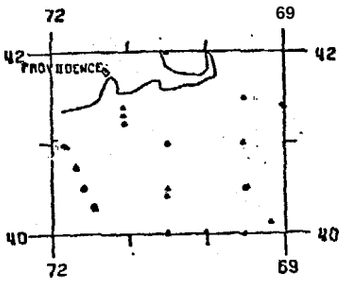

AREA 4 MONTH 4- 6
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
186
201
167
141
89
19
8
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.2 MILLILITERS PER LITER
GT300
101-300
31-100
6-30
1-5
NO. OF OBS
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
YEARS

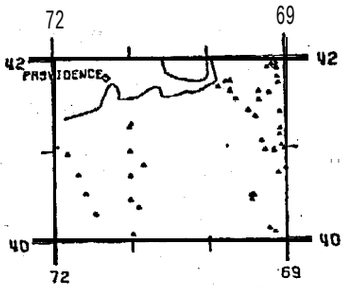
Table A-6 Area 4 (cont.)



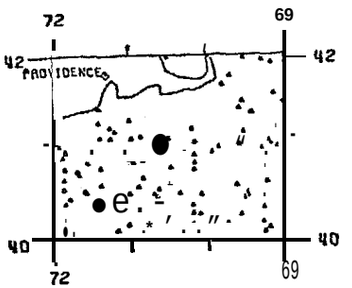

AREA 4 MONTH 10-12
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0
STANDARD DEPTH IN METERS
0
50
100
150
200
250
300
400
500
NUMBER OF OBSERVATIONS
71
69
56
45
27
3
CLASSINTERVAL= 0.2 MILLILITERS PER LITER
1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970
YEARS
NO. OF OBS



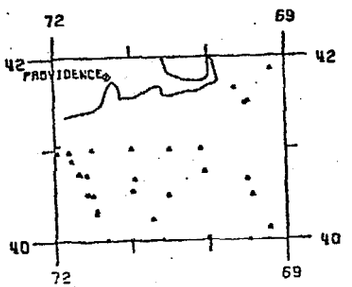
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

AREA 5 QUONSET POINT

40-42N 69-72W

OXYGEN

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	8.12	7.29	6.38	33	0.48
10	8.56	7.28	6.36	45	0.47
20	8.12	7.27	6.39	47	0.47
30	8.63	7.19	6.36	44	0.45
50	7.95	6.93	5.70	33	0.45
75	7.59	6.50	5.44	17	0.57
100	7.63	5.93	5.10	11	0.78
125	7.28	5.41	4.53	9	0.83
150	4.91	4.46	4.97	6	0.75
200	4.54	3.80	3.35	4	0.54
250	3.19	3.19	3.19	1	0.0

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
9.55	7.54	6.29	56	0.73
9.58	7.59	6.30	57	0.63
9.02	7.67	6.70	57	0.54
9.83	7.61	6.52	55	0.51
8.37	7.42	6.18	48	0.53
8.02	7.15	5.80	34	0.52
7.76	6.75	5.22	22	0.70
7.41	6.33	4.79	10	0.72
7.18	6.05	4.93	14	0.65
6.54	5.74	4.94	2	1.13

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	7.11	5.60	4.38	125	0.59
10	7.62	5.67	4.58	138	0.64
20	7.36	5.96	4.53	132	0.62
30	7.47	6.06	4.46	126	0.64
50	6.83	5.69	3.(>3	94	0.57
75	6.76	5.39	3.90	46	0.65
100	6.19	4.95	3.72	23	0.75
125	6.09	4.58	3.57	17	0.33
150	5.68	4.21	3.34	13	0.34
200	4.72	3.75	3.15	6	0.63
250	3.88	3.54	3.13	4	0.32
300	3.88	3.88	3.88	1	0.0

MONTHS 10 - 12 MONTHS PRESENT 10, 11, 12

MAX	AVG	MIN	OBS	SDEV
7.16	6.11	4.34	34	0.53
7.26	6.06	4.35	34	0.61
7.21	6.09	4.35	33	0.54
6.87	6.03	5.07	32	0.48
6.90	5.74	4.83	23	0.52
5.98	5.17	4.42	8	0.47
5.77	4.70	3.39	8	0.80
5.60	4.33	3.33	5	0.71
5.27	4.00	3.23	5	0.80
3.13	3.13	3.13	2	0.0
3.25	3.18	3.12	2	0.09
3.59	3.39	3.20	2	0.27

Table A-6 Area 5

...ean surface oxy values.

Table A-6 Area 5 (cont.)

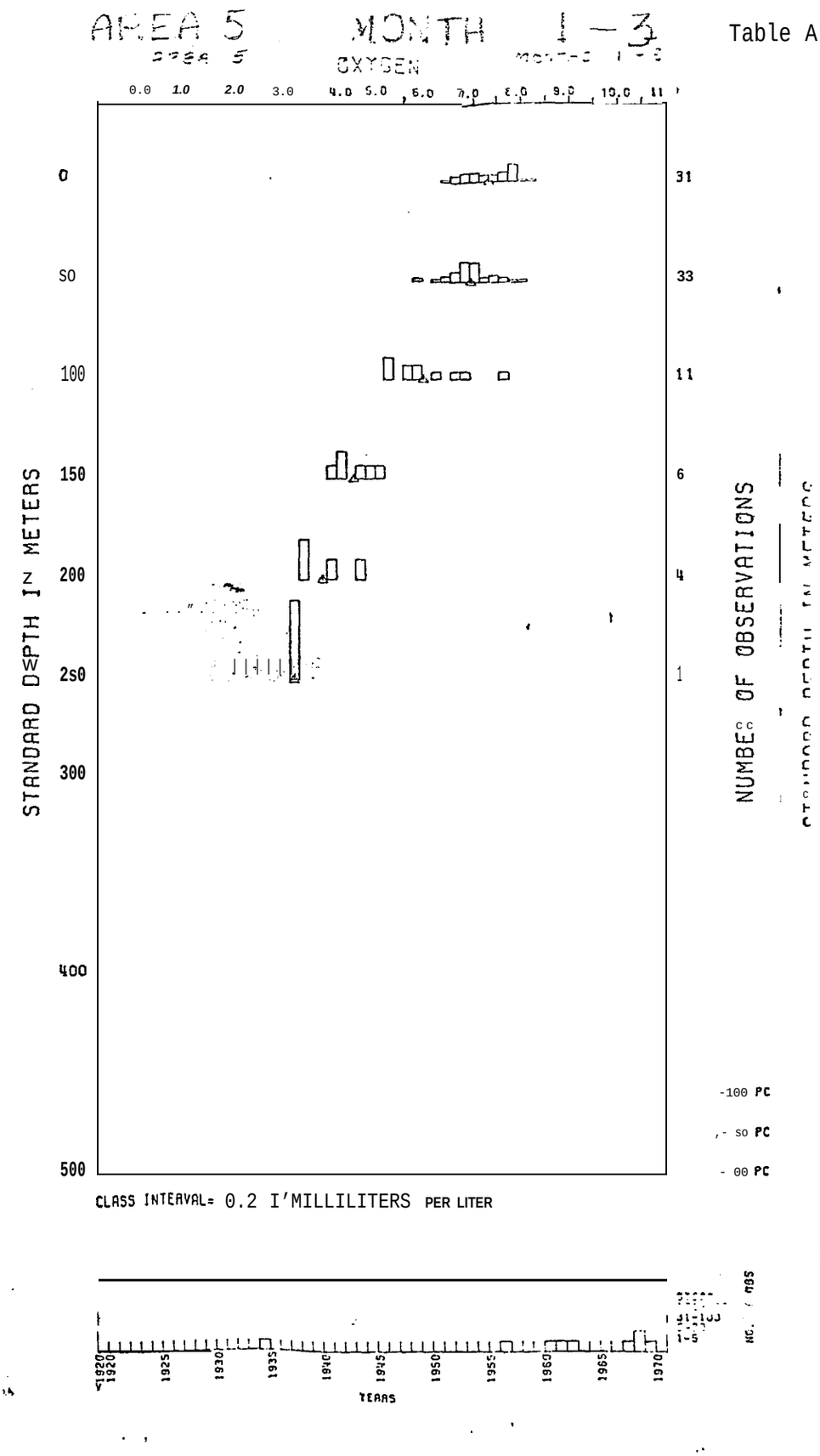
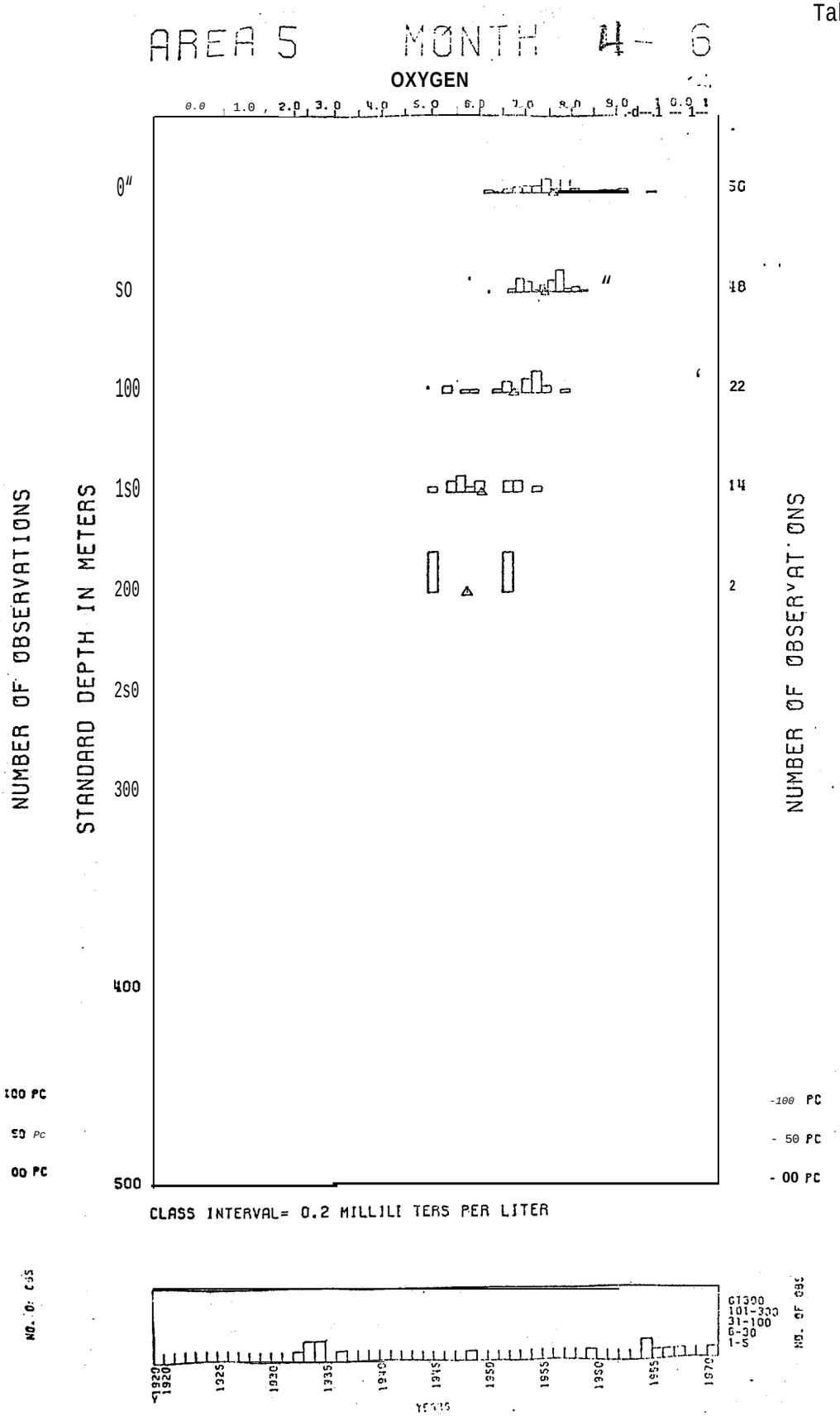
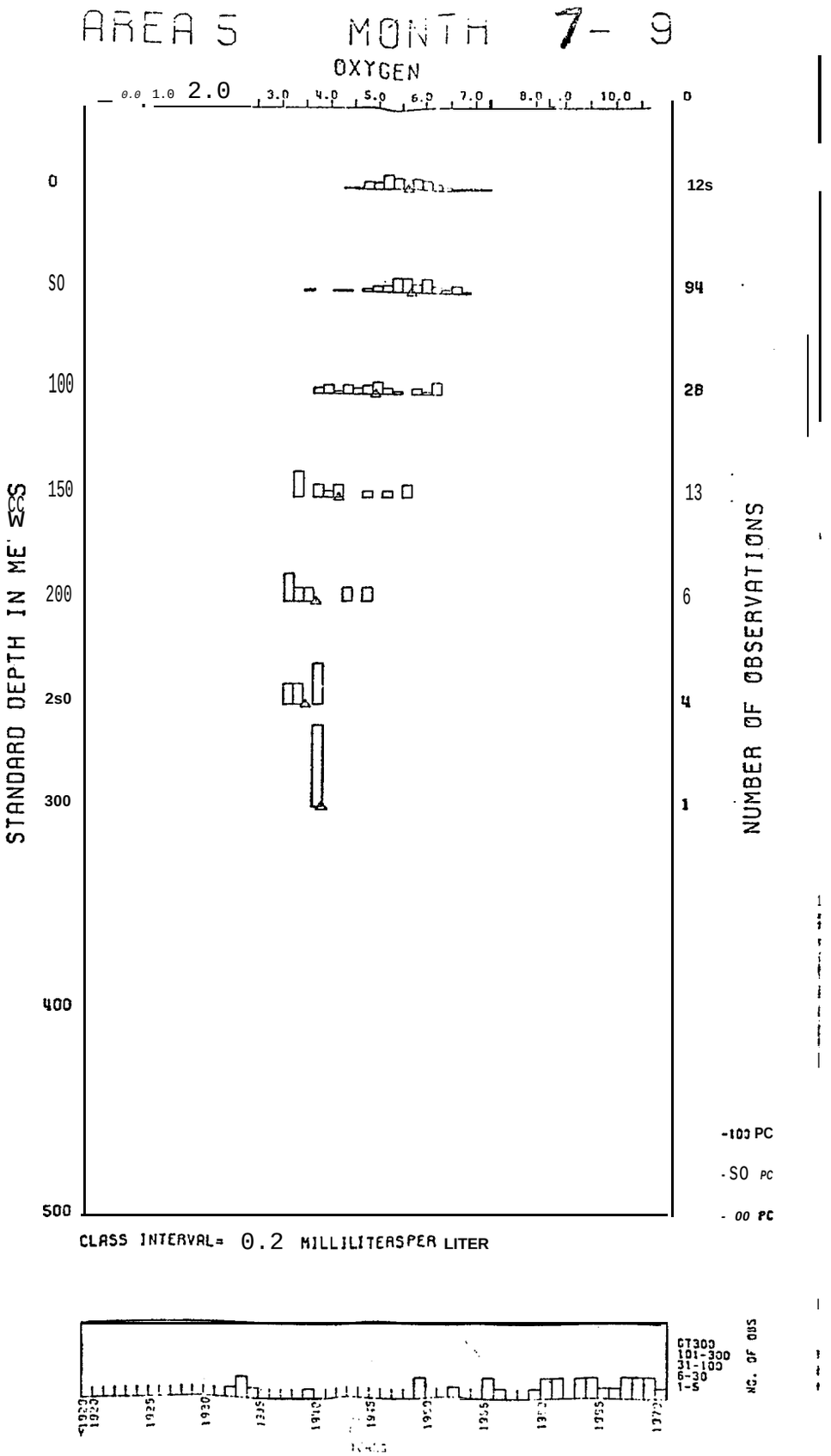
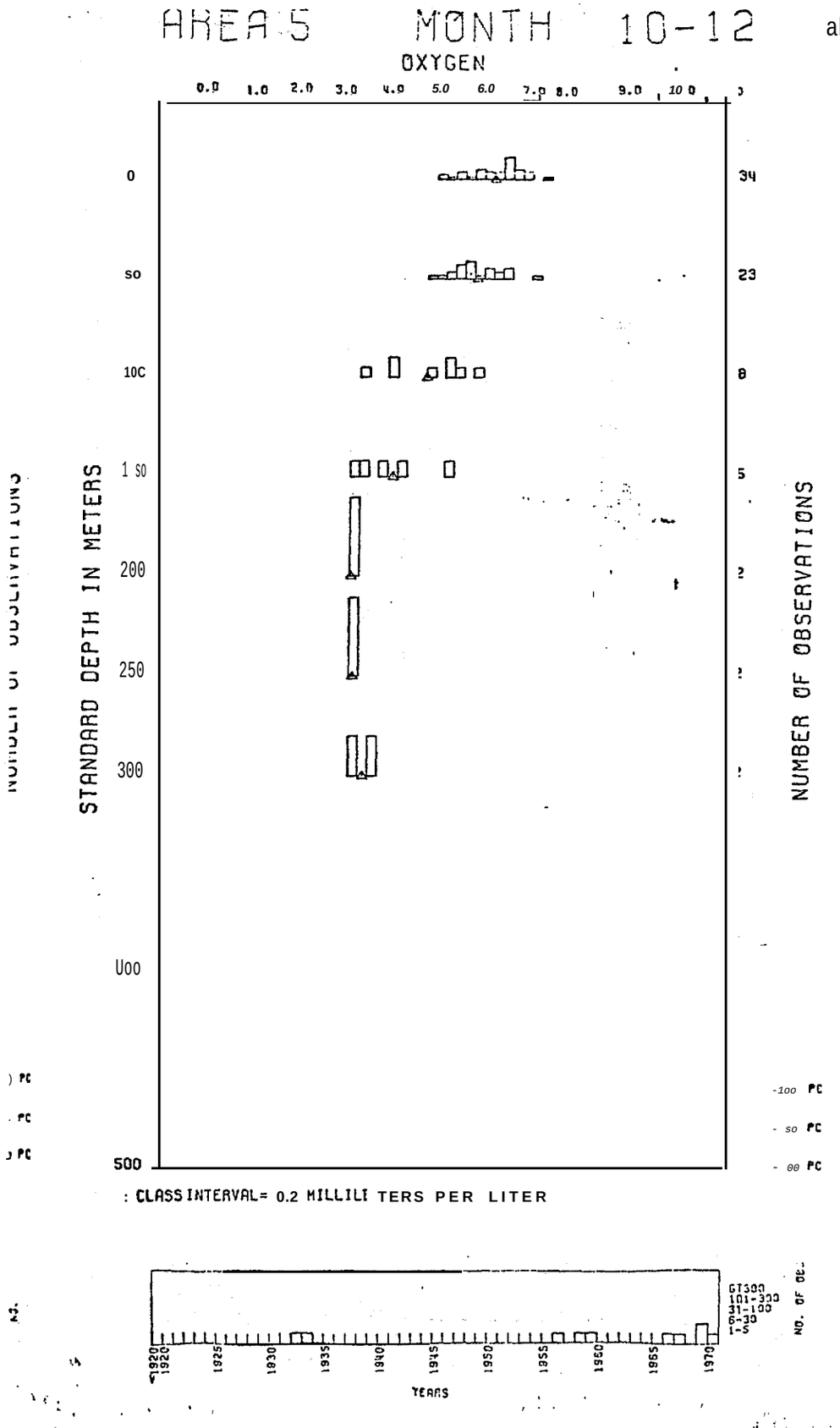


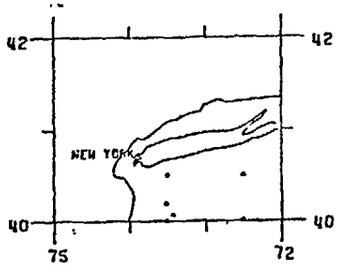
Table A-6 Area 5 (cont.)



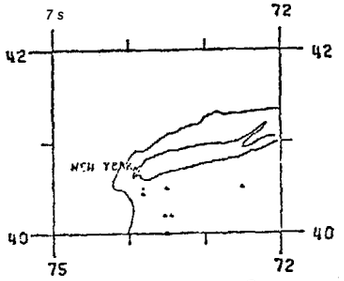

AREA 5 MONTH 7- 9
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0
0
SO
100
150
200
2s0
300
400
500
STANDARD DEPTH IN METERS
12s
94
28
13
6
4
1
NUMBER OF OBSERVATIONS
-100 PC
-SO PC
- 00 PC
CLASS INTERVAL= 0.2 MILLILITERSPER LITER
GT300
101-300
31-100
6-30
1-5
NO. OF OBS

able A-6 Area 5 (cont.)

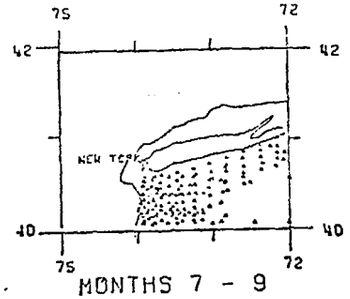




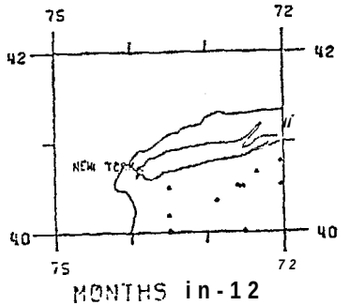
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS in-12

Distribution of stations reporting sea-surface oxygen values.

AREA6 NEW YORK

4 0-42N 72-75W

OXYGEN

MONTHS 1 3 MONTHS PRESENT 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	7.89	7.45	6.69	6	0.47
10	7.04	7.45	7.18	6	0.29
20	7.71	7.52	7.41	5	0.14
30	7.62	7.36	7.11	5	0.18
50	6.85	6.85	6.85	1	0.0

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
8.07	7.33	6.50	6	0.62
7.97	7.30	6.72	6	0.52
7.58	6.91	6.01	5	0.60
7.01	6.16	5.07	4	0.80

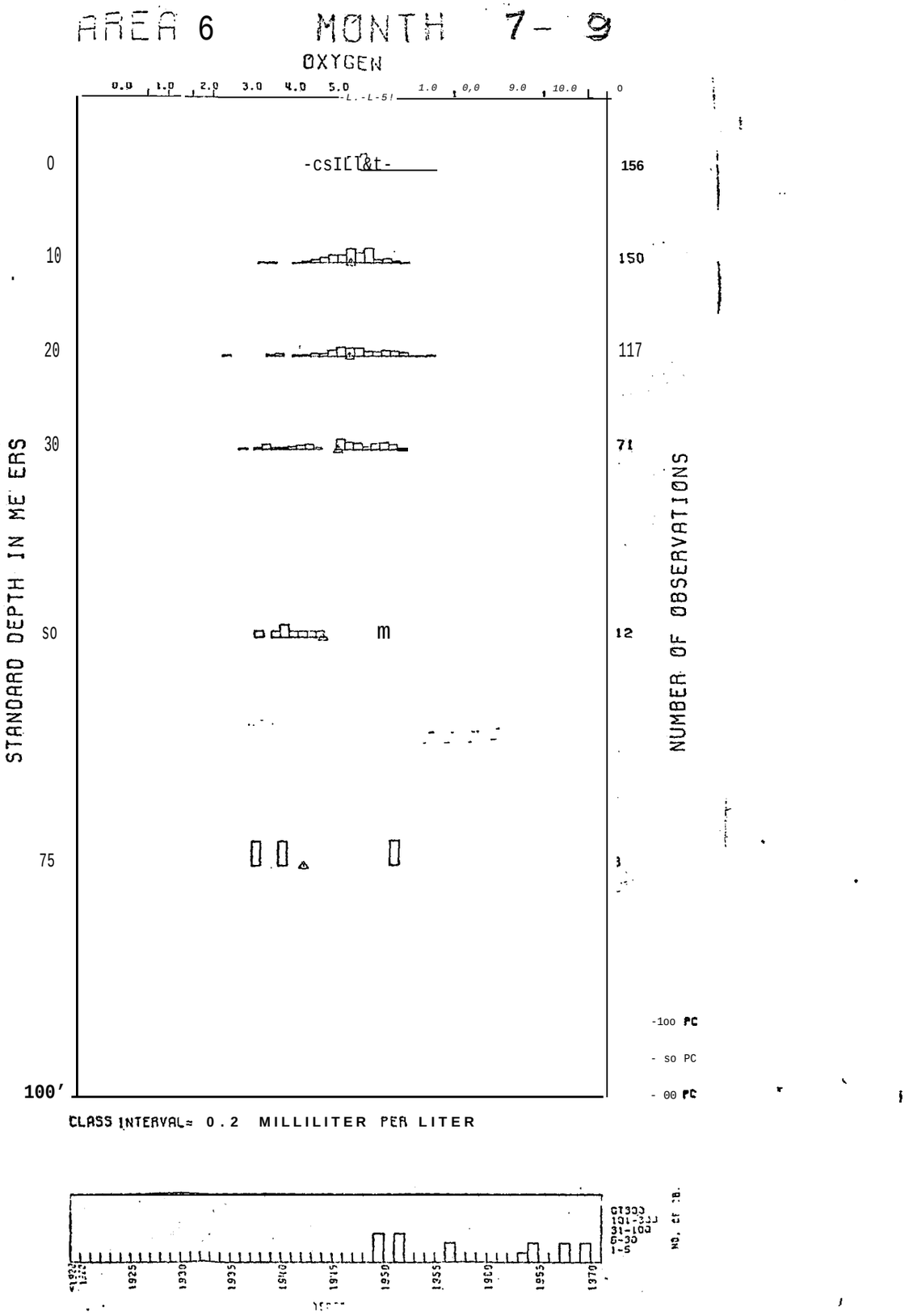
MONTHS 7 9 MONTHS PRESENT 7, 8, 9

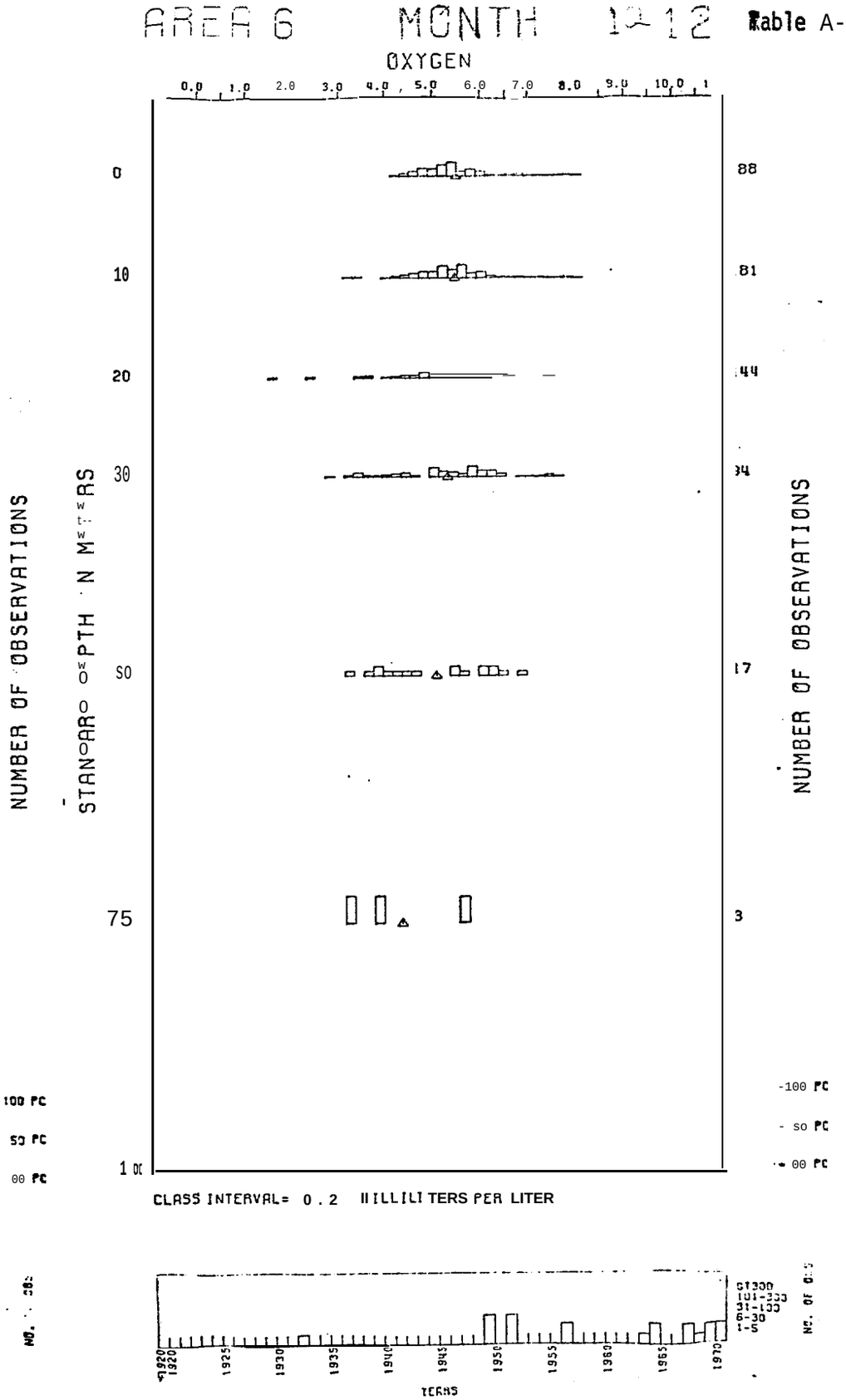
DEPTH	MAX	AVG	MIN	OBS	SDEV
0	7.02	5.26	4.19	158	0.53
10	6.32	5.20	3.25	150	0.53
20	7.08	5.18	1.55	117	0.92
30	6.32	4.93	2.97	71	0.97
50	6.23	4.66	3.14	12	1.13
75	5.69	4.27	3.24	3	1.27

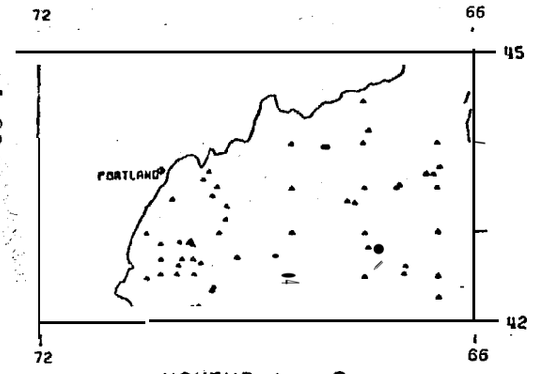
MONTHS 10 1 2 MONTHS PRESENT 11,12

MAX	AVG	MIN	OBS	SDEV
7.12	6.17	5.54	19	0.42
7.08	6.18	5.58	19	0.41
6.98	6.13	5.52	17	0.39
6.75	5.99	5.57	14	0.33
6.33	5.65	5.35	4	0.45

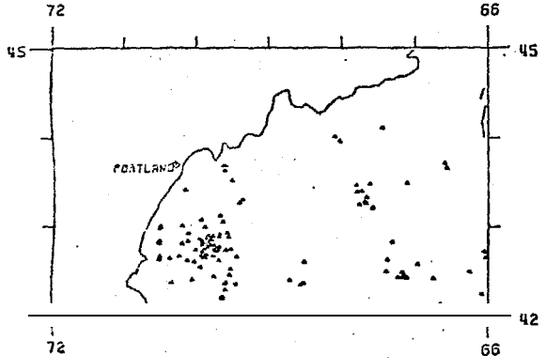
Tab e A-6 Area 6


AREA 6 MONTH 7- 9
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 1.0 0,0 9.0 10.0
0
10
20
30
SO
75
100'
156
150
117
71
12
3
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
m
-100 PC
- so PC
- 00 PC
CLASS INTERVAL= 0.2 MILLILITER PER LITER
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970

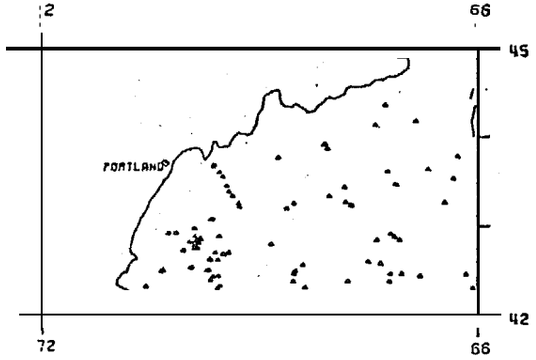

AREA 6 MONTH 12
OXYGEN
0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0
0
10
20
30
50
75
100
88
81
44
34
17
3
NUMBER OF OBSERVATIONS
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
100 PC
50 PC
00 PC
-100 PC
- 50 PC
00 PC
CLASS INTERVAL= 0.2 MILLILITERS PER LITER
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS



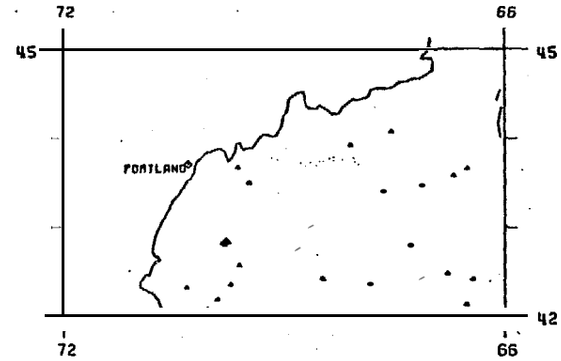
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

AREA 4 BOSTON

42-45N 66-72W

PHOSPHATE

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	1.37	0.93	0.55	75	0.20
10	1.35	0.90	0.55	60	0.21
20	1.30	0.90	0.57	59	0.19
30	1.36	0.91	0.49	59	0.22
50	1.37	0.96	0.55	72	0.22
75	1.38	1.01	0.60	65	0.22
100	1.40	1.06	0.63	58	0.23
125	1.48	1.18	0.72	36	0.22
150	1.61	1.20	0.68	38	0.24
200	1.69	1.34	0.88	31	0.19
250	1.69	1.36	0.82	11	0.26
300	1.57	1.50	1.44	2	0.09

NTHS 4 - 6 MONTHS PRESENT 4, 5, 6

X	AVG	MIN	OBS	SDEV
91	0.48	0.11	139	0.21
01	0.50	0.11	137	0.21
11	0.59	0.15	136	0.19
14	0.71	0.24	114	0.19
27	0.82	0.30	135	0.17
49	0.93	0.52	129	0.15
49	0.99	0.55	109	0.16
63	1.06	0.66	97	0.15
63	1.15	0.62	92	0.18
73	1.33	1.00	83	0.15
18	1.38	1.12	31	0.22
63	1.27	1.16	8	0.15

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	0.80	0.29	0.0	114	0.13
10	0.92	0.30	0.10	114	0.14
20	1.12	0.39	0.10	102	0.19
30	1.26	0.58	0.16	111	0.23
50	1.36	0.81	0.19	112	0.23
75	1.54	0.97	0.23	104	0.26
100	1.61	1.09	0.42	97	0.23
125	1.78	1.19	0.52	77	0.23
150	1.90	1.28	0.89	75	0.21
200	1.79	1.29	0.69	63	0.23
250	1.84	1.26	0.71	24	0.24
300	1.88	1.27	0.64	5	0.45

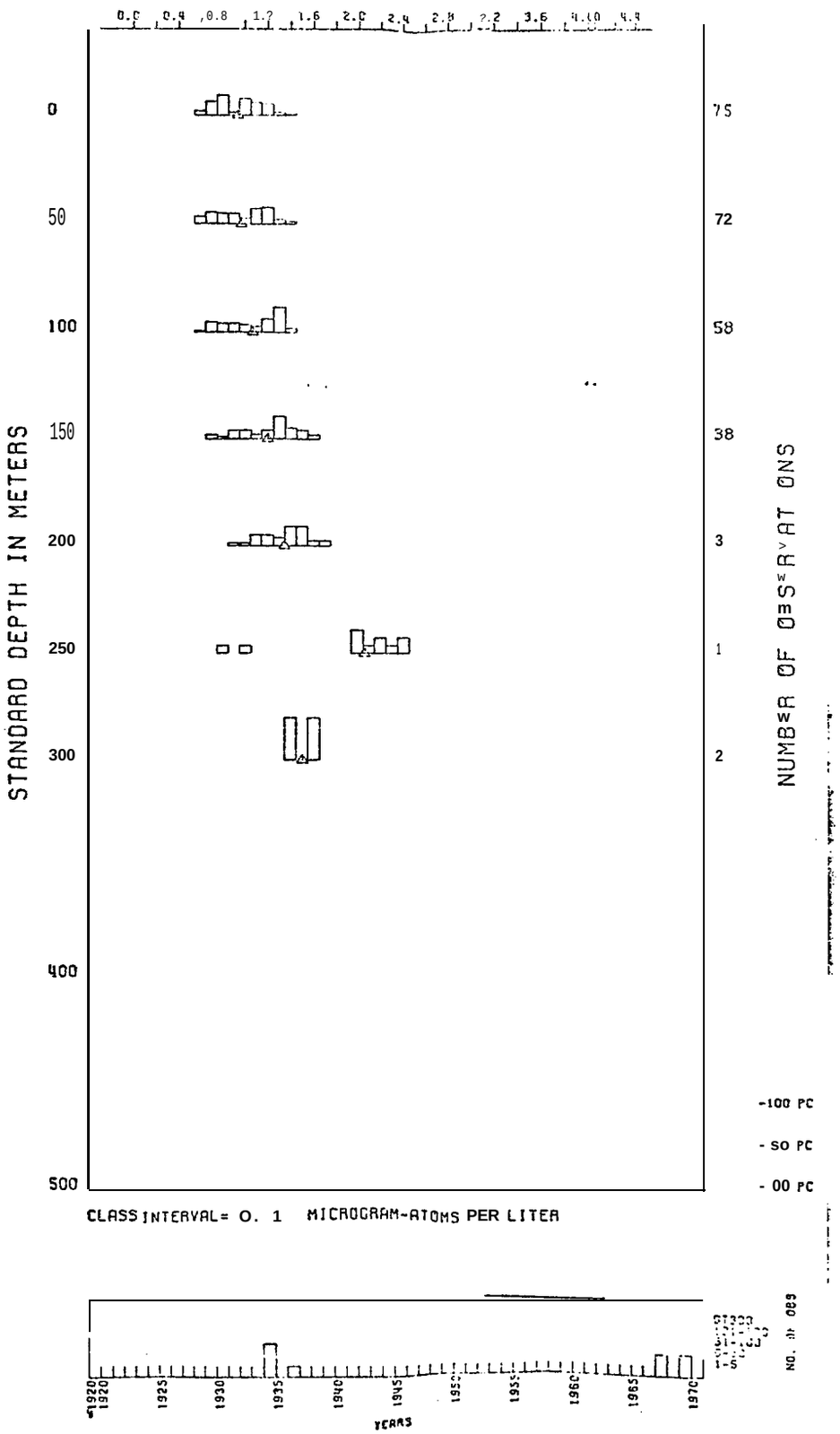
NTHS 10 - 12 MONTHS PRESENT 11,12

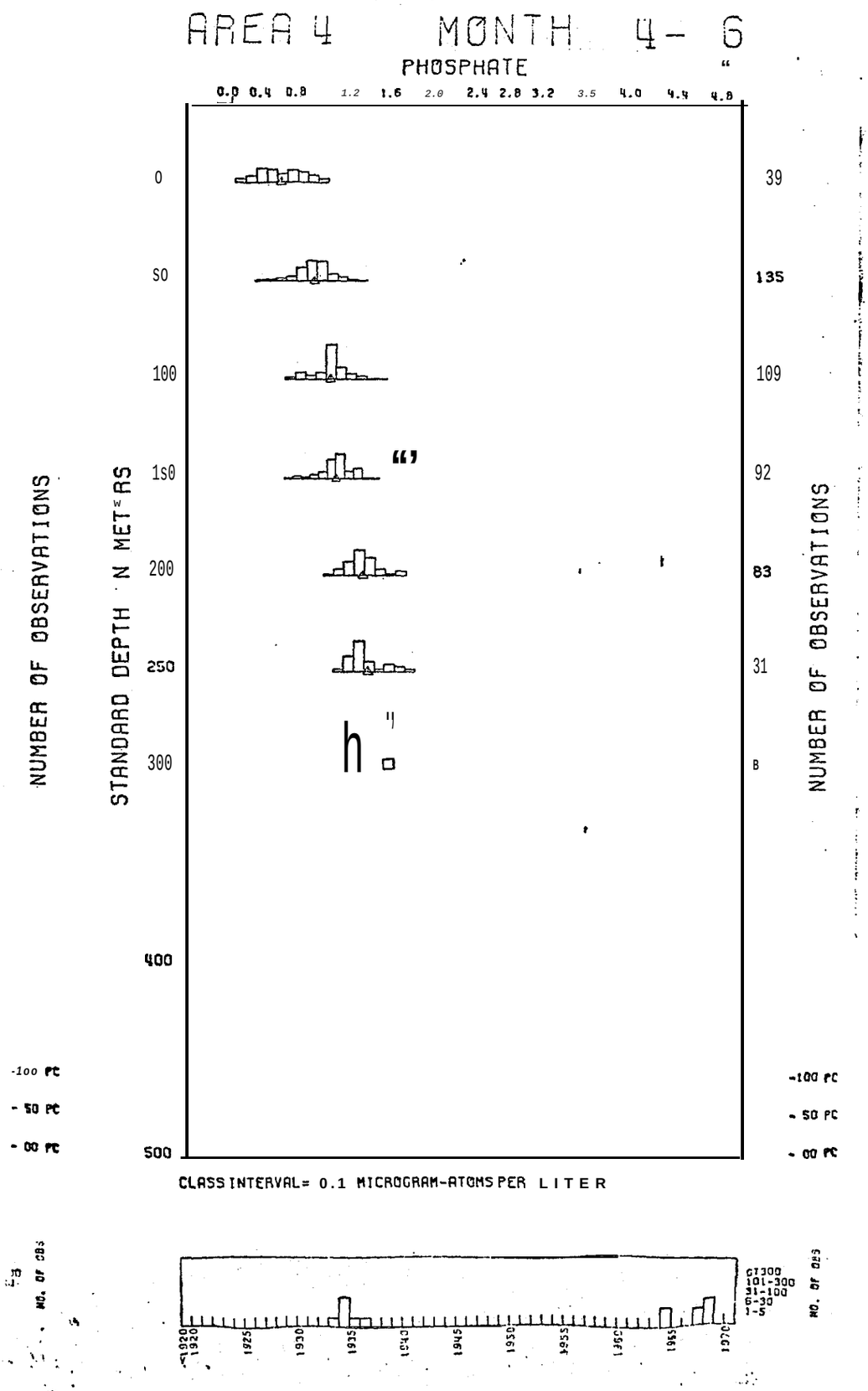
X	AVG	MIN	OBS	SDEV
19	0.85	0.36	28	0.24
18	0.87	0.36	25	0.22
22	0.85	0.36	23	0.23
23	0.88	0.42	26	0.20
28	0.97	0.77	27	0.10
26	1.06	0.97	24	0.09
45	1.17	0.96	22	0.13
44	1.24	1.07	11	0.14
50	1.31	1.08	19	0.11
47	1.34	1.17	17	0.08
51	1.33	1.12	8	0.13
44	1.44	1.44	1	0.0

Table A-7 Area 4

Distribution of stations sea-surface phosphate values.

AREA 4 MONTH 1-3




AREA 4 MONTH 4- 6
PHOSPHATE
0.0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.5 4.0 4.4 4.8
0
50
100
150
200
250
300
400
500
39
135
109
92
83
31
8
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL= 0.1 MICROGRAM-ATOMS PER LITER
NO. OF OBS
GT300
101-300
31-100
6-30
1-5
NO. OF OBS
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970

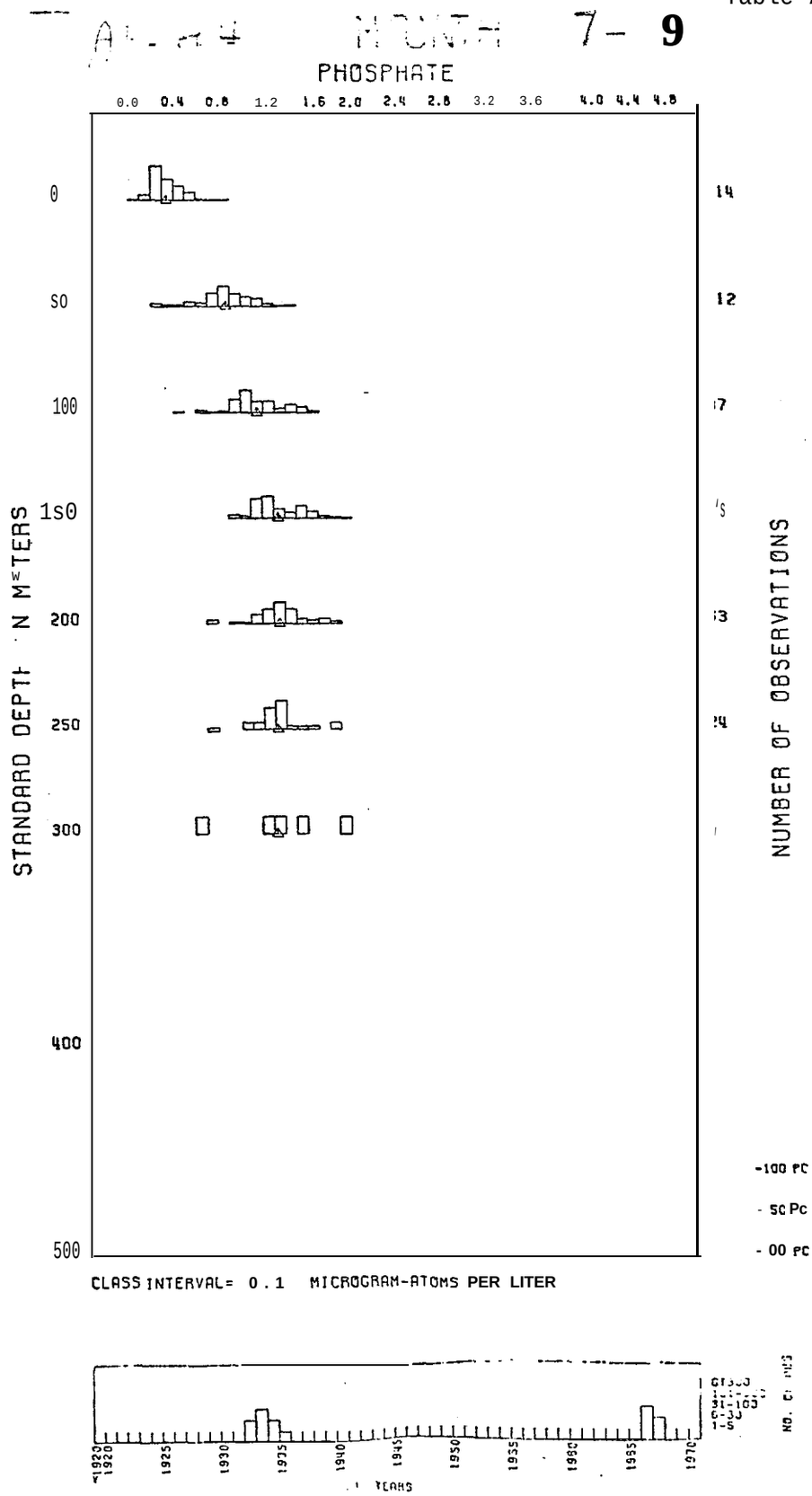
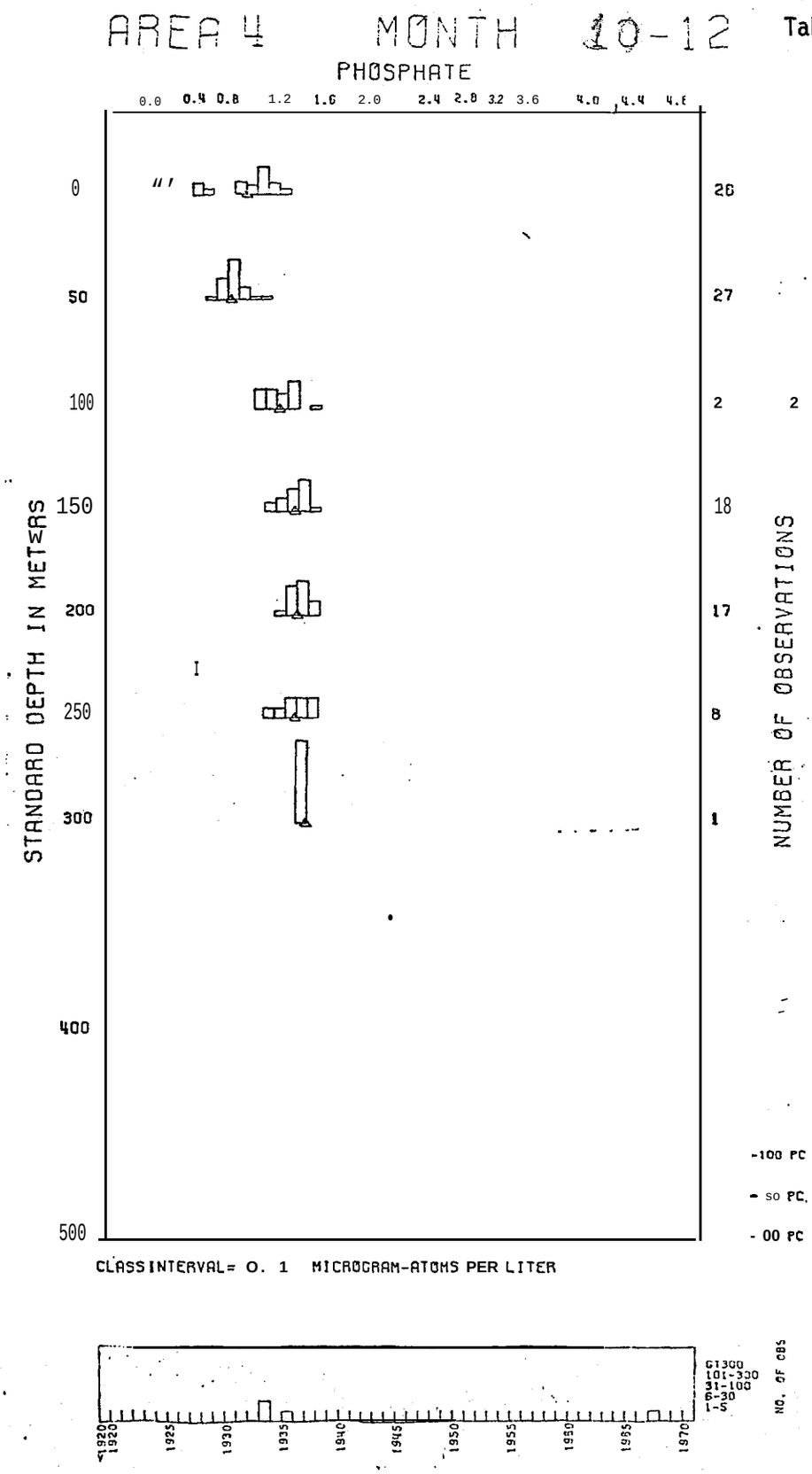
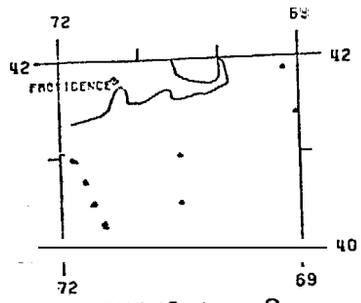
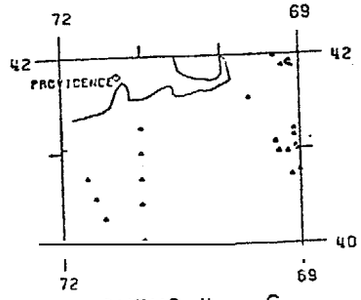

PHOSPHATE
0.0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0 4.4 4.8
0
50
100
150
200
250
300
400
500
STANDARD DEPTH IN METERS
14
12
7
5
3
1
NUMBER OF OBSERVATIONS
CLASS INTERVAL= 0.1 MICROGRAM-ATOMS PER LITER
1920
1925
1930
1935
1940
1945
1950
1955
1960
1965
1970
YEARS

Table A-7 Area 4 (cont.)

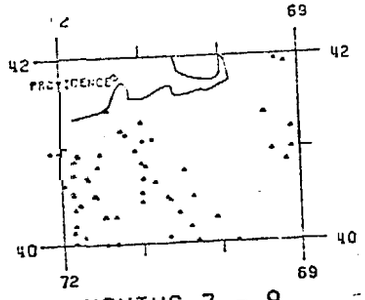




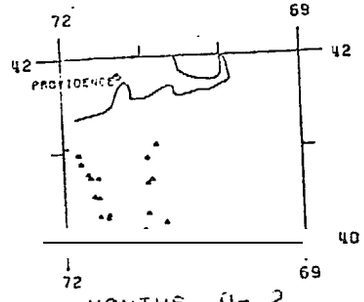
MONTHS - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 0- 2

Distribution of stations reporting sea-surface phosphate val

AREA 5 QUONSET POINT

40-42N 69-72W

MONTHS 1 - 3 MONTHS PRESENT 1, 2, 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	1.14	0.81	0.52	17	0.17
10	1.15	0.79	0.47	19	0.15
20	1.15	0.83	0.46	21	0.19
30	1.03	0.83	0.61	15	0.13
50	1.17	0.86	0.49	16	0.18
75	1.24	0.94	0.59	5	0.25
100	1.34	1.24	1.15	2	0.13
125	1.45	0.98	0.51	2	0.66
150	1.52	1.44	1.37	2	0.10
200	1.49	1.28	1.08	2	0.28

MONTHS 4 - 6 MONTHS PRESENT 4, 5, 6

MAX	AVG	MIN	OBS	SDEV
0.85	0.39	0.16	27	0.15
0.89	0.45	0.20	25	0.19
0.97	0.48	0.13	25	0.22
1.10	0.67	0.29	17	0.25
1.35	0.68	0.19	25	0.27
1.57	0.88	0.35	14	0.33
1.63	1.05	0.23	11	0.32
1.78	1.13	0.32	10	0.34
1.91	1.32	0.13	9	0.23
1.78	1.29	0.98	6	0.31

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	1.30	0.28	0.05	68	0.22
10	1.00	0.27	0.05	66	0.18
20	1.26	0.38	0.08	65	0.22
30	1.01	0.55	0.12	54	0.19
50	1.34	0.80	0.13	52	0.24
75	1.30	0.88	0.31	26	0.25
100	1.40	0.97	0.35	11	0.30
125	1.31	1.16	1.02	6	0.13
150	1.55	1.32	1.09	5	0.18
200	1.83	1.49	1.18	3	0.32
250	1.64	1.64	1.64	1	0.0
300	1.71	1.71	1.71	1	0.0

MONTHS 0 - 2 MONTHS PRESENT 10,1 2

MAX	AVG	MIN	OBS	SDEV
1.08	0.53	0.19	24	0.23
1.09	0.58	0.23	20	0.23
1.15	0.54	0.23	18	0.23
0.99	0.55	0.23	13	0.22
0.98	0.52	0.19	20	0.13
0.98	0.68	0.55	7	0.15
1.12	0.55	0.19	5	0.39
0.77	0.75	0.74	2	0.02
1.40	1.40	1.40	1	0.0
1.44	1.44	1.44	1	0.0
1.00	1.00	1.00	1	0.0
1.45	1.29	1.13	2	0.22

Table A-7 Area 5 (cont.)

Table A-7 Area 5 {cont.)

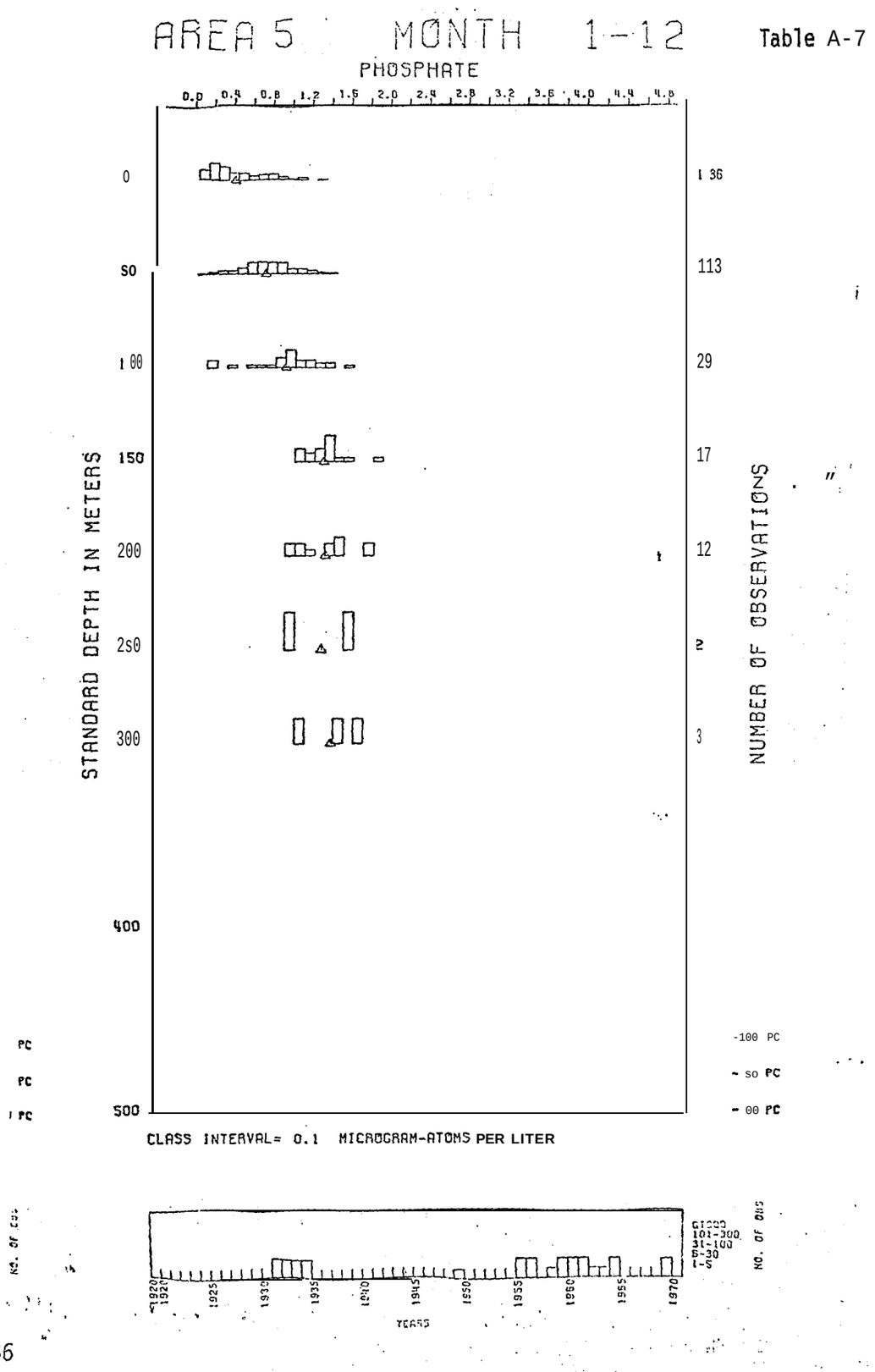


Table A-7 Area 5 (cont.)

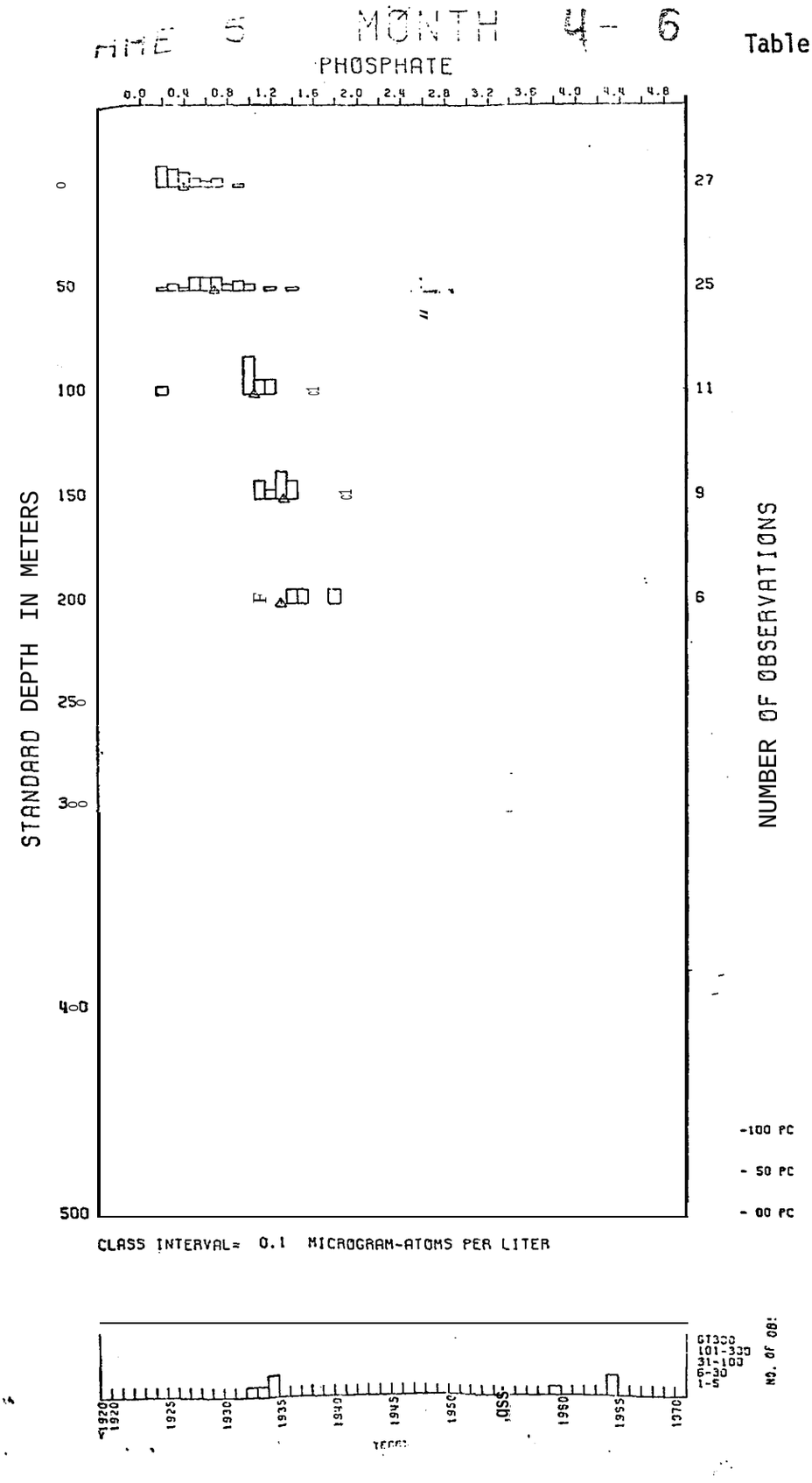


Table A-7 Area 5 (cont.)

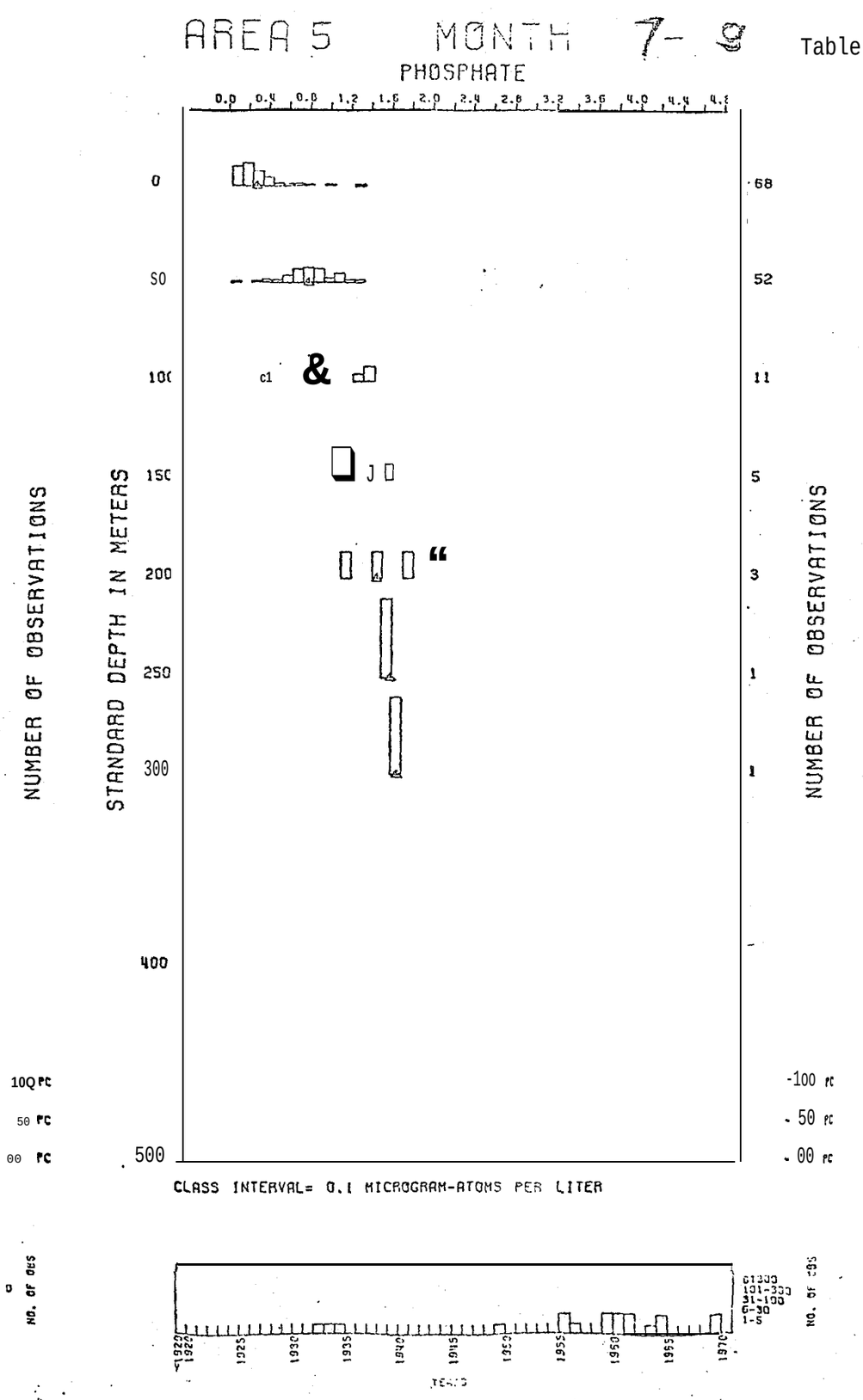
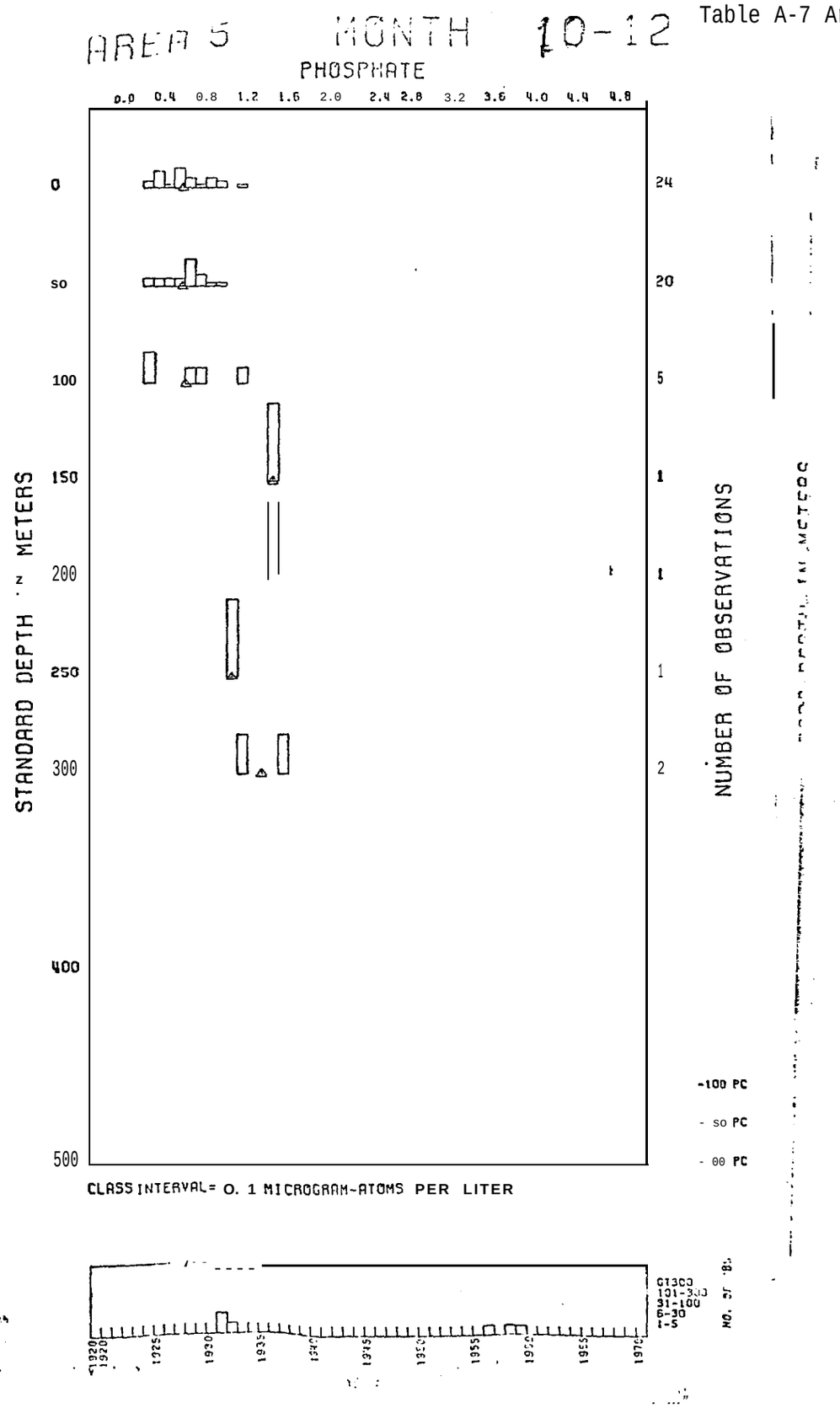
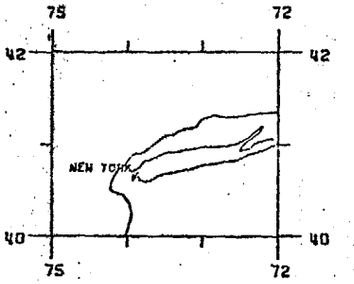
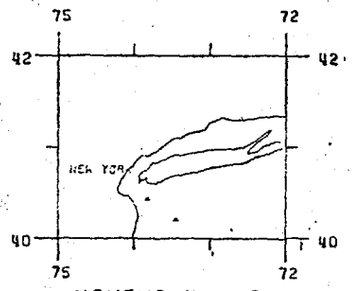


Table A-7 Area 5 (cont.)

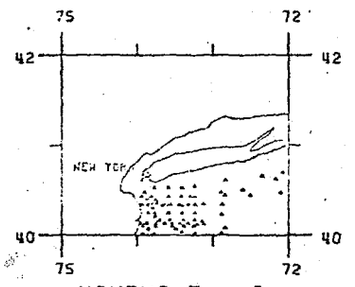




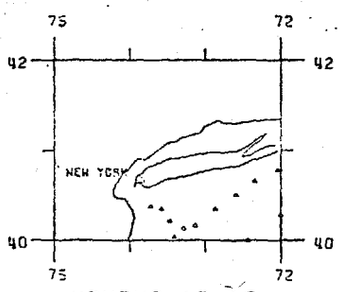
MONTHS 1 - 3



MONTHS 4 - 6



MONTHS 7 - 9



MONTHS 10-12

Distribution of stations reporting sea-surface phosphate values.

AREA 6 NEW YORK

40-42N 72-75W

PHOSPHATE

MONTHS 1 - 3

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	NO DATA AVAILABLE				
10					
20					
30					

MONTHS 4 - 6 MONTHS PRESENT 4

MAX	AVG	MIN	OBS	SDEV
0.19	0.14	0.10	2	0.06
0.19	0.19	0.19	2	0.0
0.26	0.22	0.19	2	0.04
0.35	0.35	0.35	1	0.0

MONTHS 7 - 9 MONTHS PRESENT 7, 8, 9

DEPTH	MAX	AVG	MIN	OBS	SDEV
0	2.57	0.43	0.10	79	0.35
10	1.24	0.43	0.13	79	0.20
20	1.91	0.67	0.19	64	0.32
30	1.67	0.85	0.24	41	0.31
50	1.47	0.87	0.22	21	0.32
75	1.67	1.19	0.69	5	0.42

MONTHS 10 - 12 MONTHS PRESENT 10,12

MAX	AVG	MIN	OBS	SDEV
0.80	0.42	0.13	12	0.24
0.79	0.45	0.10	9	0.28
0.81	0.43	0.10	12	0.28
0.80	0.50	0.19	9	0.23
0.66	0.50	0.26	3	0.21
0.64	0.56	0.48	2	0.11

Table A-7 Area 6

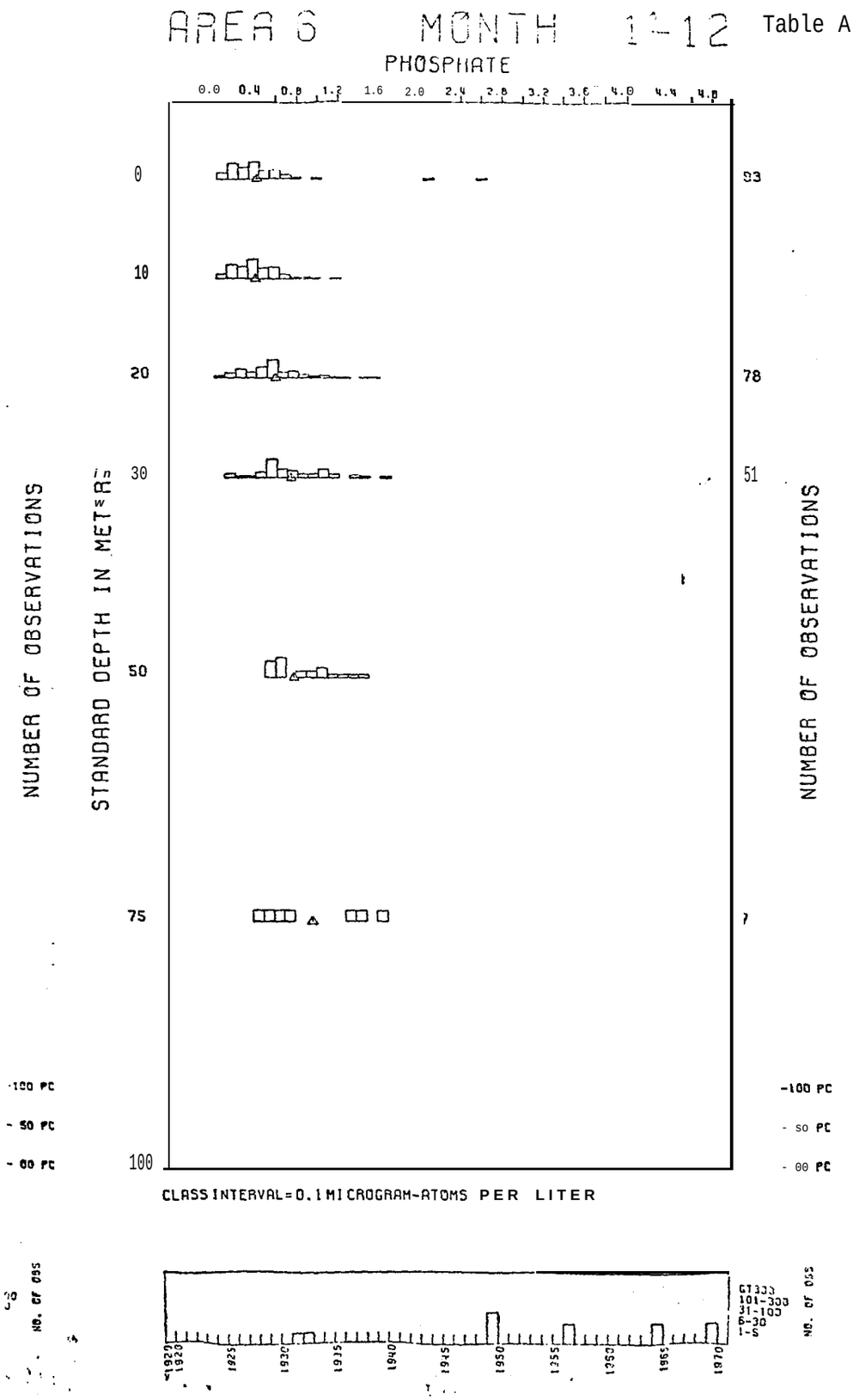

AREA 6 MONTH 11-12
PHOSPHATE
0.0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0 4.4 4.8
0
10
20
30
50
75
100
93
78
51
7
NUMBER OF OBSERVATIONS
STANDARD DEPTH IN METERS
NUMBER OF OBSERVATIONS
-100 PC
- 50 PC
- 00 PC
CLASS INTERVAL=0.1 MICROGRAM-ATOMS PER LITER
NO. OF OBS
1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970

Table A-7 Area 6 (cont.)

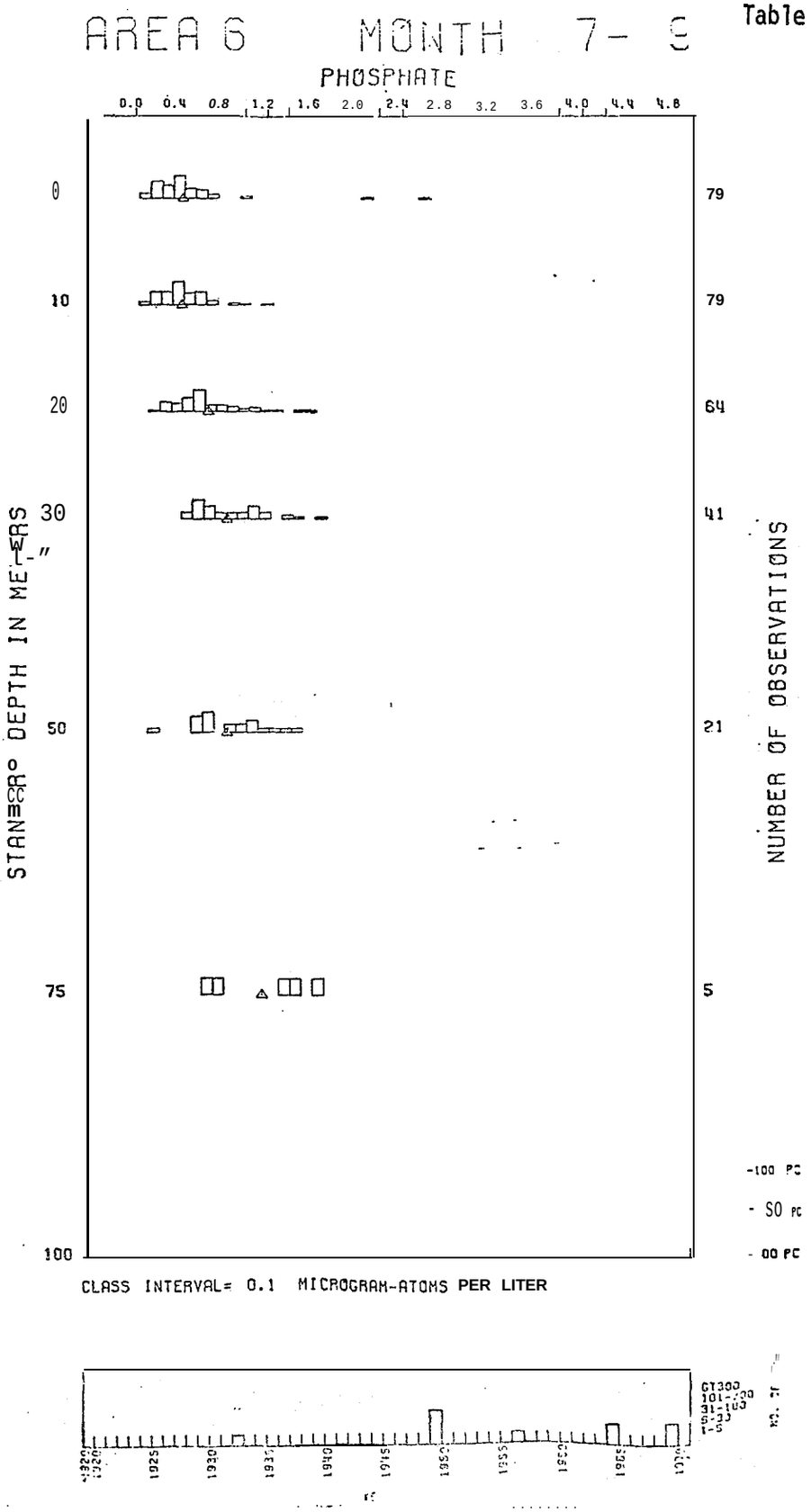


TABLE A - 8 BT TEMPERATURE DATA (NODC)

NODC VERTICAL ARRAY SUMMARY - TEMPERATURE (FROM NODC MECHANICAL BT FILE)

MARSDEN SQ 151 ONE DEG 37 MONTH 2

DEPTH	MAX	AVG	MIN	NUM	SDEV
000	29.?	7.5.5	.27 * 9	1 L	-0.. 4
005	2?.?	28.5	27.9	11	0,4
010	2?-1.2.	28.4	--21- 7	11	0.5
015	29.0	28.2	26.3	11	0.7
020	28.6	27.7	23.5	11	1.4
025	28.4	26.7	22.0	11	2.1
030	28.3	25.2	20.2	11	2.7
035	27.6	23.9	19.5	11	3.1
040	26.7	22.7	19.1	11	3.1
045	25.3	21.4	17.9	11	2.7
050	26.2	20.3	17.1	11	2.2
055	21.8	19.1	16.8	11	1.4
060	18.8	18.0	112.5	11	0.6
065	18.1	17.4	16.4	11	0.5
070	17.5	17.0	16.3	11	0.4
075	17.2	16.7	16.1	11	0.3
080	16.8	L 6.4	15.8	11	0.3
085	16.5	16.2	15.7	11	0.3
090	16.3 16.	0 15.	6	11	0.2
095	16.1	15.8	15.4	11	0.2
100	15 -----	15.6	15.2	1 1	0.2
105	15 15.8	15.5	15.0	1	0*2
110	1537	15.3	14.9	1 L-	0.3
115	15.7	15*1	14.5	11	0.4
120	1:...:15.0		14.4	11	0.4
125	15.4	14*8	14.1	11	0.4
130	15.3	14.7	13.8	11	0.4
135	15.3	14.6	13.7	11	0.5
140	15.2	14.5	13.4	10	0.5
145	15.2	14.4	13.2	10	0.6
150	15.1	14.	13.r	10	0.6
155	15.0	14.0	12.8	10	0.7
160	14.9	13.9	12.7	10	0.7
165	14.8	13.7	12.4	10	0.7
170	14.8	13.6	12.3	10	0.7
175	14.7	13.5	12.2	10	0*7
NO	14.6	13.4	12.1	10	0.7
185	14,5	13*3	11*9	9	0.7
19~lL3		13.3	11.9	9	0.7
195	14,2	13.2	11.8	9	0*7
200	14.0	13.0	11.7	9	0.7
205	13.8	13.1	12.0	8	0.5
210	13.7	13.1	12.8	7	0.3
215	13.7	13.0	12.7	7	0.4
220	13.6	13.1	12.8	4	0.3
225	13.5	13.0	12.7	4	0*3
230	13.3	12.9	12.6	4	0.3
235	13.2	12*7	12.4	4	0.4
240	13.1	12.6	12.3	3	0.4
245	12.9	12.4	12.1	3	0*4
250	12.5	----12.1	11.8	3	0.4
255	1203	11.7	11.3	3	0*5
260	11.9	11.5	11.1	3	0.4
265	11.8	11.5	11.3	2	0.4
270	11.7	11.4	11. L	2	--(lA----
275	11,5	11*5	11.5	1	0*0

TABLE A - 9

SURFACE CURRENT SUMMARY LISTING

Frequency of speed and direction of surface currents computed from set and drift by one degree square and month.

EXPLANATION OF ENTRIES (FROM NODC , 1973)

Symbol

MSQ	Marsden square
DEG SQ	One degree square according to Marsden Square System. Position of a current observation is determined by the computed median position.
M O	M o n t h
DIR	Direction octant to which the current flows. N=338° - 22° etc. Currents of less 'than 0.1 knots are classed under CALM.
Class Intervals	Current speed (knots) in 14 class intervals. Example: Class 0.1 contains all currents of 0.1 and 0.2 knots. Currents of, 4.0 knots and greater are shown under 4.0. The numbers shown are the numbers of observations falling into the respective class of speed and direction.
SUM OBS	The total number of current observations for the one degree square and month is shown in the lower right hand corner under SUM OBS. The' total number falling in each direction category (regardless of speed) are shown in the vertical column on the right. The total number of observations falling in each category of speed are shown in the horizontal row on the bottom.
PCT OBS	SUM OBS expressed as percent of total observations in the one degree square.
MEAN SP	The arthmetric mean speed of all observations in the respective direction class. This and all "other averages are based on the actual values of the individual current observations rather than on class values.
MAX SP	Maximum individual current speed reported for the respective octant .
RC (DIR)	Resultant current direction in degrees. Direction of. the average resultant current vector obtained by arctangent approximation of the eastern and northern average current component. RC(DIR)= Arctan [V(E)/V(N)].

TABLE A -9 (cent'd)

RC (SPEED)	Speed of average resultant current in knots. RC (SPEED) = $\sqrt{V(N)^2 + V(E)^2}$
AVG SPEED	Arthmetric average of current speeds (regardless of direction) in knots.
V(N), V(E)	Average northern and eastern component of resultant current speed. $V(N) = \Sigma$(speed x cos. direction)/no. of observations.

TABLE A-9 SURFACE CURRENT SUMMARY H 1-9

NSQ SEG MO	DIR	CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4*0	SUM OBS	PCT OBS	MEAN SP	MAX SP
151 37 01	SW						0001									00001	050.0	0.4	0.4
	NW			0001												00001	050.0	0.4	0.4
SUM OBS =				0001			0001									00002			
PCT OBS =				50.0			50.0										100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			
151 37 03	NE			0001												00001	100.0	0.2	0.2
SUM OBS =				0001												00001			
PCT OBS =				100.0													100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			
151 37 03	NE						0001									00001	012.5	1.0	1.0
				0001												00003	037.5	0.5	0*7
					0002											00001	012.5	0.1	0.1
						0001										00002	025.0	0.4	0*4
																00001	012.5	0.6	0.6
SUM OBS =				0001	0003	0002	0001	0001								00008			
PCT OBS =				12.5	37.5	25.0	12.5	12.5									100		
RESULT = 7.5				VECTOR (SPEED) = 0.24			AVG. SPEED = 0.50			V(N) = +0.20			V(E) = -0.11						
151 37 04	N			0001												00001	050.0	0.1	0.1
	E					0001										00001	050.0	0.8	0.8
SUM OBS =				0001		0001										00002			
PCT OBS =				50.0		50.0											100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																			

SMALL SUMMARY FOR HI-1 SLT AND DUET DATA
THIS SUMMARY IS FROM ONE DAY.
FOR 1 MONTH AND 3 RECORDS
IN PART IS YOUR COPY OF
PART

TABLE A... - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ SQ	CFG	DIR	CLASS INTERVALS	SUM OBS	PCT OBS	MEAN SP	MAX SP
		CALM	CALM 0002				
151	37	05					
		E	0001	00002	025.0	0.0	0.0
		S	0001	00001	012.5	0.3	0.3
		W	0002	00001	012.5	0.3	0.3
		NW	0001 0001	00002	025.0	0.6	0.6
				00002	025.0	0.4	0.6
		SUM OBS =	0002 0001 0002 0003	00008			
		PCT OBS =	25.0 12.5 25.0 37.5		100		
		RC(DIR) = 257	RC(SPEED) = 0.15 AVG. SPEED = 0.31 V(N) = +0.04 V(E) = -0*14				
151	37	06					
		E	0001 0003	00004	080.0	0.3	0.4
		S	0001	00001	020.0	0.1	0.1
		SUM OBS =	0002 0003	00005			
		PCT OBS =	40.0 60.0		100		
		RC(DIR) = 000	RC(SPEED) = 0.24 AVG. SPEED = .26 V(N) = -0.00 V(E) = +0.24				
151	37	07					
		SE	0001	00001	050.0	0.8	0.8
		SW	0001	00001	050.0	0.8	0.8
		SUM OBS =	0001 0001	00002			
		PCT OBS =	50.0 50.0		100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS					
151	37	10	CALM 0001	00001	020.0	0.0	0.0
		SE	0001	00001	020.0	1.0	1.0
		E	0001	00001	020.0	0.6	0.6
		S	0001	00001	020.0	0.3	0.3
		NW	0001	00001	020.0	1.0	1.0
		SUM OBS =	0001 0001 0001 0002	00005			
		PCT OBS =	20.0 20.0 20.0 40.0		100		
		RC(DIR) = 035	RC(SPEED) = 0.20 AVG. SPEED = 0.58 V(N) = +0.16 V(E) = +0.11				

TABLE A - 9 (cent'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ SQ	DEG MO	DIR	CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3*0	3.5	4.0	SUM OBS	PCT OBS	MEAN SP	MAX 5P
151 37	11	N		0001													00001	020.0	0.1	0.1
		E			0001				0001								00002	040.0	0.9	1.3
		SE			0001												00001	020.0	0.4	0.4
		S						0001									00001	020.0	0.9	0.9
SUM OBS =				0001	0002			0001	0001								00005			
PCT OBS =				20.0	40.0			20.0	20.0									100		
RC(DIR) = 121 RC(SPEED) = 0.46 AVG. SPEED = 0.62 V(N) = -0.24 V(E) = +0.39																				
151 37	12	SW				0001											00001	100.0	0.0	0.0
SUM OBS =						0001											00001			
PCT OBS =						100.0												100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
151 38	01	SE			0001		0001										00002	066.7	0.6	0.8
		S			0001												00001	033.3	0.3	0.3
SUM OBS =					0002		0001										00003			
PCT OBS =					66.7		33.3											100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
151 38	03	NE		0001													00001	033.3	0.2	0.2
		N		0001		0001											00002	066.7	0.4	0.6
SUM OBS =				0002		0001											00003			
PCT OBS =				66.7		33.3												100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
151 38	04	N						0001									00001	100.0	0*9	0*9
SUM OBS =								0001									00001			
PCT OBS =								100.0										100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				

TABLE A.- 9 (cent'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ	DEG	MOD	DIR	C	A	S	S	I	N	T	E	R	V	A	L	S	SUM	PCT	MEAN	MAX
	SQ			CALM	00.1 - 0.3	.5	0.7	0.9	1.1	1.4	1*7	2.0	2.5	3.0	3.5	4.0	OBS	OBS	SF	SP
151	0000	05	SW		0001				0001								00002	066.7	0,0	0.0
			W						0001								00001	033,3	1,2	1.2
		SUM OBS =			0001				0002								00003			
		PCT OBS =			33.3				66.7									100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	38	07	CALM		0001												00001	100.0	0.0	0.0
		SUM OBS =			0001												00001			
		PCT OBS =			100.0													100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	38	09	S			0001											00001	033.3	0.3	0.3
			W			0001	0001										00002	066.7	0.5	0.5
		SUM OBS =				0002	0001										00003			
		PCT OBS =				66.7	33.3											100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	38	09	N				0001										00001	033.3	0.5	0.5
			NE			0001											00001	033.3	0.3	0.3
			E			0001											00001	033.3	0.3	0.3
		SUM OBS =				0002	0001										00003			
		PCT OBS =				66.7	33.3											100		
		LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																		
151	38	11	NE		0001												00001	025.0	0,1	0*1
			S					0001									00001	025.0	0.7	0.7
			W		0001	0001											00002	050.0	0.3	0*3
		SUM OBS =			0002	0001		0001									00004			
		PCT OBS =			50.0	25.0		25.0										1 0 0		
		RC(DIR) = 216 RC(SPEED) = 0.20 AVG. SPEED = 0.33 V(N) = -0.16 V(E) = -0.12																		

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ	DEG SQ	NO	DIR	CLASS INTERVALS CALM 0.1 0.3 0.5 0.7 0,9 1.1 1.4 1.7 2*0 2.5 3.0 3,3 4.0	SUM OBS	PCT OBS	MEAN SP	MAX 5P
151	39	01	N	0001	00001	033,3	0.1	0.1
			NE	0001	00001	033.3	0.3	0s3
			SE	0001	00001	033.3	0.3	0.3
			SUM OBS =	0001 0002	00003			
			PCT OBS =	33.3 66.7		100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS					
151	39	02	N	0001	00001	100.0	0,7	0.7
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS					
151	39	03	NE	0001	00001	100.0	0.8	0.8
			SUM OBS =	0001	00001			
			PCT OBS =	100.0		100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS					
151	39	05	N	0001	0001	025.0		0.5 0.5
			NE	0001	00001	025.0	0.5	0.5
			SE	0001	00001	025.0	1.0	1.0
			SW	0001	00001	025s0	0*5	0.5
			SUM OBS =	0003 0001	00004			
			PCT OBS =	75.0 25.0		100		
151	39	05	CALM 0001		00001	050.0	0.0	0.0
			N 0001		00001	050,0	0.1	0.1
			SUM OBS =	0001 0001	00002			
			PCT OBS =	50.0 50.0		100		
			LESS THAN 4 OBSERVATIONS NO COMPUTATIONS					

TABLE A - 9 (cont'd)

SUBREACH CURRENT SUMMARY H 1-9

															SUM	PCT	MEAN	MAX
	SQ		CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0				
								0001									00001	050.0	1.0	1.0
	PCT					50.0	50.0											100		

[illegible] 4 [illegible] COMPUTATIONS

TABLE A. -9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

| | | |

TABLE A - 9 (cent'd)

SURFACE CURRENT SUMMARY 81-9

MSQ	DEG	MO	DIR	CLASS INTERVALS CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2*0	2.5	3.0	3.5	4.0	SUM OBS	PCT. OBS	MEAN 5P	MAX SP
	SQ																				
151	46	11	E							0-001								00001	033.3	105	1*5
			W						0001									00001	033.3	1.1	1.1
			NW				0001											00001	033,3	0.6	00"6
			SUM OBS =				0001		0001	0001								0 0003			
			PCT OBS =				33.3		33.3	33.3									100		

LESS THAN 4 OBSERVATIONS NO COMPUTATIONS

151	47	34	NE				0001											00001	050.0	0.6	0.6
			W				0001											00001	050.0	0.5	0.5
			SUM OBS =				0002											00002			
			PCT OBS =				100.0												100		

LESS THAN 4 OBSERVATIONS NO COMPUTATIONS

TABLE A--9 (cent'd)

SURFACE CURRENT SUMMARY H 1-9

MSQ SQ	DEG	MO	DIR	C CALM	L 0.1	A 0.3	5 0.5	S 0.	0.9	1 1.1	N 1.4	T 1.7	E 2.0	R 2.5	V 3.0	A 3.5	L 4.0	S	SUM OBS	PCT OBS	MEAN SP	MAX 5P
152	03	01	CALM	0021															00021	011.4	0.0	0.0
			N		0006	0008	0007	0005	0004	0002	0001								00033	017.8	0.6	1.6
			NE		0001	0005	0002	0003											00011	005.9	0.5	0.8
			E		0002	0001	0002	0002	0001										00008	004.3	0.5	1.0
			SE		0001	0003	0005	0002	0004	0003									00018	009.7	0.7	1.3
			S		0006	0021	0015	0008	0007	0002	0002					0001			00062	033.5	0.6	3.6
			SW		0005	0004	0006		0001	0002									00018	009.7	2.0	9.7
			W		0002	0001		0001	0001		0002		0001						00008	004.3	1.0	2.4
			NW		0002					0002	0002								00006	003.2	0.9	1.5
	SUM OBS	=		0021	0025	0043	0037	0021	0018	0011	0007		0001			0001			00185			
	PCT OBS	=		11.4	13.5	23.2	20.0	11.4	09.7	05.9	03.8		00.5			00.5				100		
	RC(DIR)	=	180		RC(SPEED) = 0.15			AVG. SPEED = 0.55				V(N) = -0.15				V(E) = +0.00						
152	03	02	CALM	0020															00020	020.0	0.0	0.0
			N		0002	0004	0001	0003	0002	0002	0001								00015	015.0	0.7	1.5
			NE				0002												00002	002.0	0.5	0.5
			E			0002	0002	0001											00005	005.0	0.5	0.7
			SE		0001	0001	0001			0001									00004	004.0	0.6	1.2
			S		0004	0012	0008	0002	0007	0002	0001	0001	0001						00038	038.0	0.6	2.0
			SW		0002	0001	0002	0001							0001				00007	007.0	3.9	7.7
			W			0001		0001	0001										00003	003.0	0.7	1.0
			NW			0003	0001	0001	0001										00006	006.0	0.6	1.0
	SUM OBS	=		00 0	0019	0024	001	0009	0011	0005	0002	0001	0001		0001				00100			
	PCT OBS	=		20.0	09.0	24.0	17.0	09.0	11.0	05.0	02.0	01.0	01.0		01.0					100		
	RC(DIR)	=	190		RC(SPEED) = 0.16			AVG. SPEED = 0.52				V(N) = -0.16				V(E) = -0.03						
152	03	03	CALM	0033															00033	014.2	0.0	0.0
			N		0008	0016	0013	0001	0005	0001		0001							00045	019.4	0.5	1.8
			NE		0004	0002	0002	0001	0003	0001	0001								00014	006.0	0.6	1.5
			E			0003	0004	0002	0002										00011	004.7	0.6	1.0
			SE		0001	0003	0007	0003	0001	0001									00016	006.9	0.6	1.1
			S		0015	0022	0010	0008	0009	0005	0003	0002	0001						00075	032.3	0.6	2.0
			SW			0003	0005	0006	0002										00016	006.9	2.8	3.7
			W		0001	0003	0004	0001	0001										00010	004.3	0.5	0.9
			NW		0001	0004	0002	0003	0001	0001									00012	005.2	0.6	1.1
	SUM OBS	=		0033	0050	0056	0047	0025	0024	0009	0004	0003	0001						00232			
	PCT OBS	=		14.2	12.9	24.1	20.3	10.8	10.3	03.9	01.7	01.3	00.4							100		
	RC(DIR)	=	171		RC(SPEED) = 0.12			AVG. SPEED = 0.50				V(N) = -0.12				V(E) = +0.02						

TABLE A -.9 (cent'd)

SURFACE CURRENT SUMMARY H 1-9

MSD SQ	DEG	MO	DIR	CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2*G	2.5	3.0	3.5	4.0	SUM OBS	PCT OBS	MEAN SP	MAX SP
152	03	04	CALM	0129														00029	025.4	0.0	0*0
			N		0003	0001	0005	0001	0001	0001	0001							00013	011.4	0.6	1.6
			NE			0004	0001	0002										00007	006.1	0.5	0.8
			E															00009	007.9	0.6	1*3
			SE		0002	0003	0002											00007	006.1	0*3	0*5
			S		0004	0010	0006	0006	0004	0003			0001					00034	029.8	-0.6	2*2
			SW		0003	0001		0002	0001									00007	006.1	1.7	5.1
			W		0001	0001	0002		0001									00005	004.4	0.5	1.0
			NW			0001	0001											00003	002.6	0.5	0.7
	SUM OBS =				0029	0014	0024	0019	0012	0009	0005	0001		0001				00114			
	PCT OBS =				25.4	12.3	21.1	16.7	10.5	07.9	04.4	00.9		00.9					100		
	RC(DIR) = 166			RC(SPEED) = 0.14			AVG. SPEED = 0.43				V(N) = -0.13			V(E) = +0.03							
152	03	05	CALM	0078														00078	028.3	0.0	0.0
			N		0005	0011	0012	0008	0003	0003		0002		0001				00045	016.3	0.7	2.5
			NE			0006	0002					0001						00009	003.3	0.5	1.7
			E		0004	0001	0006	0003	0002	0002								00018	006.5	0.6	1.3
			SE			0004	0002	0001	0002	0001								00010	003.6	0.6	1.2
			S		0014	0016	0015	0006	0006	0006	0003	0002						00068	024.6	0.6	1.9
			SW		0003	0004	0009	0004		0002		0001						00023	008.3	8.4	2.0
			W		0004	0004	0003			0001	0001							00013	004.7	0.5	1.6
			NW		0003	0002	0002	0001	0003		0001							00012	004.3	0.6	1.4
	SUM OBS =				0078	0033	0048	0051	0023	0016	0015	0005	0006	0001				00276			
	PCT OBS =				28.3	12.0	17.4	18.5	08.3	05.8	05.4	01.8	02.2	00,4					100		
	RC(DIR) = 194			RC(SPEED) = 0.07			AVG. SPEED = 0.44				V(N) = -0.06			V(E) = -0,02							
152	03	06	CALM	0027														00027	027.3	0.0	0.0
			N		0003	0004	0001	0001	0004	0001		0001						00015	015.2	0.7	1.7
			NE		0002	0001	0003		0002	0001								00009	00901	0,6	101
			E			0001												00001	001.0	0.4	0.4
			SE			0002		0003										00005	005S1	0,6	0,8
			S		0004	0006	0009	0003	0003				0001					00026	026.3	0.6	2.7
			SW			0003	0002		0001	0002								00008	008.1	7.5	2.4
			W		0001			0001	0001	0001								00.90.4	004.0	0.8	102
			NW		0001	0001	0001			0001								00004	004,0	0.6	1*2
	SUM OBS =				0027	0011	0018	0016	0008	0011	0006		0001	0001				00099			
	PCT OBS =				27,3	11.1	18.2	16.2	08.1	11.1	06.1		01.0	01.0					100		
	RC(DIR) = 276			RC(SPEED) = 0.07			AVG. SPEED = 0.45				V(N) = -0.06			V(E) = -0.03							

TABLE A-9 (CONT'D)

SURFACE CURRENT SUMMARY 0-10

MSQ SQ	DEG	MD	DIR	C CALM	L 0.1	A 0.3	S 0.5	S 0.	I	N	T	E	R	V	A	L	S	SUM	PCT	MEAN	MAX
			N		0004	0008	0010	0001	0002	0002											
			E			0001	0002			0001									00004	003.3	0.3	1.2
			S		0005	0010	0006	0004	0005	0002		0002	0001								
			W				0001												00001	000.8	0.8	0.8
																				005.7	0.7	0.8
	PCT DIS	=	22.4	2	20.0	18.7	11.2	06.5	06.5			01.9	00.9							100		
	RC DIR	=	47°		RC(SPEED	=	0.0	AVG.	SPEED	=	0.47		V(N)	=	-0.08		V(E)	=	+0.01			
			N		0023	0016	0014	0005	0004	0003	0001				0001							
			E		0007	0005	0002												00014	005.8	0.3	0.6
			S		0028	0023	0029	0010	0005	0004	0002	0001										
			W		0004	0002	0002	0003	0002										00013	005.4	0.5	1.0
								3.00														
	PCT DIS	=	09.6	11.7	25.4	27.5	09.6	08.3	05.0	02.1	00.4				00.4					100		
	RC DIR	=	75		RC(SPEED	=	0.09	AVG.	SPEED	=	0.52		V(N)	=	-0.09		V(E)	=	+0.01			
			N		0001	0004	0007	0003	0002	0002									00019	017.1	0.6	1.2
			E		0001	0002	0001	0001											00008	004.5	0.4	0.8
			S		0006	0012	0010	0002	0002	0003					0001				00036	032.4	0.6	1.8
			W			0005	0001												00006	005.4	0.4	0.6
	PCT DIS	=	20.7	28.1	23.4	20.7	10.8	08.1	06.3	00.9					00.9					100		
	RC(DIR)	=	187		RC(SPEED)	=	0.12	AVG.	SPEED	=	0.48		V(N)	=	-0.12		V(E)	=	0.00			

TABLE A - 9 (cent'd)

SURFACE CURRENT SUMMARY H 1-9

MSG SEQ	MO	DIR	CALM 0.1	0.3	0.5	0.7	0.9	1.1	1.4	1*7	2.0	2.5	300	3.5	4.0	SUM OBS	PCT OBS	MEAN SP	MAX SP
[illegible]	[illegible]	10	CALM 21																
		N		0003	0003	0003	0002		0002							00021	022.8	0.0	0.0
		NE		0001	0002	0002	0002	0001								00016	017.4	0.6	1.2
		E			0001		0001									00008	008.7	0.6	1.0
		SE			0002	0001	0001									0 000 2	002.2	0*5	0.7
		S		0006	0003	0009	0006	0004		0002	0001					00004	004.3	0.5	0.8
		SW				0001	0002	0001								00031	033.7	0.6	1.7
		W				0-4	220	03								00004	004.3	3.0	8.5
		NW				0.01										0000.5	005.4	0.5	0.6
																00001	001.1	0.3	0.3
	SUM OBS =		5F21	0010	0014	0019	0017	0006	0002	0002	0001					00092			
	PCT OBS =		22.8	10.9	15.2	20.7	19.5	06.5	02.2	02.2	01.1						100		
	RC(DIR) =		179	RC(SPEED) =		0.12	AVG. SPEED =		0.45		V(N) =		-0.12	V(E) =		+0.00			
152	03	11	CALM 0075													oixo75	029.1	0.0	0.0
		N		0006	0010	0009	0003	0002	0005	0002	0001					00037	014.3	0.6	1.8
		NE		0001	0002	0004	0002	0001	0001							00011	004,3	0.6	1.1
		E		0003	0001	0004	0004	0002	0002	0001						00017	006.6	0*7	I*4
		SE		0001	0004	0004	0002	0003								00014	005.4	0.6	1.0
		S		0015	0023	0017	0006	0006	0002		0001					00070	027.1	0.5	1.9
		SW		0001	0007	0002	0001		0003							00014	005.4	9,6	2.2
		W		0002	0003	0003		0001			0002					00911	004,3	0,7	1.8
		NW		0002		0003	0002		0001		0001					00009	003.5	0.7	1.8
	SUM OBS =		0075	0030	0050	0046	0020	0015	0014	0003	0005					00258			
	PCT OBS =		29.1	11.6	19.4	17.8	07.8	05.8	05.4	01.2	01.9						100		
	RC(DIR) =		157	RC(SPEED) =		0.06	AVG. SPEED =		0.42		V(N) =		-0.05	V(E) =		+0.02			
152	03	12	CALM 0022													00022	026.2	0.0	0.0
		N		0002	0003		0002		0001			0001				00009	010,7	0.7	2.3
		NE		0001	0004	0002	0001	0001	0001			0001				00011	013.1	0.7	2.0
		E		0001	0001											00002	002.4	0.3	0,4
		SE				0001	0001									00002	002,4	0.7	0.8
		S		0003	0006	0005	0003	0005								00022	026,2	0.6	1.0
		SW		0001	0002	0001			0002							00006	007.1	2.7	7.5
		W		0003	0001		0001	0001								00006	007.1	0.4	009
		NW		0-1		0001		0*001		0001						00004	004.8	1.0	1.8
	SUM OBS =		0122	0012	0017	0009	0009	0007	0005		0001	0002				00084			
	PCT OBS =		26.2	14.3	20.2	10.7	10.7	08.3	06.0		01.2	02.4					100		
	RC(DIR) =		144	RC(SPEED) =		0.02	AVG. SPEED =		0.46		V(N) =		-0*02	V(E) =		+0.01			

TABLE A - 9 (cont'd)

SURFACE CURRENT SUMMARY H 1-9

OBS DEG MO DAY	SD	CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4.0	S	SUM OBS	PCT OBS	MEAN SP	MAX SP
152 30 01	N		0001						0002								-D-o 0.03	100,0	1.0	1.5
SUM OBS =			0001						0002								000 03			
PCT OBS =			33.3						66.7									100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
152 30 03	C		0002	0001													00003	060,0	0.2	0.3
	SW									0001							00001	020.0	0.0	0.0
	W		0001														00001	020.0	0,4	0,4
SUM OBS =			0002	0002						0001							00 0-05			
PCT OBS =			40.0	40.0						20.0								100		
RC(DIR) = 224 RC(SPEED) = 0.56 AVG. SPEED = 0,62 V(N) = -0.40 V(E) = -0.39																				
152 30 05	N								"--m	0 1							00001	050.0	1.0	1*0
	E								r)0"31								0 0 0 0	050.0	0.8	0.8
SUM OBS =									0001	0001							00'302			
PCT OBS =									0.0	50.0								100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				
152 30 06	N								0001								00001	025.0	1.2	1.2
	S		0001		0001												00002	050.0	0.4	0.5
	W			0001													00001	025.0	0.3	0.3
SUM OBS =			0001	0001	0001				0001								00004			
PCT OBS =			25.0	25.0	25.0				25.0									100		
RC(DIR) = 332 RC(SPEED) = 0.15 AVG. SPEED = 0.55 V(N) = +0.13 V(E) = -0.07																				
152 30 09	N								0001								00001	100.0	0.6	0.6
SUM OBS =									0001								00001			
PCT OBS =									100.0									100		
LESS THAN 4 OBSERVATIONS NO COMPUTATIONS																				

TABLE A-9 (cent'd)

SURFACE CURPENT SUMMARY H 1-9

MSQ SQ	CEG	MO	DIR	CLASS INTERVALS												SUM 00s	PCT OBS	MEAN SP	MAX SP
			CALM	0.1	0.3	0.5	0.7	0.9	1.1	1.4	1.7	2.0	2.5	3.0	3.5	4*0				
[illegible]		11	CALM													00003	075.0	0.00	0.0
			NOOI													00001	025.0	0*2	0.2
	SUM OBS = 0003 0001															00004			
	PCT OBS = 75.0 25.0																100		

RC(DIR) = 000 RC(SPEED) = 0.05 AVG. SPEED = 0.05 V(N) = +0.05 V(E) = +0.00

Table A - 10 Measurements of currents south of Georges Bank, inshore of Jeffrey's Ledge, and Woods Hole, Massachusetts

2392A	GMT/ 67- VI -17 05.24.00	DT/	5.000	SECONDS	DURATION/	8.70	DAYS	INST. I.D./ M-142
	LOCATION/ 40 10.60 N	70 00.00 w			DEPTH/	49.00	M	VARIABLES/ CVDST			
2392A960	GMT/ 67- VI -17 06.41.00	DT/	960.000	SECONDS	DURATION/	6.50	DAYS	INST. I.D./ M-142
	LOCATION/ 40 10.60N	70 00.00 W			DEPTH/	49.00	M	VARIABLES/ ENDST			
2393	GMT/ 67- VI -17 05.40.00	DT/	5.000	SECONDS	DURATION/	8.90	DAYS	INST. I.D./ M-135
	LOCATION/ 40 10.60 N	70 00.70 W			DEPTH/	67.00	M	VARIABLES/ CVDST			
2393A960	GMT/ 67-VI -20 12.17.00	DT/	960.000	SECONDS	DURATION/	5.61	DAYS	"INST. I.D./ M-135
	LOCATION/ 40 10.60 N	70 00.70 W			DEPTH/	67.00	M	VARIABLES/ ENDST			
2571WA	GMT/ 67- VII-28 13.10.00	DT/	0.500	SECONDS	DURATION/	.85	DAYS	INST. I.D./ W-173
	LOCATION/ 42 59.60 N	70 25.90 W			DEPTH/	.00	M	VARIABLES/ CVDST			
2572A	GMT/ 67- VII-28 14.30.00	D T /	0.500	SECONDS	DURATION/	.25	DAYS	INST. I.D./ H-137
	LOCATION/ 42 59.60 N	70 25.90 W			DEPTH/	12.00	M	VARIABLES/ CVDST			
3211	GMT/ 69- XI -26 14.15.00	DT/	5.270	SECONDS	DURATION/	14.24	DAYS	INST. I.D./ M-220
	LOCATION/ 41 30.43 N	70 39.05 w			DEPTH/	10.00	M	VARIABLES/ CVDST			
3211A225	GMT/ 69- XI -26 16.31.52	DT/	225.000	SECONDS	DURATION/	14.08	DAYS	INST. I.D./ M-220
	LOCATION/ 41 30.43 N	70 39.05 W			DEPTH/	10.00	M	VARIABLES/ DST			

Source: Woods Hole Oceanographic Institution (unpub.)

TABLE A.2-12

INSTITUTION/DEPT				
LAMONT				
PLATFORM/CRUISE NO	SHIP STA NO	CAM STA NO		ACCESS NO
VEMA 27	1	1		06716 "-"
MARSDEN SQUARE	BEGIN DATE	END DATE		
151228	69053"1"			
BEGIN LAT	MID LAT	END LAT		
420300N				
BEGIN LONG	MID LONG	END LONG		
0684200W				
LOC ORIG NEGATIVE LAMONT				
ANAL AVAIL	PHOTO QUAL	B+W/COLOR	COMPASS	CAMERA TYPE
YES	GOOD	B+W	YES	SINGLE LENS
NO BOTTOM PHOTOS	BEGIN DEPTH	END DEPTH	DEPTH RANGE	
0069	2355M			
PHOTO FEATURES				
BIODEBRIS (TRACKS, MOUNDS, SHELLS)				
COMMENTS CORE NO. = 001	CUR MET NO. = 001			

INSTITUTION/DEPT				
LAMONT				
PLATFORM/CRUISE NO	SHIP STA NO	CAM STA NO		
VEMA 02	"	"	"	C E
				04988
MARSDEN SQUARE	BEGIN DATE	END DATE		
152100	530721			
BEGIN LAT	MID LAT	END LAT		
400700N				
BEGIN LONG	MID LONG	END LONG		
0704500W				
LOC ORIG NEGATIVE LAMONT				
ANAL AVAIL	PHOTO QUAL	B+W/COLOR	COMPASS	CAMERA TYPE
YES	GOOD	B+W	NO	SINGLE LENS
NO BOTTOM PHOTOS	BEGIN DEPTH	END DEPTH	DEPTH RANGE	
0001	132M			
PHOTO FEATURES				
BIO DEBRIS (TRACKS, MOUNDS, SHELLS)				

FROM NODC - J. Churgin

TABLE A -13 (From Hathaway, 1971)

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TABLE A-14 ALVIN DIVES

SOURCE: WHOI CORE LAB.

LULU CRUISE/ ALVIN DIVE	DATE	LOCATION	LAT	LONG	DEPTH CORR M
43 / 338	/ /71	Cashes Ledge Cent.	42° 51.0′ N	58° 52.0′ W	108 M
43 / 340	/ /71	Sigsbee Knoll	43° 01.0′ N	69° 06.0′ W	740 M
43 / 342	/ /71	Harry Black Knoll	43° 04.0′ N	69° 15.0′ W	135 M
47 / 348	/ /71	Parkers Ridge N.	42° 43.5′ N	68° 50.6′ W	111 M
47 / 349	/ /71	Parkers Ridge S.	42° 39.3′ N	68° 50.5′ W	75 M
53/ 410	25/ 6/72	Hudson Canyon	39° 31.0′ N	72° 21.0′ W	686 M
53/ 415	29/ 6/72	Hudson Canyon	39° 25.0′ N	72° 09.5′ W	1438 M
54/ 419	/ /72	3 Dory Ridge South Peak	43° 09.5′ N	69° 22.5′ W	130 M
54/ 421	/ /72	3 Dory Ridge Central Peak	43° 11.0′ N	69° 21.0′ W	145 M
54 / 423	/ /72	3 Dory Ridge North Peak	43° 13.0′ N	69° 20.0′ W	136 M
55 / 427	/ /72	Fundy Fault #1	43° 23.0′ N	69° 10.0′ W	93 YDS
55 / 429	/ /72	Cashes Ledge E.	43° 02.0′ N	68° 54.0′ w	137 YDS
55 / 430	/ /72	Cashes Ledge N.	43° 01.0′ N	68° 59.0′ w	107 YDS
55 / 431	/ /72	Cashes Ledge S.	42° 46.0′ N	68° 54.0′ w	84 YDS
57 / 445	8/27/72	Cashes Ledge	42° 50.0′ N	68° 55.0′ w	400 FT
57/ 447	8/30/72	Cashes Ledge	42° 50.0′ N	68° 55.0′ w	453 FT

Source: WHOI, unpub. data

TABLEA - 15

A-114

U. S. NAVAL WEATHER SERVICE COMMAND

SUMMARY OF SYNOPTIC METEOROLOGICAL OBSERVATIONS

SAMPLE TABLES

The formatting, programming and data processing for this summary was sponsored by the Naval Weather Service Command under the direction of NWS ED, Asheville and was prepared by personnel of the National Climatic Center.

[Please disregard data content; this sample is intended only to illustrate format]

TABLE A.2-15 (cent'd)

SUMMARY OF SYNOPTIC METEOROLOGICAL OBSERVATIONS (MONTHLY AND ANNUAL)

The data contained in these rabies were obtained from tape data Family 11 (T DF - 11), Marine Surface observations. TDF - 11 was primarily funded by the Naval Weather Service Command and selected by NWSED Asheville as the most comprehensive collection of marine surface observations from which to developa series of coastal marine summaries. The *source* was punched cards of weather observations taken aboard vessels of varying registry. They were recorded on magnetic tape in a common format. Elements not in WMO code *were* converted to this code where possible. Where this was not possible, the original data were retained within the tape record as supplemental data. A very limited quality control was attempted as the punched cards were converted to taped records and, where possible, missing psychometric data were computed.

Before the tables are prepared, extreme values of selected parameters are scrutinized so that obvious errors can be excluded. This method is necessarily subjective since the only available record of many observations is the punched card from which the tape records were prepared. Frequently there is no concrete evidence to prove or disprove the validity of questionable data.

Also, it should be noted that these data are based upon observations made by ships in passage. Such ships tend to avoid bad weather when possible, thus biasing our data toward good weather samples.

Because the number of observations may vary from one table to the other, no absolute relationship exists between the tables. As an example, air temperature counts for Tables 13 and 17 may not be identical since only observations containing both air temperature and relative humidity were counted in Table 13 and only those with both temperature and air-sea temperature difference were counted in Table 17. No requirement for simultaneous recording of all elements was made.

The primary period of record is that period (extending back in time from the most recent data) during which eighty percent of the total number of observations were recorded. The overall period is the earliest to the latest observed data used in compiling the tables. Tables 18 and 19 were tabulated from source deck 128 only and the overall period indicates the period of record of this data source. The primary period for these tables is not shown.

THE TABLES

Percentage frequencies are computed to hundredths and rounded to tenths. An asterisk (*) indicates percentage frequency > 0 and <.05. A value followed by a plus sign indicates greater than or equal to that value (8+ means 8 or greater). NH = low cloud amount (or middle cloud amount when low clouds are not present). The hours given in this publication are GMT.

Tables 1 through 19 appear in numerical order for each month, with the annual tables appearing after the tables for December. Tables 20 and 21 appear at the end of the entire series, after the annual summary for Table 19. The series of summaries appear in numerical order by area number.

TABLE A.2-15 (cent'd)

Table .19 - Percentage Frequency of Wave Height (feet) vs. Wave Period (seconds). In this table when both sea and swell waves are present in an observation, the higher of the two is used. If both are the same height, the longer period is chosen. When only one of the wave groups is observed, either sea or swell, it is used in the summary. Swell waves are those generated by winds distant from the local area where the observation is taken.

Tables 1-19 appear together for each month and in the annual summary. The following two tables appear at the end of the entire series for each area.

Table 20 - Monthly and Annual Percentage Frequencies and Means of Sea Surface Temperature (°F.).

Table 21 - Monthly and Annual Sea Level Pressures (millibars). This table includes means by hour and for all hours, extreme values with the corresponding dates of occurrence and percentile values.

Note: In this volume, percentage frequencies at specified hours of the day refer to percentages of observations taken at those hours, rather than percentages of observations taken at all hours. Data at adjacent hours are summarized with data at synoptic hours, i.e., data from 02 and 04 GMT are combined with data from 03 GMT.

SSMO's can be prepared for individual 1° x 1° squares or for any des ired marine area as long as the boundaries are specified. The approximate number of observations available within an area of interest will be furnished when desired. Requesters can then decide whether the area contains an adequate number of observations . Inquiries and requests for cost-time estimates should be sent to: Director, NCC, Federal Building, Asheville, N. C. 28801; telephone: AC 704-254-0961.

The Naval Weather Service Command in 1969 began funding a continuing program at the National Climatic Center to publish complete SSMO'S for selected ocean areas. Copies of these publications are available from the National Technical Information Service (NTIS), Springfield, Virginia 22151. Each volume contains a complete set of tables for two or more ocean areas. Information concerning the geographical boundaries for which summaries have been prepared and/or published may be secured from the Director, NCC.

TABLE A--15 (cent'd)

Financing Work for Non-Federal Agencies, Private Firms or Individuals (Including Foreign Countries)

The National Climatic Center, an office of the National Oceanic and Atmospheric Administration in the Department of Commerce, is authorized to perform work for non-federal agencies, when the work load permits, and the customer service involves climatological data. Briefly, the applicable regulations are as follows:

a. All work performed shall be on a reimbursable basis.

b. An obligating document, e.g., Purchase Order, Purchase Requisition or letter, authorizing expenditures for work requested, should be forwarded to the Department of Commerce, National Oceanic and Atmospheric Administration, National Climatic Center, Federal Building, Asheville, North Carolina 28801.

c. For single work requests, the cost of which is estimated at $500.00 or less, the estimated cost will be accepted as a firm cost and the requester wil 1 be billed the quoted price by the National Climatic Center. In exceptional cases where there is an immediate need for the desired data a telephonic commitment by the requester to accept billing will be accepted by the National Climatic Center in lieu of an obligating document.

d. For single work requests, the cost of which is estimated to be in excess of $5.00.00, the requester is required to furnish an obligating document before any work can begin. The customer will be billed for the actual costs of the job by the National Oceanic and Atmospheric Administration Finance Division, Rockville, Maryland. If it becomes evident that additional funds will be required to complete the project, the requester will be advised. The requester will also be advised, as soon as possible, if there is a significant balance remaining, which may be used to finance additional work, if requested.

e. Open accounts may be established to cover a combination of single work requests, the total cost of which is estimated to be in excess of $500.00 each year. This is accomplished by preparing a blanket Purchase Order in an amount covering the cost of anticipated needs for Meteorological and/or Climatological Data for each Fiscal Year (July 1 - June 30). When the account is established, the National Climatic Center will provide the customer a monthly status report showing the approximate costs for data furnished during the month and the approximate balance remaining in the amount contracted. Invoices (Standard Form 1114) covering actual charges for data furnished will be issued by our Finance Division, Rockville, Maryland, as soon as possible after the end of each quarter. There may be minor difference between the costs shown in the status reports prepared by the National Climatic Center and the actual costs billed by the National Oceanic and Atmospheric Administration Finance Division.

National Climatic Center
11/17/72

NOAA Fm 34-310
(11/72)

TABLE A- 16

Machine Produced Index of
MAINE
Hourly
Synoptic
Autographic
ORIGINAL WEATHER RECORDS

This is an ENDEX byproduct

NATIONAL WEATHER RECORDS CENTER
Climatic Information Section
Federal Building
Asheville, North Carolina 28801

Hourly, Synoptic, and Autographic Original Records

for

MAINE

CONTENTS

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1. Introduction

This index has been prepared as a part of ENDEX, the Environmental Data Index Experiment. Its purpose is to automate the indexes of environmental and geophysical data to efficiently serve the needs of atmospheric and earth scientists.

All of the hourly aviation, synoptic, supplementary airways, and similar observations available in manuscript form at the National Weather Records Center are listed in this state index. In deciding about the inclusion of unusual records, those which wouid help in plotting detailed synoptic weather maps were included; those similar to cooperative climatological daily observations were not. Indexes of the latter will be digitized as another project.

Autographic charts and traces have been included in this index, since values of temperature, pressure, wind, humidity and so forth, could be extracted for the kinds of studies this index has been designed to aid.

One of the most valuable parts of this index is the station history information contained in the latitude-longitude and station elevation columns. Many of the earlier station indexes are incomplete in this regard. Extensive research went into the effort to pinpoint the locations of the stations. The assistance of the Weather Bureau Regional Offices in this regard is gratefully acknowledged. Users who find inconsistencies in the station history information are asked to call them to the attention of the Chief, Climatic Information Section, NWRC.

The records covered by this series of indexes form the major file of meteorological data within the United States. Begun by the Army Signal Corps in ihe late 19th century, some of the records have been preserved and passed on by the government agencies that have followed. The records that are filed by the National Archives are not indexed here. Nearly all of those are for the years before 1900.

Copies of the records can be provided at the requester% expense in a number of forms including paper copy, microfilm, microfiche. punched cards and magnetic tape. For costs, or information, write

Director,
National Weather Records Center
Federal Building
Asheville, North Carolina 28801

2. Description of Indexes

Alphabetic

The alphabetic listing utilizes the names of the weather station preparing the observations. This is often the name of the city or community; occasionally, it is the name of a military installation, an airport. or a geographical feature. Cross-referencing has been inserted to help the user. For a given station, the records are listed in time order. When one becomes familiar with the index, this arrangement gives a quick, anti almost pictoria 1, presentation of the weather station activity at each location. Station moves stand out.

By Year
The records are listed from the oldest to the newest to readily show which are available for studies based on many years of data. This arrangement also expedites the selection of records when studying particular storms of the past. By referring to a specific year, all available records can be seen. An interesting feature of this index is the way in which it shows the expansion of the national meteorological network. From few entries per year in the early times, there is a marked increase with the advent of commercial aviation in the 1930 's. The many stations shown during World War II and the post-War era are followed in most states by a shrinkage clue to retrenchment in the more recent times.

By Latitude
This index is abbreviated to give names and station history data for locating weather observing points on a geographical basis. This supplements the map.

By Elevation
This index will aid those looking for observations characteristic of certain altitudes above sea level.

3. Explanation of Entries

Station Name
Long names were abbreviated. Commonly used abbreviations are:

AP, APT	- Airport	Lk	-.Lake
Cty	- City"	LS	- Light Ship/Station
Fld	- Field	Mt	- Mount, Mountain
Ft	- Fort	Nk	- Neck
Hb	- Harbor	Rck	- Rock
Is	- Island	Rvr	- River
LB Sta	- Light Boat Station		

Type
The type of weather station. This is sometimes best described by naming the service which operated the station. Codes used are:

Code	Type of Station	Code	Type of Station
Weather Bureau		Military	
A	Aviation Reports & Coop-A Stations	AAB	Army Air Base
AC	Cooperative Aviation Reports	AAF	Army Air Field
S	Synoptic Reports	AAFB	Auxiliary Air Force Base
SA	Synoptic and Aviation Reports	AB	Air Base (Air Force)
SAC	Cooperative Synoptic and Aviation Reports	AF	Air Force
SC	Cooperative Synoptic Reports	AFB	Air Force Base
WBAS	Weather Bureau Airport Station	AFS	Air Force Station
WBFO	Weather Bureau Forecast Office	ANG	Air National Guard
WBMO	Weather Bureau Meteorological Observatory	ASC	Army
WBO	Weather Bureau Office	MC AF	Marine Corps Air Facility
WBUA	Weather Bureau Upper Air Unit	MCAS	Marine Corps Air Station
		NAAF	Naval Auxiliary Air Facility
Others		NAAS	Naval Auxiliary Air Station
AMOS	Automatic Weather Station	NAF	Naval Air Facility
CAA	Civil Aeronautics Adm. Facility	NAS	Naval Air Station
CG	Coast Guard	NF	Naval Facility
COOP	Cooperative,	NS	Naval Station
FAA	Federal Aviation Agency		
FSS	Flight Service Station		
LAWR	Limited Airport Weather Reporting Station (Tower)		
SAWR	Supplementary Airways Weather Reporting Station		
SPL	Special Purpose Office (Fire weather, temporary observing sites)		

Latitude, Longitude
The coordinates given for the station in the most authoritative documents available to the workers. Given in degrees and minutes.

Elevation
In feet. The height above sea level of the barometer was used if known. The reported station elevations and ground heights at the stations were used as first- and second-alternatiws when necessary.

"Hourly" Records by Month
These are the records usually made for aviation purposes and are the most detailed observations made. Because of their importance, they have been indexed in greater detail than the oilier records. A number entry means that records are on file for that month. The value of the number is a code which tells the number of records observations taken per day.

Code for Observations per Day used in the "Hourly" Records Columns

Blank - No Records
1 - 24 per day
2 - (Not used)
3 - 3 or less obs per day
4 - 4
5 - 5 to 11
6 -12 to 18
7 - 19 to 23
0 - Records on microfilm only. See the film for number of obs per day.

A valuable source of information about data appearing on these forms through the years is: History of Weather Bureau Climatological Record Forms for Surface Synoptic and Airway Observations. (Key to Meteorological Records Documentation No. 2. 2ll) Washington DC, 1964. For sale by the Superintendent of Documents, Washington DC, 20402. Price 40cents.

Number of Months in Year with:
The records in these categories are so voluminous that it was felt an abbreviated index would suffice for nearly all purposes. In these columns, a 12 means that records are on file for every month. A blank means that no records are on file. 08 followed by a group of 12's will nearly always mean that records began in May of the first year and were continuous thereafter. Numbers higher than 50 mean that the records exist only on microfilm. In such cases, 50 has been added to the number of months available for that year.

Synoptic Form
Form 1083. This usually gives 4 observations per day in the special code used for reporting weather internationally. Examples of the forms are given in the publication listed previously under the explanation for "Hourly" records. Intermediate 3-hourly observations are sometimes included on the form; from July 1939 to December 1948 the 3-hourly observations may appear on a companion form (Form 1082). Some stations omitted the nighttime observations. Laymen find these forms difficult to use because of its special coding and the fact that times are often in GMT. "Hourly" records, if available, are usually preferable

Meteorological Summary
Form 1001, and/or 1002, and/or 1014. These are the comprehensive station records kept by first-order Weather Bureau stations from 1892 to 1948. A few stations have continued a modified form. Examples of the forms are given in the publication listed previously under the explanation for "Hourly" records. A similar military record. Form 1, is also indexed under this category.

Barograms
A continuous record of pressure in which the oscillations have been traced by a pen on a moving sheet of paper. In the older records, a l-inch change of pressure was shown as a l-inch change on the chart. Beginning in 1936, the older instruments were replaced by microbarographs which magnified the change 2 1/2 times. At Weather Bureau stations, each chart formerly contained 4 days record. The exact times of pressure changes with squall lines, thunderstorms and other phenomena were hard to read, so the chart commonly in use today is accelerated to rotate once each 12-hours. Two traces appear on each chart since they are changed daily.

Thermograms
A continuous record of temperature. A variety of charts has been used through the years. First-order stations are no longer required to operate thermographs. During the years in which thermograms were considered an official record, they were carefully annotated and the periods are nearly complete. In recent years, some instruments appear to be out of calibration and there are gaps in the series of forms. Most being received now are from cooperative stations that have volunteered their records.

Triple Register
Most of the records indexed under this column are the daily sheets from the station meteorographs, sometimes known also as a quadruple register since they recorded wind direction, wind speed, sunshine and rainfall. The oldest records are from single registers which recorded speed only; from two-magnet registers which recorded wind speed, rainfall and sunshine; and from double registers (anemographs) which recorded wind direction and speed. The most recent records of this type are in the form of long strips torn from continuous rolls in daily increments.

Wind Recorder
These show a continuous trace of wind speed as opposed to the triple register type of equipment which is based on an electrical contact opening and closing with the passage of each mile of wind. These records have not been quality cent rolled and there have been problems of calibration, lack of annotation and improper time registration. Many of the records do not contain direction traces. For some stations, direction and speed are on different rolls.

Humidity Recorder
These are instrument charts which give a measurement of relative humidity or dew point. Those of the hygrothermograph type usually contain an adjoining record of temperature.

TABLE A-16 (cent'd)

Radar Logs

These records give the radar operator interpretation of the echoes seen on his scope. Location, size, shape, movement, intensity and change of intensity are given in code.

4. Acknowledgement

Mr. Howard Edwards was in charge of the conversion of the manual indexes to digital form. and the station history research. He contributed a number of ideas that improved the indexes. Mrs. Carolyn Bradford assisted with the coding and preparation of the station history information. Mr. Frank Norton worked out the techniques of listing the data. The efforts of each of these is appreciated.

William T. Hedge
Project Leader

Table A. - 17

DATA BANKNAME: National Oceanic and Atmospheric Administration DB-3

SPONSOR: Dept. of Commerce
National Oceanic and Atmospheric Administration
Bldg. No. 5, Room 1018, MR-2
Rockville, MD 20852
Chief, Living Marine Resources Div.

PERSON CONTACTED: Dr. Roland F. Smith (301)496-8471
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Coastal Zone Marine Resources (4)
(2) (5)
(3) (6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval X
Correspondence request for search only
On-Line systems Accessibility
Others

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting_	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: Dr. Smith is a ICMAREP member, Dept. of Commerce, Sub-committee Marine Baseline Monitoring (SC/MBM)

(Files being developed; availability schedule.)

From: Interstate Electronics (1973) A-123

Table A - 17 (cent'd)

DATABANK NAME: Environmental Data Service DB-4

SPONSOR: Dept. of Commerce
National Oceanographic and Atmospheric Administration
Environmental Data Service
8060 13th Street
Silver Spring, MD 20910
Director

PERSON CONTACTED: Dr. Tom Austin (310)495-2410
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Environmental Data	(4)
(2) Long Range Planning	(5)
(3)	(6)

SCOPE OF DATA: National ☐ regional ☐ state ☐ other International

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative X
	Abstract /Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION Capability:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS Conducting International and National Water Data Retrieval System Network Planning.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A -17 (cent'd)

DATA BANK NAME: Environmental Index (ENDEX) DB-5

SPONSOR: Dept. of Commerce
National Oceanographic and Atmospheric Administration
Environmental Data Service
Silver Spring, MD 20910
Staff Consultant

PERSON CONTACTED: Mr. Richard Morris (301)495-2415
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Environmental Index (ENDEX)	(4)
(2)	(5)
(3)	(6)

SCOPE OF DATA: National ☒ regional ❑ state •1 other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting_	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: ENDEX is being developed as a referral retrieval system for all NOAA literature.

(Files being developed; availability" schedule.)

From: Interstate Electronics (1973)

Table A-17 (cent'd)

DATA BANK NAME: National Climatic Center DB-6

SPONSOR: Dept. of Commerce
National oceanographic and Atmospheric Administration
Environmental Data Service
Asheville, NC 28801
Director, National Climatic Center

PERSON CONTACTED: Mr. William H. Haggard
(Name) (Telephone)
704-254-0961

DATA BASE ENVIRONMENT:

- Water Data
- Air Data
- Radiation
- Solid Wastes
- Pesticides
- Noise
- Other Weather records

DATA BASE CONTENT:
(File titles)

(1) Climatic publications
(2) Major climatic studies
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☐ regional ☐ state •1 other International

DATA CHARACTERISTICS AND TYPE OF DATA:

- Quantative X
- Narrative
- Abstract/Textual
- Descriptors
- Thesaurus
- Others

DATA BASE DISSEMINATION CAPABILITY:

- Remote Inquiry Terminal Retrieval
- Correspondence request for search only X
- On-Line systems
- Others

Accessibility

USE FORMAT CAPABILITY:

- Terminal print-out
- High speed print-out
- Magnetic tape
- X Y plotting_
- Machine readable
- CRT alpha numeric display
- CRT graphic displays
- Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

- Data base description
- Operators handbook
- System configuration
- Retrieval routines
- Software programs
- Demonstration retrievals
- Others

REMARKS:

(Files being developed; availability schedule.)
From : Interstate Electronics (1973)

Table A - 17 (cent'd)

DATA BANK NAME: National Marine Fisheries Service DB-9

SPONSOR: Dept. of Commerce
National Oceanic and Atmospheric Administration
Sandy Hook Sport Fisheries Marine Laboratory
Highlands, N.J. 07732
Director, Sandy Hook Marine Laboratory

PERSON CONTACTED: Dr. Jack B. Pearce (201)872-0200
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Sewage Sludge Dumping (4)
(2) Shellfish pollution (5)
(3) New York Bight monitoring (6)

SCOPE OF DATA: National X regional ❑ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textlsa!
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alphanumeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973) A-127

Table A -17 (conk'd)

DATA BANK NAME: National Ocean Survey DB-11

SPONSOR: Dept. of Commerce
National Oceanic and Atmospheric Administration
6001 Executive Blvd.
Rockville, MD 20852
Chief, Oceanographic Division, National Ocean Survey

PERSON CONTACTED: Cdr. R, L. Swanson (301)496-3274
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Thermal mapping	(4)
(2) Tide data	(5)
(3) "Current data	(6)

SCOPE OF DATA: National ☐ regional ☒ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative
		Abstract/Textual
		Descriptors
		Thesaurus
		Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval		
Correspondence request for search only	X	
On-Line systems		Accessibility
Others		

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cent'd)

DATA BANK NAME: National Oceanographic Data Center (NODC) DB-13

SPONSOR: Dept. of Commerce
National Oceanic and Atmospheric Administration
National oceanographic Data Center (NODC)
Rockville, MD 20852
Acting Director

PERSON CONTACTED: Mr. Robert V. Ochinero (202} 433-2249
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:

(File titles)

(1) Sea water properties (4)
(2) (5)
(3) (6)

SCOPE OF DATA: National ❑ regional ❑ state •1 other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out X	CRTalpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting_ X	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description X	Software programs
Operators handbook	Demonstration retrievals X
System configuration	Others
Retrieval routines	

REMARKS: Collection, processing, and dissemination of near store data; such as, geological, biological

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A.-17 (cent'd)

DATA BANK NAME: National Oceanographic Data Center - Archive Data Bank DB- 14

SPONSOR: Dept. of Commerce
National Oceanographic and Atmospheric Administration
National Oceanographic Data Center
Rockville, MD 20852
Staff, Data Service

PERSON CONTACTED: Mr. George Heimerdinger (202)426-9044
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X
Air Data
Radiation
Solid Wastes
Pesticides
Noise
Other

DATA BASE CONTENT:

(File titles)
(1) Archive Data Bank
(2) Sea water characteristics
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X Water quality factors: nitrates, silicates, salinity DO, total phosphates, pH, temperature
Narrative
Abstract/Textual
Descriptors
Thesaurus
Others

OATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval
Correspondence request for search only X
On-Line systems
Others
Accessibility

USE FORMAT CAPABILITY:

Terminal print-out
High speed print-out X
Magnetic tape
X Y plotting __ X
Machine readable X
CRT alpha numeric display
CRT graphic displays
Others

EXISTING OATA BASE DOCUMENTATION AVAILABLE:

Data base description
Operators handbook
System configuration
Retrieval routines
Software programs
Demonstration retrievals X
Others

REMARKS: Geographic location retrieval by one degree or ten degree marsden squares .

(Files being developed; availability schedule.)

From: Interstate Electronics (197"3)

Table A - 17 (cent'd)

DATA BANK NAME: World Data Center A, Oceanography DB- 19

SPONSOR: Dept. of Commerce
National Oceanographic and Atmospheric Administration
National Oceanographic Data Center
Rockville, MD 20852
Director, Oceanography Services Division

PERSON CONTACTED: Mr. W. L. Molo (202)426-9052
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:

(File titles)

(1) Observations of Internat'l Research (4)
(2) Vessels (5)
(3) (6)

SCOPE OF DATA: National ❑ regional ❑ state •l other Internat'l

DATA CHARACTERISTICS AND TYPE OF DATA

Quantative	Narrative X
	Abstract/Textual
	Descriptors
	Thesaurus
	Others Internat'l data exchange

DATA BASE DISSEMINATION CAPABILITY:

Remote inquiry Terminal Retrieval
Correspondence request for search only X
On-Line systems Accessibility
Others

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting_	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

from: Interstate Electronics Corporation, 1973

Table A - 17 (cent'd)

DATABANKNAME: Coastal Engineering Research Center (CERC) DB-28

SPONSOR: Dept. of the Army, Corps of Engineers
Coastal Engineering Research Center
5201 Little Falls Road, NW
Washington, DC 20314
Data Base, Supervisor

PERSON CONTACTED: Mr. Ronald Walten (202)282-2558
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X .	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Water quality (4)
(2) Maintains WQ data from (372) stations (5)
(3) Special Chesapeake Bay data (6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others "

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting_	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: Provides water quality monitoring data to EPA STORET file.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A. - 17 (cent'd)

DATABANKNAME: New England Automatic Hydrologic Network DE-29

SPONSOR: Dept. of the Army, Corps of Engineers
Reservoir Control Center
Waltham, MA 02154
Manager

PERSON CONTACTED: Mr. Sol Cooper (617)894-2400 Ex. 627
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Water quality
(2)
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☐ regional ☒ state •l other Several New England states share 5 common drainage basins.

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: Developing an automatic hydrologic remote radio monitoring network. The network has 41 remote reporting stations, 5 remote recording stations and a central control station at Div. HQS
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A -17 (cent'd)

DATA BANK NAME: U.S.Navy - Naval Operations DE-31

SPONSOR: U.S. Navy
Office of the Oceanographer of the Navy
732 N. Washington Street
Alexandria, VA 22314
Capt., U.S. Navy

PERSON CONTACTED: CAPT W. F. Reed (Name) (202)695-6002 (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)
(1) Water Quality (4)
(2) (5)
(3) (6)

SCOPE OF DATA: National ❑ regional ☐ state ☐ other International

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	
		Abstract /Textual	
		Descriptors	
		'Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval			
Correspondence request for search only	x		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out		Machine readable	
High speed print-out		CRT alpha numeric display	
Magnetic tape		CRT graphic displays	
X Y plotting __		Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: CAPT Reed"is on the ICMAREP, Sub-committee Marine Baseline Monitoring (SC/MBM)

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A -17 (cent'd)

DATA BANK NAME: U.S. Navy - Environmental Protection Data Ease DB-32

SPONSOR: U.S. Navy
Navy Environmental Protection Group, OP-45
Pentagon
Washington, DC 20350
CDR CEC USN

PERSON CONTACTED: CDR. J. A. D'Emidio (202) OX7-3639
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data X	Noise
Radiation	Other
Solid Wastes	

OATA BASE CONTENT:
(File titles)

(1) Water Quality Data	(4)
(2) Air Quality Data	(5)
(3)	(G)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting _	Others

EXISTING DATA BASE 5oCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration Retrievals
System configuration	Others
Retrieval routines	

REMARKS: Developing an environmental data center,

(Files being developed: availability schedule.)

From: Interstate Electronics (1973)

Table A – 17 (contd)

DATA BANK NAME: U.S. Navy - Environmental Quality Requirements DB-33

SPONSOR: u.s. Navy
Environmental Quality
732 N. Washington Street
Alexandria, VA 22314
LCDR. USN

PERSON CONTACTED: LCDR. Lawrence Riley (503) 378-3732
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:

(File titles)

(1) Water Quality Data (4)
(2) (5)
(3) (6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting_	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieva l routines	

REMARKS: Member of the ICMAREP, Sub-Committee on Marine Baseline Monitoring (SC/MBM); developing interface U.S. Navy monitoring requirements.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cent'd)

DATA BANK NAME: Naval Weather Service DB-34

SPONSOR: U.S. Navy
Naval Weather Service Command, HQS
Washington Navy Yard, Bldg. 200
Washington, DC 20242
LCDR, Asst. CDR, Command Operations, USN

PERSON CONTACTED: LCDR R. G. Kirk (202)433-3950
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	Pesticides
Air Data	Noise
Radiation	Other Weather
Solid Wastes	

DATA BASE CONTENT:

(File titles)

(1) Weather data	(4)
(2)	(5)
(3)	(6)

SCOPE OF DATA: National [X] regional [ ] state [ ] other [ ]

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote inquiry Terminal Retrieval
Correspondence request for search only X
On-Line systems Accessibility
Others

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting __	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973) A-137

Table A.'- 17 (con-k'd) DB-41

DATA BANKNAME: Geological Survey - Water Resources, National Computer Network

SPONSOR: Dept. of the Interior, Water Resources Div.
U.S. Geological Survey, Rm. ,2227, GSA Bldg.
18th and E NW
Washington, DC 20240
Assistant Chief Hydrologist

PERSON CONTACTED: Mr. George W. whetstone (Name) (202) 343-3792 (Telephone)

DATA BASE ENVIRONMENT:

- Water Data X
- Air Data
- Radiation
- Solid Wastes
- Pesticides
- Noise
- Other

DATA BASE CONTENT:

(File titles)

(1) Water Quality Data (4)
(2) Administrative applications (5)
(3) (6)

SCOPE OF DATA: National ☒ regional ❑ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X Wide range of parameters

Narrative X Water Quality Data
Abstract/Textual
Descriptors Coordination
Thesaurus
Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval X Approximately (50) terminals
Correspondence request for search only X
On-Line systems X
Accessibility
Others Complete system supports 4 regional offices and 50 district offices.

USE FORMAT CAPABILITY:

- Terminal print-out X
- High speed print-out X
- Magnetic tape X
- X Y plotting __
- Machine readable X
- CRT alpha numeric display
- CRT graphic displays
- Others

EXISTING DATA BASE DOCUMENTA'TION AVAILABLE:

- "Database description X
- Operators handbook X
- System configuration
- Retrieval routines
- Software programs
- Demonstration retrievals
- Others

REMARKS: Mr. Whetstone is an ICMAREP member, and the Sub-committee on Marine Baseline Monitoring (SC/MBM). Chairman of the Data Handling Work. Group of the USGS office of Water Data Coordination.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cont'd)

DATA BANK NAME: Catalog of Information on Water Data DB-45.1

SPONSOR: Dept. of Interior
Geological Survey
Office of Water Data Coordination, Room 102
2100 M Street, NW
Washington, DC 20242
Chief, Office of Water Data Coordination

PERSON CONTACTED: Mr. R. H. Langford (202) 343-8565
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Catalog of information about water (4)
(2) (5)
(3) (6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval
Correspondence request for search only
On-Line systems Accessibility
Others Selected magnetic tape and retrievals provided upon request to users.

USE FORMAT Capability:

Terminal print-out	Machine readable
High speed print-out	CRT alpha numeric display
Magnetic tape X	CRT graphic displays
X Y plotting —	Others Four catalogs

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others Four catalogs
Retrieval routines	

REMARKS: There are (4) catalogs "Water Quality", "Surface Water", "Ground Water", "Aerial Investigations". There are matching maps with monitoring station locations.
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A -17 (cont'd)

DATA BANK NAME: National Park Service DB-49

SPONSOR: Dept. of the Interior
National Park Service
Washington, DC 20240
Chief, Water Resources Division

PERSON CONTACTED: Mr. Manual Morris (202)343-3951
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:
(File titles)

(1) Park Conservation (4)
(2) Thermal discharge impact studies (5)
(3) (6)

SCOPE OF DATA: National X regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative X
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote inquiry Terminal Retrieval	
Correspondence request for search only X	
On-Line systems	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed 'print-out	CRT alpha numeric display
Magnetic tape	CRT graphic displays
X Y plotting_	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: A special thermal dispersal study entitled "Hydro Study of Biscayne Bay, Miami" has been completed.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A – 17 [cent'd)

DATA BANK NAME: EPA - Solid Waste Management Program (SWIRS) DB-59

SPONSOR: Environmental Protection Agency
Technical. information Office
5600 Fishers Lane
Rockville, MD 20852
Director, Office of Solid Waste Management Program

PERSON CONTACTED: Mr. John A, Connolly [301] 443-1824
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes X	

DATA BASE CONTENT:
(File titles)

(1) Solid Waste Information	(4)
(2)	(5)
(3)	(6)

SCOPE OF DATA: National ☒ regional ☐ state •1 other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	Narrative X
	Abstract/Textual X
	Descriptors
	Thesaurus
	Others "

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval
Correspondence request for search only X
On-Line systems Accessibility
Others Literature searches

USE FORMAT CAPABILITY:

Terminal print-out	Machine readable
High speed print-out	CRT alphanumeric display
Magnetic tape	CRT graphic displays
X Y plotting_	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

DATA SANK NAME, EPA - Office of Water Programs, Marine Baseline Planning

SPONSOR: Environmental Protection Agency
Office of Water Programs
Division of Applied Technology
Crystal Mall, Bldg. 2, Room 906
Arlington, VA 20460
Chief, Water Quality Protection Branch

PERSON CONTACTED: T. Allen Wastler (703)557-7634
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:

(File titles)

(1) Municipal Sewage Treatment Waste Discharge
(2) Water Quality- STORET
(3) Industrial Discharge Points
(4) Construction Contract Grants
(5) Fish Kill
(6) Beach Closure

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative X "
	Abstract/Textual X
	Descriptors,
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval x TSO System (Time Sharing Option)
Correspondence request for search only
On-Line systems X Accessibility
Others

USE FORMAT CAPABILITY:

Terminal print-out	X	Machine readable	X
High speed print-out	X	CRT alpha numeric display	
Magnetic tape	X	CRT graphic displays	
X Y plotting	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: Mr. Wastler is chairman of the Interagency committee for Marine Environmental Prediction (ICMAREP) Sub-Committee Marine Baselines and Monitoring (SC/MBM).

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A --17 (cent'd)

DATA BANKNAME: EPA - Water Quality Protection - Data Processing DB-61

SPONSOR: Environmental Protection Agency
Office of Water Programs
Applied Technology Division
Crystal Mall, Bldg. 2, Room 906
Arlington, VA 20242
Supervisor, Water Quality Data Processing

PERSON CONTACTED: Mr. Paul Thorpe (703)557-6024
(Name) (Telephone)

OATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation	X	Other	
Solid Wastes	X		

DATA BASE CONTENT:
(File titles)
(1) National Estuarine Inventory (NEI) (4)
(2) Dun and Bradstreet file (5)
(3) Office of Water Data Coordination - Dept. of Interior (OWDC) (6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

OATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	Provides data resources: USGS, Bureau of Census, and others.

DATA BASE DISSEMINATION CAPABILITY:
Remote Inquiry Terminal Retrieval
Correspondence request for search only X
On-Line systems Accessibility
Others

USE, FORMAT CAPABILITY:

Terminal print-out		Machine readable	X
High speed print-out		CRT alpha numeric display	
Magnetic tape	X	CRT graphic displays	
X Y plotting	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description		Software programs	
Operators handbook		Demonstration retrievals	
System configuration		Others	
Retrieval routines			

REMARKS: Provides the data processing support of the EPA computer systems.

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

DATA BANKNAME: EPA - Technical Data and Information Branch, National Water File

SPONSOR: Environmental Protection Agency
Office of Water Programs
Applied Technology Division
Crystal Mall, Bldg. 2, Room 923
Arlington, VA 20460
Chief, Technical Data and Information Branch

PERSON CONTACTED: Mr. George F. Wirth (703)557-7446
(Name) (Telephone)

DATABASE ENVIRONMENT:

Water Data X	Pesticides
Air Data	Noise
Radiation X	Other
Solid Wastes X	

DATA BASE CONTENT:

(File titles)

(1) Water Quality properties (STORET)
(2) Municipal Waste Discharge
(3) Industrial Discharge Points
(4) Construction Contract Grants
(5) Fish Kill
(6) State, County boundaries with overlay of sewage treatment.

SCOPE OF DATA: National ☒X regional ☐ state ☐ other There are over 130 terminals in the EPA system from coast to coast.

UATA CHARACTERISTICS AND TYPE OF DATA:

Quantative X	Narrative X
	Abstract/Textual
	Descriptors
	Thesaurus
	Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval x TSO System (Time Sharing Option)
Correspondence request for search only option of the requestor.
On-Line systems X Accessibility'
Others

USE FORMAT CAPABILITY:

Terminal print-out X	Machine readable X
High speed print-out X	CRT alpha numeric display being evaluated
Magnetic tape x	CRT graphic displays
X Y plotting_ x	Others

EXISTING DATABASE DOCUMENTATION AVAILABLE:

Data base description X	Software programs
Operators handbook X	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: Under development River Mapping Index (RMI)-AUTOMAP; Refuse Act Permit Plan (RAPP); Thermal. discharge points; Water quality standards and specifications.
(Files being developed; availability schedule.) '-

From: Interstate Electronics (1973)

Table A. – 17 (cent'd)

DATA BANK NAME: EPA Water Quality File - STORET DB-64

SPONSOR: Environmental Protection Agency
Office of Water Programs
Applied Technology Division
Crystal Mall, Building 2, Room 211
Arlington, VA 20460
Chief, STORET Assistance Section

PERSON CONTACTED: Mr. C. Sam Conger (703] 557-'1580
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data x Water Quality	Pesticides
Air Data	Noise
Radiation	Other
Solid Wastes	

DATA BASE CONTENT:

(File titles)

(1) Water Quality file - STORET (4)
(2) Water Quality Training Handbook (5)
(3) (6)

SCOPE OF DATA: National ☒ regional ☒ state ☒ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative Inland and coastal water quality properties - physical, chemical and biological.

Narrative
Abstract/Textual
Descriptors
Thesaurus
Others

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	X TSO System (Time Sharing Option)
Correspondence request for search only	Option of the requestor.
On-Line systems X	Accessibility
Others	

USE FORMAT CAPABILITY:

Terminal print-out x	Machine readable x
High speed print-out x	CRT alpha numeric display
Magnetic tape x	CRT graphic displays
X Y plotting X at the EPA central computer	Others

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description X	Software programs
Operators handbook X	Demonstration retrievals x
System configuration	Others Recent software changes have resulted in plans to revise the existing operators handbook.
Retrieval routines X	

REMARKS: Existing heavy STORET user retrieval demands and the resultant backlogs have reduced quick response terminal retrievals. Many STORET users request remote batch entry retrievals, and receive subsequent high speed print out at the system center,
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A - 17 (cent'd)

DATA BANK NAME: EPA - Refuse Act Permit File (RAPP) DB- 65

SPONSOR: Environmental Protection Agency
Office of Water Programs, Applied Technology Div.
Crystal Mall. Bldg. 2, Room 291
Arlington, VA 20460.
Chief, Data and Information Services

PERSON CONTACTED: Mr. Jesse L. Lewis (703)557-7637
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	X	Pesticides	
Air Data		Noise	
Radiation	x	Other	Thermal levels
Solid Wastes			

DATA BASE CONTENT:

(File titles)

(1) Refuse Act Permit file (RAPP) (4)
(2) Thermal discharge file (5)
(3) (s)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	x	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal Retrieval	X TSO System (Time Sharing Option)		
Correspondence request for search	x		
On-Line systems		Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out	X	Machine readable	x
High speed print-out	X	CRT alpha numeric display	
Magnetic tape	x	CRT graphic displays	
X Y plotting	X	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: Thermal discharge data and Refuse Permit Data is being prepared for TSO system file creation

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A – 17 (cent'd)

DATA BANK NAME: EPA Municipal and Industrial Discharge Data Div. DB-66

SPONSOR: Environmental Protection Agency
Office of Water Programs, Applied Technology
Crystal Mall, Bldg.-2
Arlington, VA 20460
Chief, Data Operations and Service

PERSON CONTACTED: Mr. Phillip L. Taylor (703)557-3490
(Name) (Telephone)

DATA BASE ENVIRONMENT:

Water Data	x	Pesticides	
Air Data		Noise	
Radiation		Other	
Solid Wastes			

DATA BASE CONTENT:
(File titles)
(1) Municipal Sewage Treatment Data (4)
(2) Industrial discharge data (5)
(3) AUTO MAP (6)

SCOPE OF DATA: National X regional ☐ state •1 other

OATA CHARACTERISTICS AND TYPE OF DATA:

Quantative	X	Narrative	X
		Abstract/Textual	
		Descriptors	
		Thesaurus	
		Others	

DATA BASE DISSEMINATION CAPABILITY:

Remote Inquiry Terminal R etrieval	X	Uses TSO system	
Correspondence request for search only			
On-Line systems	X	Accessibility	
Others			

USE FORMAT CAPABILITY:

Terminal print-out	X	Machine readable	X
High speed print-out	X	CRT alpha numeric display	
Magnetic tape	x	CRT graphic displays	
X Y plotting _	x	Others	

EXISTING DATA BASE DOCUMENTATION AVAILABLE:

Data base description	Software programs
Operators handbook	Demonstration retrievals
System configuration	Others
Retrieval routines	

REMARKS: AUTOMAP is under development to provide digitized river bank locations per River Mileage Index and geographically plot state, county and river basin lines with overlay of discharge data.
(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

Table A. --17 (cent'd)

DATA BANK NAME: Smithsonian Center for Short-Lived **Phenomena** DB-69

SPONSOR: Office of Environmental Sciences
Smithsonian Institution
60 Garden Street
Cambridge, MA 02138
Director, Center for Short-Lived Phenomena

PERSON CONTACTED: Mr. Robert Citron (617)864-7911
(Name) (Telephone)

DATA BASE ENVIRONMENT:

- Water Data
- Air Data
- Radiation
- Solid Wastes
- Pesticides
- Noise
- Other A wide range of environmental data.

DATA BASE CONTENT:

(File titles)

(1) Complete descriptions of natural disasters
(2)
(3)
(4)
(5)
(6)

SCOPE OF DATA: National ☒ regional ☐ state ☐ other

DATA CHARACTERISTICS AND TYPE OF DATA:

- Quantative
- Narrative X
- Abstract/Textual X
- Descriptors
- Thesaurus
- Others

DATA BASE DISSEMINATION CAPABILITY:

- Remote Inquiry Terminal" Retrieval
- Correspondence request for search only X
- On-Line systems
- Others

Accessibility

USE FORMAT CAPABILITY:

- Terminal printout
- High speed print-out
- Magnetic tape
- XY plotting_
- Machine readable
- CRT alphanumeric display
- CRT graphic displays
- Others

EMSTING DATA BASE DOCUMENTATION AVAILABLE:

- Data base description
- Operators handbook
- System configuration
- Retrieval routines
- Software programs
- Demonstration retrievals
- Others

REMARKS:

(Files being developed; availability schedule.)

From: Interstate Electronics (1973)

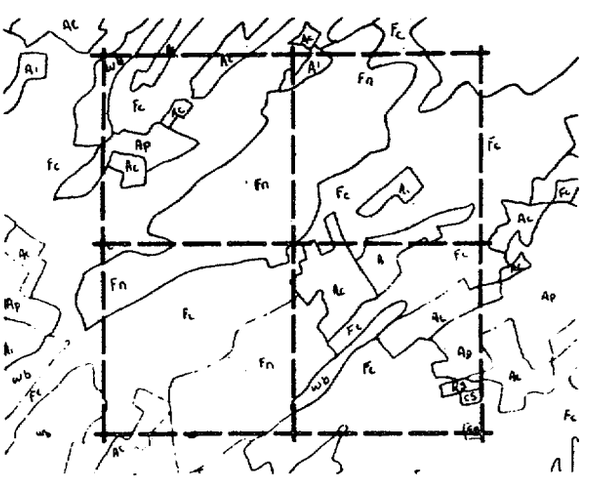
TABLE A - 18

LUNR

Land Use and Natural Resource Inventory of New York State.

what it is and how it is used

This paper has been prepared to assist planners, governmental officials and interested citizens to make use of a valuable information source developed and made available by New York State.



STATE OF NEW YORK
NELSON A. ROCKEFELLER, GOVERNOR
OFFICE OF PLANNING SERVICES
RICHARD A. WIEBE, DIRECTOR
488 BROADWAY
ALBANY, NEW YORK 12207
MAY 1972

WHAT ITIS: The Land Use and Natural Resource 'Inventory is an information system showing detailed land uses, plotted on maps and coded for computer data handling, for all of New York State.

WHY IT WAS DONE: Late in 1966, Governor Rockefeller requested the Office of Planning Coordination, with the cooperation and coordination of other interested agencies, to develop a natural resource inventory of the state. The need for such an inventory had become evident. Earlier research by OPC turned up only spotty information of this type on a statewide basis. What had been gathered varied widely as to dates and could often not be compared because classification systems were incompatible.

SOURCE "OF INFORMATION: Aerial photography, supplemented by existing maps, field checks and current reports. Initial upstate area flights were made in the spring of 1967, but most of the photos were taken in the spring of .1968. Long island and New York City were photographed in 1969 and 1970.

MAPS: Two types of transparent overlays at a scale of 1:24,000 (1 inch = 2000 feet). outlining 51 categories of land use by area and 79 categories of special information by point location, are used over standard U. S. Geological Survey 7. 5-minute quadrangle maps.

COMPUTER PRODUCTS: Two types - tabular lists and summaries of data. and computer graphic maps based on a one-square-kilometer grid system. The lists identify desired data to specific grid cells. and provide totals such as acreages or co unts of point data items. Computer maps print out data as distributions (by kilometer units) and can select cells by type. Supplementary data is available either in list or map form.

SOME TYPICAL USES: This type of information is already proving useful in locating parks, recreation, and sanitary land fill sites: routing utility lines: selecting alternate highway corridors: choosing subdivision sites: studying wildlife habitat: preparing zoning maps: conducting watershed studies: and in many other public and private applications.

OBTAINING LUNR MAPS AND DATA: Write to:

New York State Office of Planning Services
Division of Plans and Analysis.
488 Broadway
Albany, New York I 2207

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- Applications 4

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This paper was compiled by Robert Crowder, planner, Division of Plans and Analysis, New York State Office of Planning Services. Preparation was financed through a comprehensive planning grant from the U. S. Department of Housing and Urban Development.

APPENDIX A.3 ENVIRONMENTAL IMPACT STATEMENTS

A.3.1 INTRODUCTION

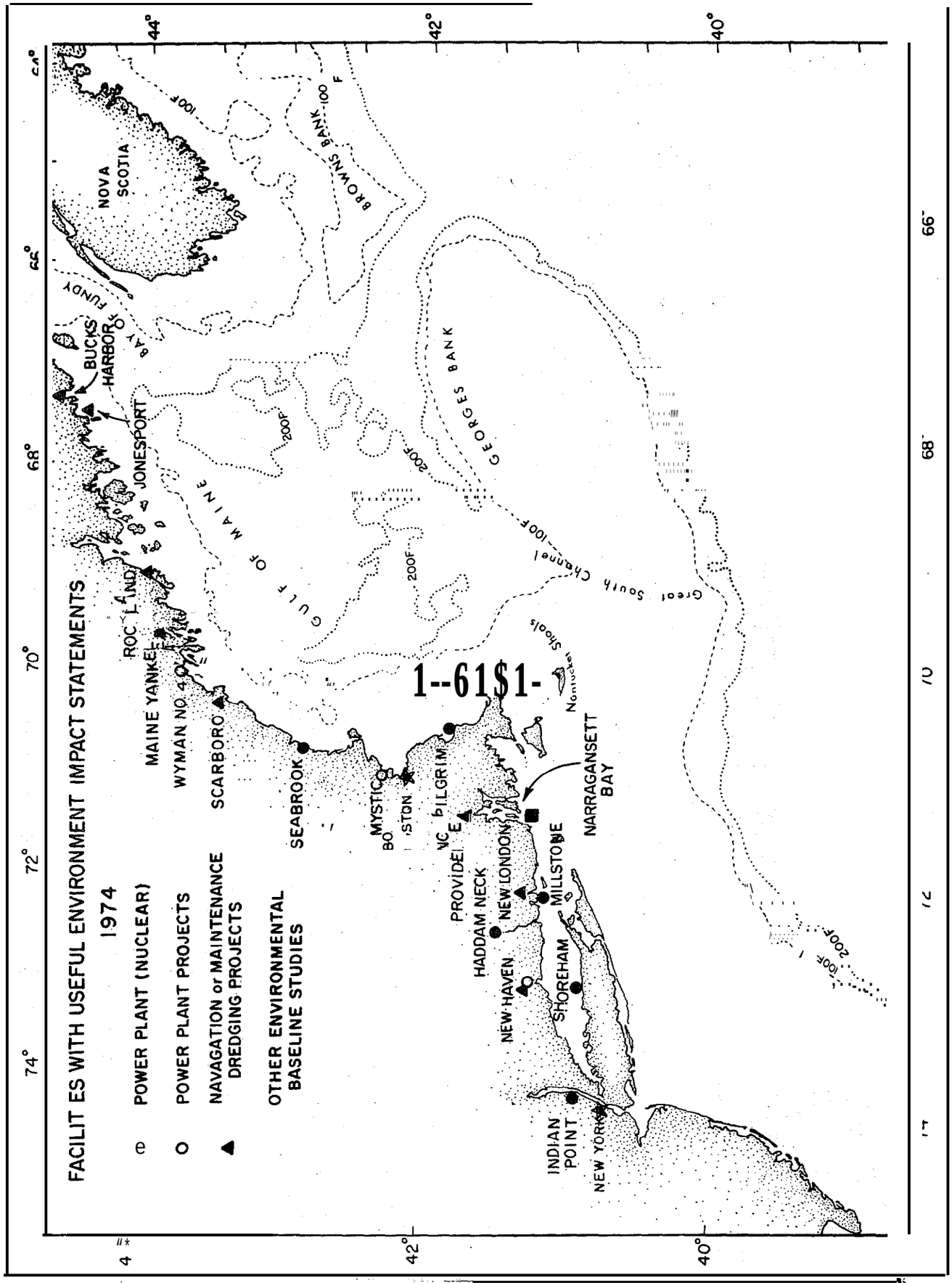
During the course of the study we were able to obtain a sampling of Environmental Impact Statements (EIS) and Environmental Reports (ER) from many of the major projects in New England. These documents, especially in the case of nuclear power plant ER's, provide a wealth of compiled data from a wide range of sources, as well as some original survey data not otherwise published. Following is a discussion of the sorts of data that are available and the site localities where a specific baseline of environmental data now exist.

A.3.2 TYPES OF REPORTS AND KINDS OF DATA

The list of these reports received and reviewed is presented on Table A-19. The locations of these proposed developments and facilities can be seen on Figure A-7. The type of data presented varies widely from one state to another, presumably based on differing state requirements and to some degree on how recent the ER is; more detail appears, generally, in the most recent reports. Many of the major applications such as power plants and refineries also have extensive hearing records and documents introduced subsequent to the original application that do not show up in these ER's. In cases where thorough coverage was provided, such as SEABROOK ER in New Hampshire, we passed all these relevant data from the report to our various chapter authors. However, the more broad comprehensive treatments of large geographic areas were not always the best place to include detailed nearshore or terrestrial site-specific data.

The two principal types of reports received are the ER for nuclear and conventional power plants and the EIS for dredging spoil disposal. The more extensive of these have reviewed most of the current and previous literature in the general vicinity both for marine and terrestrial topics. They are therefore excellent sources of local site-specific data.

In the following selected tables extracted from the Seabrook Power Plant Environmental Report prepared for Public Service Company of New Hampshire, we cite sections of the Tables of Contents with topics relevant to our inventory as a sample of valuable source data. These appear in Table A-20.



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC | FIGURE A-7 | Facilities with Useful Environmental Impact Statements

TABLE A-19 List of Environment Reports and Impact Statements Reviewed by TRIGOM

Maine

Wiscasset - Maine Yankee Station Power Plant
1st and 2nd year Annual Vol. I - IV
3rd and 4th year Annual Vol.

Maintenance Dredging - Rockland - Draft by U.S. Army Corps of Engineers

Dredging - Bucks Harbor - Machias - Final EIS - U.S. Army Corps of Engineers

Maintenance Dredging - Scarboro River - Final EIS - U.S. Army Corps of Engineers

Navigation - Jonesport - Final EIS - U.S. Army Corps of Engineers

Long Beach, Saco River - Draft - U.S. Army Corps of Engineers

William Wyman Power Plant, Unit #4 Addition, Yarmouth, Me. Central Maine Power Co. Vol. I

Eastport - Application to Maine DEP for Pittston Co. - Marine Terminal and Refinery (1973)

New Hampshire

Seabrook Station ER - Public Service Company of New Hampshire. Vol. I and II

Newington Generating Plant - Final, EIS, U.S. Army Corps of Engineers.

Massachusetts

Pilgrim Station - Semi-Annual Report 2
Final EIS

Mystic Electric - Addition No. 7 - Draft. U.S. Army Corps of Engineers.

Cape Cod Canal Plant Addition No. 2 - Draft. U.S. Army Corps of Engineers.

Connecticut ‘

Coke Works Electric - New Haven - Draft. U.S. Army Corps of Engineers.

Maintenance Dredging - New Haven - Final EIS. U.S. Army Corps of Engineers,

Haddem Neck - Connecticut Yankee Power Plant - Final Statement (& Corm. R., 1964-73).

Millstone Units 1 ,2 - Power Plant - Final (& early studies)

New London - Thames River Dredging - Draft - U.S. Army Corps of Engineers.

Rhode Island

Providence. River and Harbor Dredging - Final - U.S. Army Corps of Engineers.

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(FROM: SEABROOK STATION PSNH) June, 1973

ENVIRONMENTAL REPORT

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Ecological Study: Phase I, 1969-70 (Normandeau Associates, Inc., 1971) consisted of the following:

1) A survey of temperature and salinity of the Hampton-Seabrook estuary, 1969.

2) Physical and biological survey of the proposed discharge location in the offshore waters.

3) Studies of the soft-shelled clam, Mya arenaria, including density and distribution, sediment relationships, reproductive biology and larval ecology.

4) A survey of the benthos in the Hampton-Seabrook estuary.

5) A survey of the epibenthos in the Hampton-Seabrook estuary.

6) A survey of the finfish in the Hampton-Seabrook estuary.

7.) A botanical survey of the Hampton-Seabrook estuary, salt marsh, and nearby offshore waters.

Studies conducted during 1970, reported in Seabrook Ecological Study: Phase II, 1970-71 (Normandeau Associates, Inc., 1971) emphasized environmental factors thought to impinge significantly upon stability and maintenance of the soft-shelled clam, Mya arenaria, population and recreational fishery.

Phase III studies conducted in 1971 and early 1972 reported on in a series of technical reports (Seabrook Ecological Study - 1971, Technical Reports III-1 through III-8) dealt with several aspects of the ecology of the marsh, estuary, and offshore waters. Specifically, they reported on:

Technical Report III-1 --	Soft-shelled Clam Spat Density
Technical Report III-2 --	An Assessment of Zooplankton Abundance and Exchange (between) Hampton-Seabrook Estuary and Nearby Offshore Waters
Technical Report III-3 --	Soft-shelled Clam Density
Technical Report III-4 --	Marsh Disturbance Study
Technical Report III-5 --	Primary Productivity in Hampton-Seabrook Estuary

TABLE A-20 (Cent'd)

Technical Report III-6 -- Day/Night Zooplankton Study

Technical Report III-7 -- Fish Larvae and Eggs of the Hampton-Seabrook Estuary - 1971

Technical Report III-8 -- Soft-shelled Clam (Mya arenaria) Larval Studies

In addition, the Phase III document included a Progress Report on the preliminary bioassay of marsh peat extract.

Studies currently being conducted are discussed in "Environmental Study Program, Hampton-Seabrook Estuary and Near Offshore Waters, 1972" (Normandeau Associates, Inc., 1972) and consisted of:

1) Ecological Survey of the Benthos Offshore of the Hampton-Seabrook Estuary in the Area of the Proposed Intake and Discharge.

2) Studies of the Soft-shelled Clam in the Hampton-Seabrook Estuary including Density and Distribution, Age-Growth, Recruitment, and Larval Ecology.

3) Studies of the Effects of Marsh Peat Extract on Estuarine Animals.

4) A Census of Finfish Offshore of the Hampton-Seabrook Estuary in the Area of the Proposed Intake and Discharge.

5) A Study of the Lobster Fishery in the Area of the Proposed Intake and Discharge Lines.

6) A Study of Estuarine and Nearby Offshore Plankton in the Hampton-Seabrook Area.

7) A Hydrographic Survey and a Survey of Plankton in the Neritic Zone Along the Coast of New Hampshire with Emphasis on the Area of the Proposed Intake and Discharge Pipelines.

Appendix B Directory of Contacts

Directory of North Atlantic Inventory Study Contacts

California
Colorado
Connecticut
Florida
Illinois
Maine
Maryland
Massachusetts
Mississippi
New Brunswick
New Hampshire
New Jersey
New York
North Carolina
Nova Scotia
Oklahoma
Ontario
Oregon
Pennsylvania
Rhode Island
Texas
Vermont
Virginia
Washington, D. C.

STATE OF CALIFORNIA

KELLEY, SAM
OCEAN DUMP STUDY
INTERSTATE ELECTRONICS COMPANY
707 EAST VERMONT AVENUE
ANAHEIM CA 92803
21.47722811

"STATE OF COLORADO

CAMPBELL; ROBERT

EPA OFFICE OF ENFORCEMENT
DEN FED. CTR. BLDG 22
DENVER CO 80225
3032342481

STATE OF CONNECTICUT

SOUTHEASTERN CT REG PLAN AGCY
139 BOSWELL AVE
NORWICH CT 06360
2038892324

CT RIVER ESTUARY REG PLAN AGCY
ESSEX SQ THEATER BLDG
ESSEX CT 06426
2037670494

S CENTRAL CT REG PLAN AGCY
96 GROVE STREET
NEW HAVEN CT 06510
2037774795

VALLEY REGIONAL PLAN AGCY
366 MAIN STREET
ANSONIA CT 06401
2037358689

SOUTHWESTERN REGIONAL PLAN AGCY
137 ROWAYTON AVENUE
ROWAYTON CT 06853
2038665543

ANDERSON, ROY B
PRINCIPAL SANITARY ENGR
DEPT OF ENVIRON PROTEC
STATE OFFICE BLDG
HARTFORD CT 06115

STATE OF CONNECTICUT

ANDREWS, NORRIS C
EXECUTIVE DIRECTOR
REGION PLAN AGY SO CENTRAL CONN
96 GROVE STREET
NEW HAVEN CT 06510
2037774795

BAKER, JOHN A
DISTRICT CHIEF
WATER RESOURCES DIVISION
235 PO BLDG
HARTFORD CT 06101
2032442528

BEALS, WHITNEY

STATE OFFICE BLDG
165 CAPITOL AVENUE
HARTFORD CT 06606
2035664057

BERGMAN, PAM
SANITARY ENGINEER
DEPT OF ENVIRON PROTEC
STATE OFFICE BUILDING
HARTFORD CT 06115
2035662588

BILLARD, R S
WILDLIFE BIOLOGIST
CONN DEPT ENVIRON PROTECTION
WILDLIFE UNIT
HARTFORD CT 06115

BURRACK, DAVID
PROG MGR
LONG ISLAND SD STUDY-NERBC
270 ORANGE STREET
NEW HAVEN CT 06510
2037720800

STATE OF CONNECTICUT

CARROLL, ALAN

CT DEPT OF ENVIRON PROTEC
165 CAPITAL AVENUE
HARTFORD CT 06115
2035664256

CHASE, BRADFORD

DEPT OF FINANCE AND CONTROL
340 CAPITOL AVE
HARTFORD CT 06115
2035663410

CHENEY, PHILIP B

CHENEY, MILLER, ELLIS & ASSOCIATES
RFD 1 BOX 210
WOODSTOCK CT 06281

DAVIDSON, MICHAEL J
SPECIAL ASSISTANT
SOLID WASTE MANAGEMENT PROGRAMS
STATE OFFICE BLDG
HARTFORD CT 06115
2035665847

DECARLI, D P
WILDLIFE BIOLOGIST
CONN DEPT ENVIRON PROTECTION
WILDLIFE UNIT
HARTFORD CT 06115

DUNN, G
RANGER-NATURALIST
HAMMONASSET STATE PARK
MEIGS NATURE CENTER
MADISON CT 06443

STATE OF CONNECTICUT

FOX, GEORGE S
PUBLIC INF MANAGER
NORTHEAST UTILITIES
P O BOX 270
HARTFORD C T 06101

HAENI, F R
CHIEF NATURALIST
THAMES SCIENCE CENTER
GALLOWS LANE
NEW LONDON CT 06320

HAMES, RICHARD
STAFF FISHERY BIOLOGIST
DEPT ENVIR PROTEC CONSERVATION
STATE OFFICE BLDG
HARTFORD CT 06115

HEDDEN, DAN

NORTHEAST UTILITIES SERVICE
BOX 270
HARTFORD CT 06101
2036666911

HIBBARD, JOHN E
SECRETARY-FORESTER
CONN FOREST&PARK ASSOCIATION
1010 MAIN STREET
EAST HARTFORD CT 06108
2032893637

HILL, DAVID E
ASSOCIATE SOIL SCIENTIST
CT. AGRICULTURAL EXPER STA
123 HUNTINGTON STREET
NEW HAVEN CT 06504
2037877421

STATE OF CONNECTICUT

JOHNSON, LYNN E
ASSOC SCIENTIST
CENTER FOR THE ENVIR&MAN
27 WINDSOR STREET
HARTFORD CT 06120
2035494400

JONES, ROBERT
MARINE REGIONAL DIR
CONN DEFT ENVIRON PROTECTION

WATERFORD CT ,06385
2034430166

JORDAN, DOUGLAS F
STATE ARCHAEOLOGIST
UNIV OF CUNN
JORGENSEN AUDITORIUM
STORRS CT 06268

JUNKIN II, D
ASST DIRECTOR
CONN AUDUBON SOCIETY

FAIRFIELD CT 06430

KURKER, CHARLES
PRIN SANITARY ENGINEER
CONN DEPT OF ECONOMIC DEVELOPMT

HARTFORD CT 06120
2035665847

MARIANI, TERRENCE
PRESS SECRETARY
GOVERNORS OFFICE
CAPTIOL BLDG
HARTFORD CT 06120
2035664840

STATE OF 'CONNECTICUT

MEEHANJR, EDMUND J
REGIONAL PLANNER
CT RIVER ESTUARY REG PLAN AGENCY
ESSEX SQUARE
ESSEX CT 06426

NELSON, RUN

LONG IS SD STUDY-NERBC
270 (IRANGE STREET
NEW HAVEN CT 06510
2037720800

OLSON, WINIFRED T
RESEARCH ASSISTANT
CT RIVER ESTUARY REG PLAN AGENCY
ESSEX SQUARE
ESSEX CT 06426

RYDER, ROBERT

WATER RESOURCES DIVISION
235 PO BLDG
HARTFORD CT 06101
2032442528

SICCAMA, TOM
ASSOC PROFESSOR
DEFT OF FOREST ECOLOGY
YALE (UNIVERSITY
NEW HAVEN CT 05613
2034360020

SOWCHUK, MARY B
EXECUTIVE DIRECTOR
GREATER BRIDGEPORT REG PLAN AGCY
202 PROF 8LDG
TRUMBULL CT 06611
2032680014

STATE OF CONNECTICUT

STEPHENS, GEORGE R
ASSOCIATE FORESTER
CT AGRICULTURAL EXPERIMENTAL STA
123 HUNTINGTON STREET
NEWHAVEN CT 06504
2037877421

VISGILLO, GERALD R

DEPT OF RESOURCE ECONOMICS
CONNECTICUT COLLEGE
NEW LONDON CT 06320
2034425179

WELSH, BARBARA L

UNIV OF' CONNECTICUT
52 SHORE DRIVE
WATERFORD CT 06385

WILLIAMS, EDWIN P.
PLANNING COORDINATOR
DEPT OF FINANCE AND CONTROL
340 CAPITOL AVE
HARTFORD CT 06115
2035663410

STATE OF DISTRICTOF COLUMBIA

BALLENTINE, RICHARD K
CHIEF SUBSURFACE POLL
US ENVIRONPROTEC AGCY
OFF OF AIR &WATERPROTEC
WASHINGTON DC 20460
2015483347

BULLARD, WILLIAM A
SECRETARY US SECT
PASSAMAQUODDYINTL JOINT COMM

WASHINGTON DC 20440

CARVER JR, THOMAS C
RSCH MANAGEMENT DIV
USDC-NOAA
NATL MARINE FISHERIES DIV
WASHINGTON DC 20235

CONN, LINCOLN
CONSULTANT
AMERINST OF MERCHANT SHIPPING

WASHINGTON DC 20002
2027836440

COOPERMAN, ART

ENVIR DATA SERVICE NOAA

WASHINGTON DC
2023437614

D'ZMURA A P
CHIEF ENVIR EFFECT BR
AEC DIV REACTOR RES & DEV

WASHINGTON DC 20545

STATE OF DISTRICT OF COLUMBIA.

DAVIS, WILLIAM

ENVIRON PROTEC AGCY
EAST TOWER ROOM 1043
WASHINGTON DC 20460
2024262730

DUNBAR, CHALMER

SMITHSONIANSCIINF EXCHANGE
1730 M STREET NW
WASHINGTON DC 20036
2023815511

GRIM, PAUL J
CHIEF-MARINE GEOL-GEOPHYS
NAT OCEANIC & ATMOSPHERIC ADMIN
ENVIRONMENTAL DATA SERV
WASHINGTON DC 20235

HAMM, WILLIAM E
CONTRACTING OFFICER
US DEPT INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON DC 20240

JELLINK, STEVEN D
ACTING STAFF DIRECTOR
COUNCILON ENVIRON QLTY
722 JACKSON PLACE NW
WASHINGTON DC 20006

KALLAUR, CAROLITA U
CHIEF-BR OF RESOURCE ANL
DIVOFMARINE MINERALS
BUREAU OF LAND MANAGEMENT
WASHINGTON DC 20240

STATE OF DISTRICT OF COLUMBIA

KEILEY, STEVE

SMITHSONIAN NATURAL AREAS CTR
SMITHSONIAN INSTITUTION
Washington DC 2056(3
2023816568

LA BASTILLE, ANNE

SMITHSONIAN NATURAL AREAS CTR
SMITHSONIAN INSTITUTION
WASHINGTON DC 20560
2023816571

LAURIDSEN, PC
CHIEF
U.S. COAST GUARD DEPT OFTRANS
INFO & ANALYSIS STAFF
WASHINGTON DC 20591

LEE, COURTLAND

BUR OFLDMANAGEMT,DIV MAR MIN
18TH AND C STREETS
WASHINGTON DC 20240

PASTERNACK, BRUCE
OCS STUDY COORDINATOR
COUNCIL ON ENVIRON QUALITY
722 JACKSON PLACE NW
WASHINGTON DC 20006

PHILLIPS, T A
CHIEF BUREAU OF POWER
FEDERAL POWER COMM

WASHINGTON DC 20426

STATE OFDISTRICT OF COLUMBIA

PRINCE, GILLIAN B
RESEARCH ASSISTANT
CENTER FOR NATURAL AREAS
SMITHSONIAN INSTITUTION
WASHINGTONDC 20560

RIDLON, JAMES

NATL OCEANOG DATA CTR
PAGE BLDG WISCONSIN AVE
\.Washington DC20240
2023438345

RIVA, JOSEPH

SMITHSONIAN SCI INFO EXCHANGE
SMITHSONSIAN INST
MASHINGTON DC20001

SALIN, ROBERT K

NAVAL 0BSERVAT0R%

WASHINGTON DC
2022544447

.SHEELEY, HORACE
DIVHIST & ARCH SURVEY
NATL PARK SERVICE
1100 L ST NW
WASHINGTON DC 20005
2035235093

WASTLER, T A
CHIEF OCEAN DISPOSAL PROG
US EPA OFFICE AIR WATERPROG

WASHINGTON DC 20460

STATE OF DISTRICT OF COLUMBIA

WIEBE, RICHARD A
DIRECTOR
OFFICE STATE PLANNING

WASHINGTON DC 20460

STATE OF FLORIDA

MARINE ENVIRONMENTAL IMPLICATIONS

OFFICE OF OFFSHORE DRILLING
RE: E GULF OF MEXICO
ST. PETERSBURG FL 33737

STATE OF ILLINOIS

GREEN, J THOMAS

AMERICAN BAR ASSOCIATION
1155 EAST 60TH ST.
CHICAGO IL 60637
3124930533

'STATE OF MAINE

HANCOCK CO REGIONAL PLAN COM
BOX 608
ELLSWORTH ME 04605
2076675729

EASTERN MIDCOAST REG PLAN COM

ROCKLAND ME 04841
2072368848

SOUTHERN MIDCOAST REG PLAN COM
98 MAINE STREET
BRUNSWICK ME04011
2077254233

GREATER PORTLAND COUNCIL OFGOVT
169A OCEAN. STREET
SOUTH PORTLAND ME 04106
2077998523

SOUTHERN MAINE REGIONAL PLAN COM
COURT HOUSE ANNEX
ALFRED ME 04002
2073245780

ADAMS, WILLIAM R
COMMISSIONER
ME DEPT ENVIRON PROTEC
STATE HOUSE
AUGUSTA ME 04330

STATE" OF MAINE

ANDERSON, BURTON

MAINE STATE PLANNING OFFICE
WATER RESOURCES PLAN
AUGUSTA ME 04330

AVERILL, TALBOT R
PLANNING DIRECT(3R
PENOBSCOT VALLEY REG PLANNING
31 CENTRAL STREET
BANGOR ME04401
2079470529

BATES, EDWIN H
DIRECT(3R
COOP EXT SERVICE
UNIV OF ME-ORONO
ORONO ME 04473

BOOTHBY, CHARLES
EXEC DIRECTOR
SOIL & WATER CONSERV COMM
127 SEWALL STREET
AUGUSTA ME 04330
2072892666

BOUCHARD, CARL

US SOIL CONSERVATION SERV
UNIV OF ME-ORONO
ORONO ME 04473

BOURQUE, BRUCE J
RES ASSOC FOR ARCHAEOLOGY
MAINE STATE MUSEUM COMMISSION
STATE HOUSE
AUGUSTA ME 04330
2072892301

STATE OF MAINE

BRIGGS, JOHN W
HISTORIAN
ME DEPT OF PARKS AND RECREATION
STATE OFFICEBLDG
AUGUSTA ME 04330
2072893821

BUSHEY, DONALD
DIRECTOR
WASHINGTON CO REGIONAL PLAN COM
109 MAIN STREET
MILLTOWN ME 04619
2072553971

BUTCHER, SAMUEL

BOWDOIN COLLEGE

BRUNSWICK ME 04011

CARPENTER, PAUL
PROFESSOR
UNIV OF ME-ORONO

ORONO ME 04473
2075812111

CASWELL, W BRADFORD
RES PLANNER
WATER RES PLAN DIV
MARDEN BLDG STATE ST
AUGUSTA ME 04330
2072892801

CHERNACK, BRIAN
EXECUTIVE DIRECTOR
SOME REGIONAL PLAN COMM

ALFRED ME 04002

STATE OF MAINE

CRANE JR, ROBERT L
ASSISTANT PLANNER
WASHINGTON COUNTY REG PLAN COMM
PO BOX 273
MACHIAS ME 04654
2072553971

CUILLO, ROBERT
PROFESSOR
NASSON COLLEGE
DIV OF MATH AND SCI
SPRINGVALE ME 04083

DAMN, ROBERT
DIRECTOR
ME. STATE MUSE(JM COMM
STATE HOUSE
AUGUSTA ME 04330
2072892301

DARLING, RICHARD E

ANDROSCOGGIN VALLEY REG PLAN
34 COURT STREET
AUBURN ME 04210

DEAN, LOUISE
LIBRARIAN

IRA C DARLING CTR-UMO
WALPOLE ME 04573

DENNIS, BETH D

STATE PLANNING OFFICE
189 STATE STREET
AUGUSTA ME 04330
2072893261

'STATE OF MAINE

DUESTERHAUS, RICHARD L
STATE CONSERVATIONIST
USDASOIL CONSERVATION SERVICE
USDA OFFICE BLDG
ORONO ME 04473

EDWARDS, RUSS

MEDEPTOF COMMERCE & INI)

AUGUSTAME 04330

ELLINGWOOD, ALLAN

ME DEPT ENVIRON PROTEC
STATE HOUSE
AUGUSTA ME 04330

FARNSWORTH? ROY L
CHAIRMAN
DEPT OF GEOLOGY
BATES COLLEGE
LEWISTON ME 04240

FAY, PAULINE
EXECUTIVE DIRECT(IR
EASTERN MID-COAST REG PLAN COMM
BOX 819 MUNICIPAL BLDG
CAMDENME 04843

FLAGG, LEWIS
MARINE RESOURCES SPEC
ME DEPT OF MARINE RESOURCES
STATE HOUSE
AUGUSTA ME 04330
2072892291

STATE OFMAINE

FLYNN, GORE

NO KENNEBEC REGIONAL PLAN COMM

WINSLOW ME 04901

FREEDMAN, STEVEN

ME DEPT ENVIRON PROTEC
STATE HOUSE
AUGUSTA ME 04430

GAMMON, JEFFREY

NO ME REGIONAL PLAN COMM

CARIBOU ME 04736

GIBBS, KATHERINE
RESEARCHER IN ENTOMOLOGY

UNIV OF ME-ORONO
ORONO ME 04473
2075817704

GILBERT, WILLIAM H
ASSISTANT PROFESSOR
DEFT OF BIOLOGY
COLBY COLLEGE
WATERVILLE ME 04901

GOGGINS, PHILLIP
PLANNING DIRECTOR
ME DEPTOF MARINE RESOURCES
STATE HOUSE ANNEX
AUGUSTA ME 04330
2072893286

STATE OF MAINE

GOODWIN, A L

ME STATE PLANNING OFFICE

AUGUSTA ME 04330

GORDON, THOMAS

KENNEBECVALLEY CONSERVATION ASC

AUGUSTA ME 04330

GRAHAM, JOSEPH
MARINE RESOURCE SCIENTIST
ME DEPT OF MARINE RESOURCES
FISHERIES RESEARCH STA
BOOTHBAY ME 04536
2076333711

HALL, M WAYNE
DIRECTOR
ME LAND & WATERRESOURCES INST
UNIV OF ME-ORONO
ORONO ME 04473
2075817092

HARTMAN? HERB

NATURAL RESOURCES COUNCIL
20 WILLOW STREET
AUGUSTA ME 04430
2076223101

HAYS, GORDON

US GEOL SURVEY
CAPITOL PLAZA
AUGUSTA ME 04330

STATE OF MAINE

HENDERSON, JAMES S
PROFESSOR
DEPT OF POLITICAL SCIENCE
UNIV OF ME-ORONO
ORONO ME 04473

HINCKLEY, WILLIAM
ENGINEER EMERITUS
MEDEPT OF ENVIRON PROTEC

BLUE HILL ME 04614
2073742780

HOLLIDAY, ROBERT W
LIAISON OFFICER FOR MAINE
U S DEPT OF INTERIOR
BUREAU OF MINES
AUGUSTA ME 04330

HORSEMAN, CHARLES
ENGINEER
E C JORDAN COMPANY

PORTLAND ME04101

HUBBELL, RICHARD N
ASSISTANT TO DIRECTOR
GREATER PORTLAND COUN OF GOVT
169A OCEAN STREET
SOUTH PORTLAND ME 04106
2077998523

HURST, JOHN
LABORATORY DIRECTOR
ME DEPT OF MARINE RESOURCES
FISHERIES RESEARCH STA
BOOTHBAY ME 04537

STATE OF MAINE

HUSSEY, ARTHUR
CHAIRMAN
DEPT OF GEOLOGY
BOWDOIN COLLEGE
BRUNSWICK ME 04011
2077258731

IKEHARA, DEBORAH
STUDENT INTERN
NATURAL RESOURCES COUN OF ME
20 WILLOW STREET
AUGUSTA ME 04330

KATONA, STEVE

COLLEGE OF THE ATLANTIC
EDEN ST
BAR HARBOR ME' 04609
2072885015

KING, CHARLES
CHIEF
DEP BUREAU OF WATER QUALITY CONT
STATE STREET
AUGUSTA ME 04330
2072892591

KINTER, WILLIAM B
RESEARCH SCIENTIST
MT DESERT IS BIOLOGICAL LAB
SALSBURY COVE
BAR HARBOR ME 04672
2072883605

KLEY, RONALD J

DEPT EDU & CULTURAL SCI
BUREAU OF MUSEUMS
AUGUSTA ME 04330

STATE OF MAINE

LABRECQUE, RICHARD
ENVIRONMENTAL DIRECTOR
S D WARREN COMPANY

WESTBROOK ME 04092
2078566311

LANGLOIS, EDWARD
DIRECTOR
ME DEPT OF TRANSPORTATION
BUR OF WATERWAYS
PORTLAND ME 04111

LAWS, CARL
DIRECTOR
SACO RIVER CORRIDOR ASSOC

SACO ME 04072

LENNON, ROBERT E

USBUR SPORT FISH & WILDLIFE
UNIV OF ME-ORONO
ORONO ME 04473
2075817151

LINDER, T E
AIR & WATER IMPROVEMT MGR
INTERNATL PAPER CO

CHISHOLM ME 04228

LITTLE, DANA
EXECUTIVE DIRECTOR
SO MID COAST REG PLAN COMM

BRUNSWICK ME 04011

STATE OF MAINE

LOTHROP, THOMAS

PORTLAND WATER DISTRICT

PORTLAND ME 04101

MCALICE, BERNARD
ASSISTANT PROFESSOR

IRA C DARLING CTR -UMO
WALPOLE ME 04573
2075633146

MCGRAIL, JOHN
ASST. ENGINEER
ME DEFT ENVIRPROTEC
BUR WATER QTY CONTROL
AUGUSTA ME 04330
2072892591

MCMILLEN, MICHAEL

STATE PLANNING OFFICE
STATE HOUSE
AUGUSTA ME 04330
2073245780

MEISTER, ALFRED
CHIEF BIOLOGIST
ME ATLANTIC SEA-RUIN SALMON COMM
34 IDAHO AVE
BANGOR ME 04401
2079478627

MENDALL, HOWARD
PROJECT LEADER
COOP WILDLIFE PRESERVATION UNIT
UNIV OF ME-ORONO
ORONO ME 04473
2075817386

STATE OF MAINE

MILLER JR, PRESTON R
ACTING EXECUTIVE DIRECTOR
GREATER PORTLAND COUNCIL OFGOV
169A OCEAN STREET
SOUTH PORTLAND ME 04106
2077998523

NELSON, DONALD
MARINE RES SCI
ME DEPT MARINE RESPURCES
CAPITOL PLAZA
AUGUSTA ME 04330

PIZZO, JOSEPH
ASSISTANT ENGINEER
DIV OF SOLID WASTE MANAGEMENT
DEPT ENVIRON PROTECTION
AUGUSTA ME 04330

PORTER, JUD
PROJECT COORDINATOR
USDATIME&TIDERC&D PROJECT
432 MAIN STREET
ROCKLAND ME 04841

POULTON, BRUCE R
VICE PRES RES PUBLAFFAIR
UNIV OF ME-ORONO
21 COBURN HALL
ORONO ME 04473

POWELL, FOURTIN

STATE PLANNING OFFICE
STATE HOUSE
AUGUSTA ME 04330
2073245780

STATE OF MAINE

PRATT, DARRELL B
PROFESSOR
DEPT OF MICROBIOLOGY
UNIV OF ME-ORONO
ORONO ME 04473
2075817628

PRESCOTT JR, GLENN C
SUPERVISORY HYDROLOGIST
US GEOLOGICAL SURVEY
STATE HOUSE
AUGUSTA ME 04330

REED, WILLIAM
NATURAL RESOURCES PLANNER
REED & D'ANDREA
PO BOX 98
SO. GARDNER ME 04345
2075824205

RICHARDSON, DAVID
MARINE RESOURCES SCI

WISCASSET ME 04378
2078823338

ROLLINS, JAMES A

NASSON COLLEGE

SPRINGVALE ME 04083

ROTHE, RICHARD

MAINE STATE PLANNING OFFICE
STATE HOUSE
AUGUSTA ME 04330

STATE OF MAINE

ROTHROCK, SUSAN
GRADUATE ASSISTANT
LAND AND WATER RESOURCES CENTER
UNIV OF ME-ORONO
ORONO ME 04473
2075817092

ROUNDY, CHARLES G
ECONOMIC PLANNING COOR
E ME DEVELOPMT DIST
10 FRANKLIN STREET
BANGOR ME 04401
2079426389

RUFF, KEITH

GEORGIA PACIFIC

WOODLAND ME 04694

SANGER, DAVID
PROFESSOR
DEPT OF ANTHROPOLOGY
UNIV OF ME-ORONO
ORONO ME 04473
2075817634

SAWYER, PAUL
EXEC SECRETARY
ME REAL ESTATE COMMISSION

AUGUSTA ME 04330

SCOTT, MATTHEW
CHIEF AQUATIC BIOLOGIST
ME DEPT ENVIRON PROTEC
STATE HOUSE
AUGUSTA ME 04330

STATE OF MAINE

SINNETT, CHANDLER G

UNIV OF ME-ORONO
426 YORK HALL
ORONO ME 04473

SMITH, MARY MINOR

NATURAL RESOURCES COUNCIL OF ME
20 WILLOW STREET
AUGUSTA ME 04330

SMITH, ROBERT
ENGINEER
WRIGHT, PIERCE

TOPSHAM ME 04086

STICH, ALDA

ME STATE COASTAL PLANNING OFFICE
189 STATE STREET
AUGUSTA ME 04330

STRATTEN, KENNETH
SOIL SCIENTIST
SOIL & WATER CONSERVATION COMM
127 SEWALL STREET
AUGUSTA ME 04330
2072892666

STRUCK, JAMES M
PLANNING ASSOCIATE
WATER RESOURCES PLANNING
16 WINTHROP STREET
AUGUSTA ME 04330
2072893253

STATE OF MAINE

TEMPLE, NORMAN J
VICE PRESIDENT
CENTRAL MAINE POWER COMPANY
9 GREEN STREET
AUGUSTA ME 04330

TUDOR, DAVID
DIVISION CHIEF
DEPTDIV OF AIR QUALITY SERVICES
VICKERY-HILL BLDG
AUGUSTA ME 04330
2072892437

VEAZIE, CARL E
DIRECTOR
PUBLIC AFFAIRS RESEARCH CENTER
BOWDOIN COLLEGE
BRUNSWICK ME 04011
2077258731

WALLACE JR, CHARLES
RES. PLANNER
WATER RES PLAN DIV

ME 04330
2072893253

WEYMOUTH, TERRY
ENGINEER
S D WARREN COMPANY

WESTBROOK ME 04092

WOODARD, FRANKLIN
PROFESSOR OF CIVIL ENG
UNIV OF ME-ORONO
AUBERT HALL
ORONO ME 04473
2075817693

STATE OF MAINE

YORK, R O B E R T A
DEAN-GRADUATE SCHOOL
UNIV OF ME-PORTLAND-GORHAM

GORHAM ME 04038

S T A T E OF MARYLAND

COLLIN, MARTIN

REGIONAL PLANNING COUNCIL
3 BALTIMOR CO'S
BALTIMORE MD 21202
3013835848

HEIMERDINGER, GEORGE
OCEANOGRAPHER
NATL OCEANOGRAPHIC DATA CENTER

ROCKVILLE MD 20852

LOCKWOOD, MILLINGTON

NODC, NOAA

ROCKVILLE MD 20852
2024269054

STATE OF MASSACHUSETTS

METROPOLITAN AREA PLAN COUN
PUBLICATIONS
BOSTON MA 02101
6175232454

MERRIMACK VALLEY REG PLAN COM
87WINTER STREET
HAVERHILL MA 01830
6'173740519

DUKES CO PL & EC DEVT COM
80X 1588
VINEYARD HAVEN MA02568
6176933453

ARADAS, STEPHEN A
ASSISTANT EXECUTIVE DIR
MERRIMACK PLANNING COM
87WINTER STREET
HAVERHILL MA 01830
6173740519

AUGUST, ROBERT

NEW ENGLAND NAT RESOURCES CENTER
506 STATLER OFFICE
BOSTON MA 02116
6175429370

BAILEY, W
DIRECTOR
WELLFLEET BAY WILDLIFE SANCTUARY
PO BOX 171
SO WELLFLEET MA02663
6173492615

STATE OF MASSACHUSETTS

BIRCH, DAVID
ASSOC. PROFESSOR
HARVARD BUSINESS SCHOOL
HARVARD UNIVERSITY
CAMBRIDGE MA 02192
6174956531

BRENNAN, LARRY
SENIOR PLANNER
METROPOLITANAREA PLANNING COUN
44 SCHOOL STREET
BOSTON MA 02108
6175232454

CONNOLLY, MATT

EXECOFF ENVIRONMENTAL AFFAIRS

BOSTON MA 02203
6177277700

COOGAN, GEORGE J
DIRECTOR
BUR OF WATER SUPPLY AND QUALITY
600 WASHINGTON STREET
BOSTON MA 02111

COREY, DONALD L
SUPERVISING SANITARY ENG
DIVWATERPOLL CONTROL
COURT STREET
BOSTON MA (3.2706

COSGROVE, MARTIN F
ADMINISTRATIVE ENGINEER
METROPOLITAN DISTRICT COMMISSION
20 SOMERSET STREET
BOSTON MA 02108

STATE OF MASSACHUSETTS

COSTALES, AL

ENVIRON PROTECAGCY
AIR QLTY CONTROL DIV
NEEDHAM MA 02194

CROWE, KATHLEEN P

THE NATURE CONSERVANCY
294 WASHINGTON ST
BOSTON MA 02108
6175421908

CUNNINGHAM, R L
NATURALIST
CAPE COD NATIONAL SEASHORE

SO WELLFLEET MA 02663

CUSSON, C M
ADMASST RESEARCH DEPT
NEW ENGLAND AQUARIUM
CENTRAL WHARF
BOSTON MA 02110
6177428830

DAVIS, CLARENCE
FISHERIES BIOLOGIST
NATLMARINES FISHERIES SERVICE

WOODS HOLE MA02543
6175485123

DRISCOLL, ALAN H
CORE LAB SUPERVISOR
WOODS HOLE OCEANOGRAPHIC INST

WOODS HOLE MA 02543
6175481400

STATE OF MASSACHUSETTS

DRUCKER, MARJORIE
MEMBER RC&D OFFICE
ENVIRON PROTEC AGCY
JFK FEDERAL BLDG
BOSTON MA 02203
6172233477

EMERY, K O

WOODS "HOLE "OCEANOGRAPHIC INST

WOODS HOLE MA 02543
6175481400

FALLON, FRED

BUREAU OF REGIONAL AFFAIRS
141 MILK STREET
BOSTON MA 02109
6177273200

FAY, JACK
SYSTEMS ANALYSTS
ENVIRON PROTECAGCY

BOSTON MA 02108
6172235885

FERREN, RICHARD

BERKSHIRE COMMUNITY COLLEGE

PITTSFIELD MA01201
61763"71958

FORWARD, W R
WILDLIFE MANAGEMENT BIOL
PARKER RIVER NATL WILDLIFE REF

NEWBURYPORT MA 01950

STATE OF MASSACHUSETTS

FOSTER, CHARLES H W
SECRETARY
EXECOFF-ENVIRONMENTAL AFFAIRS
18TREMONT STREET
BOSTON MA 02108
6177277700

FOWLER, WILLIAM S

MASS ARCHAEOLOGICAL SOCIETY INC
BRONSONMUSEUM8NO MAIN
ATTLEBORO MA 02703

FRIMPTER, MICHAEL
HYDROGEOLOGIST
US GEOLOGICAL SURVEY
150 CAUSEWAY
BOSTON MA 02114

HAGENSTEIN, PERRY
EXECUTIVE DIRECTOR
NEW ENGLAND NAT RESOURCES CTR
506 STATLER OFFICE
BOSTON MA 02116
6175429370

HANKIN, JACK
SUBSCRIPTIONS DEPT
SMITHSONIAN INSTITUTION
60 GARDEN STREET
CAMBRIDGE MA 02138
6178647910

HOWARD, D V

NATURAL HISTORY SERVICES
MASSAUDUBON SOCIETY
LINCOLN MA 01173
6172599500

STATE OF MASSACHUSETTS

HUEBNER, DENNIS
CHIEFSOLID WASTE PROGRAM
ENVIRON PROTEC AGCY
JFK FEDERALBLDG
BOSTON MA 02103
6172235775

ISGUR, BENJAMIN
STATF CONSERVATIONIST
USDA SOIL CONSERVATION SERVICE
29 COTTAGE STREET
AMHERST MA 01062

ISSAC, RUSSELL A

WATERRESCOMMDIV WATER POLL
100CAMBRIDGE ST
BOSTONMA 02134

KAYNOR, EDWARD R
STAFF ASSOCIATE
WATER RESOURCES RESEARCH CENTER
GRADUATE RESEARCH CNTR
AMHERST MA 01002

KLEIN, WILLIAM
DIRECTOR
NANTUCKET PLANNING COMMISSION

NANTUCKET MA 02554

LARSON, JOSEPH S
ASSOCIATE PROFESSOR
WILDLIFE BIOLOGY
UNIV OF MASS
AMHERST MA01002
4135462267

STATE OF MASSACHUSETTS

LAWSON, BARRY

NEW ENGLAND RIVER BASINS COMM
55 COURT STREET
BOSTON MA 02108
6172236244

LEARY, JOE

MASS PUBLIC HEALTH

BOSTON MA 02204
6177272658

LESLIE, JOHN W
CHIEF
DEPT OF ARMY CORPS OF ENGR
NEW ENGLAND DIV
WALTHAM MA 02154

LUTY, JIM
SENIOR PLANNER
NE RIVER BASINS COMM SENE
405 ATLANTIC AVENUE
BOSTON MA 02174
6172234431

LYNDE, ROBERT E
MARINE METEOROLOGIST
NAT WEATHER SERVICE FORECAST OFF
LOGAN AIRPORT
E. BOSTON MA 02128
6175692064

MCDOUGALL, MICHAEL
SYSTEMS ANALYST
U S ENVIRON PROTECTION AGENCY
JFK FED BLDG ROOM 2303
BOSTON MA 02203

STATE OF MASSACHUSETTS

MACKIE, WALTER

ARMY CORPS OF ENGR NEW ENG DIV
924 TRAPELLO ROAD
WALTHAM MA (')2154
6178942400

MANTZARIS, CHRIS

NATL MARINE FISHERIES SERV
191 MAIN STREET
GLOUCESTER MA 01930
6172833907

MARCELLO, ROCCO
BIOLOGIST
BOSTON EDISON
857 BOYLSTON STREET
BOSTON MA 02109
6174242690

MATTSON, HEDY
EDITOR
MIT SEA GRANT PROGRAM
MASS INST (JF TECHNOLOGY
CAMBRIDGE MA 02139
6172537041

MCCALL, GERALD W
ASSISTANT SANITARY ENGR
DEPT OF PUBLIC HEALTH
600 WASHINGTON ST.
BOSTON MA 021.11

MCCAMMON, HELEN
REGION 1 DIR OF R & D
ENVIRON PROTEC AGCY

BOSTON MA 02203
6172233477

STATE OF MASSACHUSETTS

MCCANDLESS, BRUCE
ADMINISTRATIVE ASSISTANT
WATER RESOURCES RESEARCH CTR
OFFICEOF DIRECT(IR
AMHERST MA 01002

MCCLOUD, GUY
DIRECTOR
NEW ENGLAND AQUARIUM
CENTRAL WHARF
BOSTONMA 02110

MCMAHON, ROBERT F

OLD COLONY PLANNING COUNCIL
27 BELMONT STREET
BROCKTON MA 02401
6175831833

MCMAHON, THOMAS C
DIRECTOR
WATER RESOURCES COMM
100 CAMBRIDGE STREET
BOSTON MA 02202

MILLIMAN, JOHN D

WOODSHOLE OCEANOGRAPHIC INST

WOODS HOLE MA 02543
6175481400

MOORE, STEPHEN F
ASSOC PROFESSOR
DEPTOFCIVIL ENGINEERING
MASS INST OFTECHOLOGY
CAMBRIDGE MA 02139
6172531771

STATE OF MASSACHUSETTS

NALONE, L K
REFUGE MANAGER
GREAT MEADOWSNATLWILDLIFEREF
191 SUDBURY RD
CONCORD MA 01742

NEWBURY, PRISCILLA

NEWENGLANDRIVER BASINS COMM
408 ATLANTIC AVENUE
BOSTON MA 02210
6172234431

NEWMAN, WALTER

EPA PLANNING & STANDARDS DIV
141 MILK STREET
BOSTON MA 02105
6172235130

NOTHDURFT, WILLIAM

PUBLIC INFORMATION
55 COURT STREET
BOSTON MA 02108

NOYES, JOHN H

SEA GRANTEXTENSIONSERVICE
UNIV OF MASS
AMHERST MA 01002

O'BRIEN, THOMAS
DIRECT(IR
SECYOFADMIN& FINANCE
ST. PLAN & MANAGE OFFICE
BOSTON MA 02202
6177?75066

STATE OF MASSACHUSETTS

POLLOCK, S J

USDI GEOLOGICAL SURVEY

BOSTON MA 0.2.203

PRATT, AL
RECR. PLANNER
M A S S DEPT NATURAL RESOURCES
100 CAMBRIDGE ST.
BOSTON MA 02202
6177273163

PRONOVOST, PAUL
PLANNING DIVISION
CORP OF ENGINEERS
NEW ENGLAND DIVISION
MALTHAM MA02154
6178942400

PUTNAM, BRUCE M

ARTHUR D LITTLE INC
ACORN PARK
CAMBRIDGE MA 02140
6178645770

REES, MORGAN

NEW ENGDIV ARMY CORPS ENG
424 TRAPELLO ROAD
WALTHAM MA 02154
6178942400

RILEY, FRANCIS
ACTING REGIONAL CHIEF
NATIONAL MARINE FISHERIES SERV
NORTHEAST REGION
GLOUCESTER MA 01930

STATE OF MASSACHUSETTS

ROBBINS, MAURICE
STATE ARCHAEOLOGIST
BRONSON MUSEUM
8 NO. 8 NO. MAIN STREET
ATTLEBORO MA 02708

ROBES, ROBERT E
EXECUTIVE DIRECTOR
CAPE COD PLAN & EOCN DEV COMM
1ST DISTRICT COURTHOUSE
BARNSTABLE MA 02630

ROSENBERG, WILLIAM S
OCEAN DISPOSAL COORDIN
US DEPT (IF ENVIRON PROTECTION
JFK FEDERAL BLDG
BOSTON MA 02203

SCHLITZ, RON

NATL MARINE FISHERIES SERV

WOODS HOLE MA 02543
6175485123

SCHROEDER, ELIZABETH

WOODS HOLE OCEANOG INST

WOODS HOLE MA 02543
6175481400

SCHWELM, FRED C
DEPUTY CHIEF ENGINEER
DEPT OF PUBLIC WORKS
100 NASHUA STREET
BOSTON MA 02114

STATE OF MASSACHUSETTS

SHARPLES, MICHAEL

OFFICE OF ST PLAN & MANAGEMENT
STATE HOUSE
BOSTON MA 02133
6177273562

SHERMAN, R H
MANAGER INDUSTRY SERVICES
WORCESTER AREA CHAMBER COMMERCE
90MADISON STREET
WORCESTER MA 01608
6177532924

SHRADER, BRAD

DEPTOF CIVIL ENGINEERING
MASS INST OF TECHNOLOGY
CAMBRIDGE MA 02139
6172531771

SMITH, PAUL FERRIS

BOX 45
WOODS HOLE MA 02543

SOULES, THOMAS T
DIRECTOR PORT OF BOSTON
MASSACHUSETTS PORT AUTHORITY

BOSTON MA 02109

STONEFIELD, DAVID

ENVIRON PROTECAGCY
240 HIGHLAND AVENUE
NEEDHAM HEIGHTS MA 02194
6172236039

STATE OF MASSACHUSETTS

TARBELL, SUSAN A

WOODS HOLE OCEANOGRAPHIC INST

WOODS HOLE iMA 02543
6175481400

TATLOCK, RICHARD
COASTAL ZONEMGT
MASS DEPTNATURALRESOURCES
100 CAMBRIDGE ST.
BOSTON MA 02202
6177273193

VANDENBURGH, DONALD E
VICE PRESIDENT
YANKEEATOMIC ELECTRIC COMPANY
20 TURNPIKERD.
WESTBOROUGHMA 01581

VOLPE, ANN
RESEARCH TECHNICIAN
CAPE COD FL & ECDEVTCOM
FIRST DISTRICT COURTHOUSE
BARNSTABLE MA 02630
6173622511

WALKER, DEBORAH

DUKES CO PLAN &EOCN DEVEL COMM
BOX 1447
OAK BLUFFS MA 02557

WENTWORTH, CECIL
HEAD COASTAL DEVGROUP
ACE
TRAPELLO ROAD
WALTHAM MA 02154
6178942400

STATE OF MASSACHUSETTS

WHITE JR, PAUL F
RESOURCES PLANNER
WATER RES COMM
GOV CTR 100 CAMBRIDGE ST
BOSTON MA 02202

WONG, EDWARD
NATURAL RESOURCES OFFICER
ENVIRON PROTEC AGCY
240 HIGHLAND AVENUE
NEEDHAM MA 09.194
6172237337

WOOD, GARDNER

USGEOL SURVEY
JFK BLDG
BOSTON MA 02202
6172232822

WOOD, GEORGE
FISHERIES MANAGER
DIV OF FISHERIES AND GAME
BOURNEDALE RI]
BUZZARDSBAY MA 02532

WRIGHT, W REDWOOD
ASST PROFESSOR
WOODS HOLE OCEANOGRAPHIC INST

WOODS HOLE MA 02543
6175481400

YANKOPOULOS, CONSTANTINE
COOR PUB FACILITIES & SPE
SOUTHEASTERN REG PLAN ECON DEV
68 WINTHROP STREET
TAUNTON MA 02780
6178230796

STATE OF MISSISSIPPI

UGOLINI, FRANCIS

NATL LANDMARKS & THEME STUDIES
MISS TEST FACIL SCI-CTR
LOUIS MI 39520

STATE OF NEW BRUNSWICK, CANADA

AYER, WILLIAM C
SENIOR BIOLOGIST
ENVIRONMENTAL SERVICES
CENTENNIAL BLDG
FREDRICTON NB CANAD

CHRISTIE, DAVID S
CHAIRMAN
DEPT OF NATURAL SCIENCE
NEW BRUNSWICK MUSEUM
S T JOHN NB CANAD

STATE OF NEW HAMPSHIRE

BARTON, WILLIAM R
LIAISON OFFICER FOR NE
U S DEPT OF INTERIOR
BUREAU OF MINES
NEWMARKET NH 03857

BORROR, ARTHUR C

AUDUBON SOCIETY
UNIVOFNEW HAMPSHIRE
DURHAM NH 03824
6038622107

BUMFORD, FORREST H
DIRECTOR
AIR POLLUTION CONTROL AGENCY
HAZEN DRIVE
CONCORD NH 03301

BURBANK, DONALD G
STATE CONSERVATIONIST
USDA SOIL CONSERVATION SERVICE
FEDERAL BLDG
DURHAM NH 03824

CORROW, HENRY W
EXTENSION EDITOR
NEW HAMPSHIRECOOPEXT SERVICE
UNIV OF NEW HAMPSHIRE
DURHAM NH 03824

CORSON, BERNARD
DIRECTOR
NEW HAMP FISH GAME AGCY

PORTSMOUTH NH 03801
6032713421

STATE OF NEW HAMPSHIRE

DELARA, FRANCES

UNH COLLEGE OF LIFE SC I & AGRI
UNIV OF NEW HAMPSHIRE
DURHAM NH 03824

FREDERICK, LAWRENCE C
ENVIRONMENTAL ENGINEER
PUBLIC SERVICE COMPANY OF NH
1000 ELM STREET
MANCHESTER NH 03106

GILMORE, JOHN
PLANNER
SOUTHERN ROCKINGHAM REG PLAN COM
19 MAIN STREET
SALEM NH 03079
6039938233

HARRIS, DAVID
STUDY MANAGER
CONN RIVER BASIN PROG NERC

HANOVER NH 03755
6036435831

HEALY, WILLIAM A
EXECUTIVE DIRECTOR
WATER SUP POLL CONTROL COMM
105 LOUDON ROAD
CONCORD NH 03301

KULKA, MICHAEL

STRAFFORD REGIONAL PLAN COM
90 WASHINGTON STREET
DOVER NH 03820
6037422523

STATE OF NEW HAMPSHIRE

LODER, TED C
PROFESSOR
DEPT OF EARTH SCIENCES
UNIV OF NEW HAMPSHIRE
DURHAM NH 03824
6038621718

MATHIESON, ARTHUR C
DIRECTOR
UNIVERSITY OF NEW HAMPSHIRE
ADAMS POINT RFD 1
DURHAM NH 03824

ON, JOHN

US GEOLOGICAL SURVEY
STATE HOUSE
CONCORD NH 03301
6032247273

PERRY, OTIS E
ASSISTANT PLANNING DIR
SOUTHEASTERN NH REG PLAN COM
10 FRONT STREET
EXETER NH 03833
6037726913

PIATTONI, PETER F

OFFICE OF COMPREHENSIVE PLANNING
STATE HOUSE ANNEX
CONCORD NH 03301
6032712156

RICHARDS, TUDOR
EXECUTIVE DIRECTOR
AUDUBON SOCIETY OF NEW HAMPSHIRE
3 SILK FARM RD
CONCORD NH 03301

STATE OF NEW HAMPSHIRE

SARGENT, HOWARD R
EDITOR
MAN IN THE NORTHEAST
BOX 589
CENTER HARBOR NH 03226

SPENCER, LARRY

DEPT OF NATURAL 'SCIENCE
PLYMOUTH STATE COLLEGE
PLYMOUTH NH 03264
6035361807

SWANSON, LARRY

MESA NOAAMARSCI RES CENTER
BLDG J SONY
STORYBROOK NH 11790
5167517002

SWEENEY, THOMAS L

NH DEPT HEALTH SOLIDWASTEDISPS
61 S SPRING STREET
CONCORD NH 03301

TUCKER, CHARLES
SENH PLANNING COUNCIL
COASTAL ZONING

EXETER NH 03833
6037726913

WEEKS, SILAS

UNIVERSITY OF NEW HAMPSHIRE
COOP EXT SERV
DURHAM NH 03824

STATE OF NEW HAMPSHIRE

WOOLARD, REG
COASTAL ZONE PLANNER
OFFICEOFCOMPREHENSIVE PLANNING
STATE HOUSE ANNEX
CONCORD NH 03301
6032712156

STATE OF NEW JERSEY

HUDSON CO DEPT OF PL & EC DEVT
595 NEWARK AVENUE
JERSEY CITY NJ 07306
2017923737

ESSEX CO PLANNING BOARD
520 BELLEVILLE AVE
BELLEVILLE NJ 07109
2017517300

UNION CO PLANNING BOARD
COURT HOUSE
ELIZABETH NJ 07207
2013535000

MIDDLESEX CO PLANNING BOARD
COUNTY ADMINISTRATION BLD
NEW BRUNSWICK NJ 08901
2012466865

ANDERSON, PETER W
CHIEF, WATER QUALITY SECT
WATER RESOURCES DIVISION
420 FED BLDG PO BOX 1238
TRENTON NJ 08607

BELLARD, CHESTER F
STATE CONSERVATIONIST
USDA SOIL CONSERVATION SERVICE
1370 HAMILTON ST.
SOMERSET NJ 08873

STATE OF NEW JERSEY

BENNET, DW
AMERICAN LITTORAL SOCIETY
HIGHLAND NJ 07732
2018720200

BINETSKY, RICHARD
CHIEF BUROFREG PLANNING
DIV ST AND REGIONAL PLANNING
329 W STATE ST
TRENTON NJ 08625
6092928916

BRAUN, RANDY
ENVIRON PROTECAGCY
OCEAN DUMPING DIV
EDISON NJ 08817
2015483347

EISELE JR, WILLIAM J
SUPERVISOR SHELLFISH CON
DEPT ENVIRON PROTEC
BUR WATER PCILLUTION
TRENTON NJ 08625

GILMAN, CLARK D
SUPERVISING ENGINEER
BUREAU OF WATER CONTROL, DEP
BOX 2809
TRENTON NJ 08625

GINMAN, RICHARD A
DIRECTOR
DIV OF STATE REGIONAL PLANNING
363 W STATE ST
TRENTON NJ 08625

STATE OF NEW JERSEY

HAMER, PAUL E
PRIN FISHERIES BIOLOGIST
NACOTECREEK RESEARCH STATION
MARINE FISHERIES SECTION
ABSECON NJ 08201

JUCHNOWSKI, T A
SR. ENVIRONMRNTAL S ?
EVALUATION & PLAN SEC.
BUROFAIR POLLUTION CONT
TRENTON NJ08625

KELLY, D

SANDYHOOK STATE PARK
SISBOX 417
HIGHLANDS NJ 07732

MARTAUZ, WALTER J
SENIOR PLANNING AIDE
BERGEN CO PLANNING BOARD
29 LINDEN STREET
HACKENSACK NJ 07601
2016462900

MCCALL, JOHN E
DISTRICT CHIEF
WATER RESOURCES DIVISION
420 FEDERAL BLDG
TRENTON NJ 08607

MCDOWELL, WILLIMA D

HACKENSACK MEADOWLANDS DEVCOMM
1099 WALL STREET
LYNDHURSTNJ 07071
2(319353250

STATE OF NEW JERSEY

PEARCE, JOHNB
OFFICER-IN-CHARGE
NATLMARINE FISHERIES SERVICE
SHADYHOOK LABORATORY
HIGHLANDS NJ 07732

PICKHARDT, FRED

BENDIX Commercial SERVICE
200 HOLLISTER ROAD
TETERBORO NJ 07608
2012881550

TABAKIN, RICHARD B
IND POLLUTION CONTROL DIV
US ENVIRON PROTECAGCY
IND WASTE TREATMT RES LAB
EDISON NJ 08817

STATE OF NEW YORK

PUBLICATIONS
TRI-STATE REGIONAL PLAN AGCY
100 CHURCH STREET
NEW YORK NY 10007
2124334200

REGIONAL PLAN ASSOCIATON
235 EAST 45TH ST
NEWYORK CITY NY 10017
2126827750

NASSAU-SUFFOLK RPBOARD
VETERANS MEMORIAL HIGHWAY
HAUPPAGE LINY11787
'5169792922

ROCKLANDCO PLANNING BOARD

NEW 'CITY NY 10956
9146380500

DEPT OF CITY PLANNING
LAFAYETTE STREET
NEWYORK CITY NY10007
2125667587

WESTCHESTER DEPTOFPLANNING
COUNTY OFFBLDG
WHITE PLAINS NY 10601
9146822564

STATE OF NEW YORK

BAIARDI, JOHN C
PRESIDENT AND DIRECTOR
NEW YORK OCEAN SCIENCE LAB
DRAWER EE
MONTAUK NY 11954
5166685800

BARTH, NICHOLAS
COORD UNIT ENVIRRES PLAN
NYDEPTENVIRON CONSERVATION

ALBANY NY 12201

BROWN, LARRY

USARMY CORPS OF ENG

NEW YORK NY10001
2122646936

BUCKLEY, P A
ASST PROFESSOR
DEPT OF BIOLOGY
HOFSTRA UNIVERSITY
HEMPSTEAD, LI NY 11550

CAMP, LINDA
MEDIA SPECIALIST
SEA GRANT ADVISORY SERVICE
CORNELL UNIVERSITY
ITHACA NY14850
6,072562162

CARROLL JR, J DOUGLAS
EXECUTI E DIRECTOR
TRISTATE REGIONAL PLANNING COM
100CHURCH STREET
NEW YORK CITY NY 10009
2124334200

STATE OF NEW YORK

CUTRO, CHRISTOPHER
PLANNER
HUDSON CT DEPT PLAN &ECONDEV
595 NEWARK AVENUE
JERS EY CITY NY 07306
2017923737

DAVIES, DEWITT
MARINEENVIRON PLANNER
REGIONAL MARINE RESOURCESCOUN
VETERANS MEMORIAL HIGHWAY
HAUPPANGE L.I. NY 11787
5167242500

DEED, R F

50 CLINTON AVE
NYACK NY 10960

DEFFIGOS, JOHN.S
ASSISTANTCHIEF PLANNER
OFFICEOF PLANNING SERVICES
488 BROADWAY
ALBANY NY 12207
5184743152

FREEMAN, H

QUEENS COUNTY BIRD CLUB
43-50 MAIN ST
FLUSHING NY 11355

FUNK, ROBERT E
STATE ARCHEOLOGIST

STATE UNIVOF NEW YORK
ALBANYNY 12224

STATE OF NEW YORK

HORN, 'WILLIAM w
ASSISTANT DIRECTOR
OFFICE OF PLANNING SERVICES
488 BROADWAY
ALBANY NY 12207
5184744535

HOWARD, HERBERT
CHIEF, PLANNING DIV.
NORTH ATLANTIC DIVCORPSOFENG
90CHURCH STREET
NEW YORKNY10007

JACKEWICZ, JOAN R
RESEARCH ASSISTANT
NEW YORK OCEAN SCIENCE LAB
DRAWER EE
MONTAUKNY 11954
5166685800

LOZADA JR, EFRAIN R
OATA SPECIALIST
TRISTATEREGIONAL PLAN COM
100CHURCH STREET
NEW YORKCITY NY 10007
2124334200

MCGOWEN, FRANK

NEWS STUDY CORP OF ENGINEERS
NO ATLANTIC DIV
NEWYORK NY 10007
2122647485

MCKAY, A

HUNTINGTON AUDUBON SOC
BOX 735
HUNTINGTON NY 11743

STATE OF NEW YORK

MORRIS, P E
PRESIDENT
GREAT SOUTH BAY AUDUBON SOC
P O BOX 122
ISLIP, LI NY 11751

OTT, R
SUPERINTENDENT
JONES BEACH STATE PARK

WANTAGH, LI NY 11793
5167851600

PINGMAN, ROBERT

USCG WATER WATER RES
BOX 948 FED. BLDG
ALBANY NY 12201
5184723107

POLLACK, SHELDON
INFORMATION DIRECTOR
REGIONAL PLAN ASSOCIATION
235 E 45&W STREET
NEW YORK NY 10017
20

REILLY JR, E M
SR SCIENTIST-CURATOR
NY STATE MUSEUM AND SCIENCE SERV
STATE EDUCATION DEPT
4LBAN% NY 12224

RIHNE JR, ALEXANDER

DIV OF AIR POLL CONTROL PROG
DEPT ENVIR PROTEC
ALBANY NY 12201

STATE OF NEW YORK

TAHUI, D J
PRESIDENT
MORICHES BAY AUDUBON SOC
BOX 802
CENTER MORICHES NY 11934
6092928916

TAORMINA, A S
REGIONAL SUPERVISOR
NY DEPT OF ENVIRON CONSERVATION
FISH & WILDLIFE DIV-SUNY
STONY BROOK NY 11790

UNRATH, ROBERT F
PORT PR[3MOTION MANAGER
PORT AUTHORITY OF NY AND NJ

NEW YORK NY 10011.

VAN TASSEL, ALFRED J
ASSOC PROF OF BUS RES

HOFSTRA UNIVERSITY
HEMPSTEAD NY 1.1550

WHEELER, B T

10 MAYFAIR DR
HUNTINGTON NY 11743

WILKINS, BRUCE T
PROGRAM LEADER
SEA GRANT ADVISORY SERVICE
FERNOW HALL
ITHACA NY 14850
6072562162

STATE OF NEW YORK

WILLIAMS, HENRY
DEPUTY DIRECTOR
OFFICE OF PLANNING SERVICES

ALBANY NY 12224
518474721.()

STATE OF NORTH CAROLINA

NATIONALCLIMATIC CENTER

ASHVILLE NC 28801
7042540961

SUMMERS, JACOB G
DATA PROCESSING SECTION
US ENVIRON PROTEC AGCY
RSCH TRIANGLE PARK
ASHVILLE NC 27711
9196888146

STATE OF NOVA SCOTIA, CANADA

PAYNE, F J
BIOLOGIST
NOVA SCOTIA DEPT LANDS & FORESTS
PO BOX 516
KENTVILLE NS CANAD

TRITES, RON

BEDFORD INST OF OCEANOGRAPHY
MARINE ECOLOGY LAB
DARTMOUTH NS CANAD
6024263857

STATE OF OKLAHOMA

GALEGAR, WILLIAM L
DIRECTOR
US ENVIRON PROTEC AGCY
BOX 1198
ADA OK 74820

STATE OF ONTARIO, CANADA

MORRISON, R I G
RESEARCH SCIENTIST
CANADIAN WILDLIFE SERVICE
2721 HIGHWAY 31
OTTAWA OT CANAD

STATE OF OREGON

ROSS, JAMES F
EXECUTIVE DIRECTOR
OREGON COASTAL CONSERV & DEV COM
PO BOX N
FLORENCE OR 97439
5039978248

STATE OF PENNSYLVANIA

KINGSLEY, NEAL P
RESEARCH FORESTER
USDA NE FOREST EXPERIMENT STA
6816 MARKET STREET
UPPER DARBY PA 19082
2153525800

MAYER, CARL E
PROJECT LEADER
US DEPT OF AGRIC FOREST SERVICE
NE FOREST EXP STATION
UPPER DARBY PA 19083

STATE OF RHODE ISLAND

ALLIN, C
BIOLOGIST
RI DEPT OF NATURAL RESOURCES
DIV OF FISH & WILDLIFE
WEST KINGSTON RI 02892

BARNES, CAROL
4SST PROF ANTHROPOLOGY
RHODE ISLAND COLLEGE

PROVIDENCE RI 02908.

BOVANA, WILLIAM
INFORMATION CTR MANAGER
NEMRIP
UNIV OF RHODE ISLAND
NARRAGANSETT RI 02882
4017926211

COULTON, JOHN

NMFS NARRAGANSETT LAB
SOUTH JERRY RD #522A
NARRAGANSETT RI 02882
4017399326

CRONAN, J M
DEPUTY CHIEF
R I DEPT OF NATURAL RESOURCES
DIV OF FISH & WILDLIFE
PROVIDENCE RI 02903

DANA, S

AUDUBON SOC OF RHODE ISLAND
40 BOWEN ST
PROVIDENCE RI 02903

STATE OF RHODE ISLAND

DAVENPORT, M

AUDUBON SOCIETY OF RHODE ISLAND

JAMESTOWN RI 02835

DAVID, LOUIS

265 MELROSE ST
PROVIDENCE RI 02910
4012772656

DONALDSON, HANK

GRAD SCHOOL OF OCEANOGRAPHY
UNIV OF RHODE ISLAND
KINGSTON RI 02881
4(117922808

GILBERT, ALAN J
ENGINEER
DIVISION OF AIR POLLTION CONTROL
DEPT OF HEALTH
PROVIDENCE RI 02908

GRIGALUNAS, THOMAS
ASSISTANT PROFESSOR
DEPT OF RESOURCE ECONOMICS
UNIVERSITY OF RHODE I S
KINGSTON RI 02881

HAVENS, JAMES M
ASSOCIATE PROFESSOR
DEPT OF GEOGRAPHY
UNIV OF RHODE ISLAND
KINGSTON RI 02881
4017922596

STATE OF RHODE ISLAND

HOUSE, M

AUDUBON SOCIETY OF RHODE ISLAND
54 CHIPPER WAY
BRISTOL RI 02809

KESTER, DANA

DEPT OF CHEMISTRY
UNIV OF RHODE ISLAND
KINGSTON RJ 02881
4017926294

LESSUCK, JEROME
CHIEF
STATEWIDE PLANNING PROGRAM
265 MELROSE STREET
PROVIDENCE RI 02907

MONAHON, B W

RI DEPT OF NATURAL RESOURCES
INFORMATION & EDUCATION
PROVIDENCE RI 02903

MORRISON, SUSAN P
SENIOR PLANNER
STATEWIDE PLANNING PROGRAM
265 MELROSE STREET
PROVIDENCE RI 07907
4012772656

NOEL, THOMAS M
SENIOR ENGINEER
DIV OF AIR POLLUTION CONTROL
DEPT OF HEALTH
PROVIDENCE RI 02908

STATE OF RHODE ISLAND

PATRICK JR, AUSTIN L
STATE CONSERVATIONIST

222 QUAKER LANE
WEST WARWICK RI 02893

PRATT, ELAINE Y

GRAD SCHOOL OF OCEANOGRAPHY
UNIV OF RHODE ISLAND
KINGSTON RI 02881

QUINN JR, JOHN S
CHIEF DIV SOLID WASTE MAN
DEPT OF HEALTH
DAVIS STREET
PROVIDENCE RI 02908

RUSSELL, HOWARD J

DEPT NATL WILDLIFE MAR FISHERIES

WICKFORD RI 02880
4012958818

SEAVEY, GEORGE L
PROJECT DIRECTOR
AUDUBON SOCIETY OF RHODE ISLAND
40 BOWEN STREET
PROVIDENCE RI 02903
4015214045

SHERMAN, KENNETH
MARMAP COORDINATOR
NMFS-NOAA
NARRAGANSETT MARINE LAB
NARRAGANSETT RI 02882
4017899326

STATE OF RHODE ISLAND

SISSON, RICHARD T

DEPT NATURAL RESOURCES
MARINE FISHERIES
WICKFORD RI 02880
4012958818

VARIN, DANIEL W
CHIEF STATEWIDE PLANNING
STATEWIDE PLANNING PROGRAM
265 MELROSE STREET
PROVIDENCE R I 02907

WHITAKER, LEE

STATEWIDE PLANNING PROGRAM
265 MELROSE STREET
PROVIDENCE RI 02907
4012772656

WOOD, C

AUDUBON SOCIETY OF RHODE ISLAND
40 BOWEN ST
PROVIDENCE RI 02903

STATE OF TEXAS

MILLER, IAN
OPERATIONS
GULF UNIVERSITIES RESEARCH CORP
1611 TREMONT STREET
GALVESTON TX 77550

STATE OF VERMONT

FLACCUS, E D

BENNINGTON COLLEGE

BENNINGTON VT 05201
80244254(31

STATE OF VIRGINIA

CANTILENA, BARBARA
SECRETARY OCEANIC BIOLOGY
ONEDEPT OF NAVY

ARLINGTON VA 22217

JAHODA, JOSEPH R
PRESIDENT
BAYSHORE SYSTEMS CORP
5406A PORT ROYAL ROAD
SPRINGFIELD VA 22151
7033219625

RINGE, ALEX C
TECHNICAL INFORMATION SPE
NTISSEARCH PROGRAM
5285 PORT ROYAL RUAD
SPRINGFIELD VA 22151

WEGGEL, J RICHARD

USA COASTAL ENG RSCH CTR
KINGMAN BLDG
FORTBELVOIR VA 22060

STATE" OF WASHINGTON, D. C.

SEE STATE OF DISTRICT OF COLUMBIA

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APPENDIX C ON-GOING RESEARCH

C. 1 INTRODUCTION

As described in the Introduction of Chapter 1.0 one of the methods in conducting this study has been to obtain a listing of on-going research programs. We chose several courses of attack to see which could produce the most useful results. By identifying programs just beginning or underway only one or two years, we believed we could show areas where future data should be generated. Since many of the results will not be in the published, scientific literature for one or two years, knowledge of on-going programs enabled us to correspond with principal investigators and receive technical reports, drafts, and open file reports. Following is a listing and description of the programs and services we used.

C.2 SMITHSONIAN SCIENTIFIC INFORMATION EXCHANGE (SSIE)

This organization, a part of the Smithsonian Institution in Washington, is chartered to receive periodic notices of research contracts primarily governmentally funded but including a few private companies. These notices state project title, funding agency, group and principal investigator conducting the research, and a one-page abstract or description of the project objectives, techniques, and methods. If available, the dollar value of the contract for the present fiscal year is given. The SIE notice does not contain results of the research project but only a description of the on-going activity. We found no way to determine how thorough or complete the coverage of the SSIE service is. Nearly all federal agencies are required to cooperate by supplying notices, yet we doubt that the coverage is thorough. To our knowledge, no SIE notice of this present BLM study appeared in either our November or April search. No definite conclusions have been attempted nor did time permit a thorough analysis of the coverage or comparison with known contracts. We did use the notices as sources for query of research reports, papers or technical memos. The notices are arranged by state in Attachment 1. There were a total of 335 notices in the study area. Our most recent search was performed in April 1974.

C.3 MESA/NEW YORK BIGHT

The multi-disciplinary, five-year intensive study of the New York Bight has been underway approximately one year by NOAA and other related federally funded agencies. Relatively little in the way of research results have been produced so far. Attempts to obtain planning documents, task statements, and detailed survey plans met with little success or aid from the MESA/NYB office at SUNY. The best summary of related on-going research of the New York Bight is to be found in NOAA's Directory of Current Research (1973). This preliminary document is simply a

listing of SSIE notices (see C.2). This document is arranged by discipline and contains 98 notices for the New York Bight. We did not attempt to compare these with those notices produced for our larger study area. A recent booklet (NOAA 1974) issued by the MESA office covers the services, programs and data available from NOAA on the New York Bight. It contains a brief description of each program element.

C.4 NEW ENGLAND COOPERATIVE COASTAL RESEARCH FACILITY (NECCRF)

This is a group of 20 institutions in New England which has been formed as a regional consortium to operate a coastal research vessel under the University National Ocean Laboratories (UNOLS) program of NSF. In preparing the proposal for a jointly operated ship, NECCRF member institution (12 major participants) listed the on-going or proposed research programs for all of New England. Some of these may overlap slightly with the SIE notices. The NECCRF list is presented as Attachment 2 of this Appendix.

APPENDIX C.5

MAINE RIVERS BIBLIOGRAPHY - A PILOT SURVEY

C.5.1 INTRODUCTION

A noted resource economist has observed that over a' period of years the amount of oil actually used as a percentage of total oil reserves has remained fairly constant. He also explained the reason, one which only becomes a part of visceral knowledge when one is engaged in a similar search: as one finds more of a given resource he also discovers that there is so much more yet to find (up to a certain point, of course). So it is with information on Maine rivers. This bibliographic search has so far unearthed 36.7 percent of all the information sources presently available; further effort would undoubtedly exceed the 36.7 percent level.

From the search, it appears there is an endless array of projects and documents. The topographic diversity of Maine rivers, from fiords to flat forested valleys, political diversity such as intrastate, interstate, and international rivers, and demographic diversity from relatively pristine headwaters to metropolitan regions provide a rich fabric of geophysical, bio-ecological, and social-political relationships. However, there is another area of diversity less attended: the river as a problem. We either have too much water or not enough; we have water which is polluted and waterways which are no longer suitable for fish or recreation; we have flooding and we have flood control projects which do more damage than the floods; we have large undeveloped hydro-power capacity and old hydro-power dams which are being left to decay in the rivers. Since nearlyall these problems, such as building on flood plains, stream channelization, and pollution are man-created we might conclude that they can be man-solved. The following text and bibliography is intended as an approachto solving the problems of our rivers.

C.5.2 INTEREST GROUPS INVOLVED IN MAINE RIVERS

A summary of various interest groups and their activities is shown in Table C.5-1. The table identifies research/policymaking sectors and river uses (problems) and presents their interrelationships in matrix form.

C.5.3 ACCESSIBILITY OF INFORMATION

Perhaps the most readily accessible information is on groundwater and geology simply because the United States Geological Survey and the Maine Geological Survey have put the published and unpublished data in such good order. In spite of the relatively large number

Table C.5-1 Maine rivers: who is doing what.

Uses / Problems	Sector			
	federal agency	state agency	regional agency	private organizations
groundwater quality and supply	Geological Survey; Environmental Protection Agency	State Planning Office: Water Resources Planning; Maine Geological Survey		well drillers
surface water supply	Geological Survey; U.S. Army Corps of Engineers	Health and Welfare	Regional Planning Commissions	water companies; hydro-electric companies; paper companies
floods	Geological Survey; Housing and Urban Development; U.S. Army Corps of Engrs. Soil Conservation Service	Soil and Water Conservation Commission	Resource Conservation and Development Projects	
surface water quality	Environmental Protection Agency	Department of Environmental Protection; Maine Port Authority	Regional Planning Commissions	paper industry; University of Maine oil spill clean up cooperatives
river corridor land use and soils	Soil Conservation Service	Department of Environmental Protection; Land Use Regulation Commission	Regional Planning Commissions	University of Maine environmental studies center
navigation	U.S. Army Corps of Engineers			

Table C.5-1 (Continued)
Maine rivers: who is doing what.

Uses / Problems	Sector			
	federal agency	state agency	regional agency	private organizations
biology/ ecology	Bureau of Sport Fisheries and Wildlife	Inland Fisheries and Game; Marine Resources Atlantic Sea Run Salmon Commission		University of Maine: cooperative fishery unit, biological sciences departments; paper industry
hydro power	U.S. Army Corps of Engineers; Federal Power Commission			hydro-electric companies
recreation	Bureau of Outdoor Recreation	Department of Parks and Recreation	Regional Planning Commissions	Natural Resources Council of Maine
planning	U.S. Army Corps of Engineers			

of reports bearing on Maine groundwater resources the researchers most involved in this area seem to agree that only a beginning has been made and much more in-depth work needs to be done. Also, equally responsive to public informational needs are the state wildlife agencies including the Departments of Inland Fisheries and Game and Marine Resources. Not only are their published reports and informal reports made readily available but these agencies go out of their way to answer all inquiries.

On the other hand in two pressing problem areas, flooding and pollution, the data gathering task is more difficult. The United States Soil Conservation Service with its stream channelization program and the United States Army Corps of Engineers with their various dam building projects have exemplified man's attempts to control nature. Water resources planners, attempting to keep up with the latest information and techniques are devoting major efforts to flood plain delineation. This involves a radical departure. Instead of striving to reduce the size of flood plains through physical stream control measures the accent has been on reducing the amount of unnecessary and poorly designed building on flood plains. Such a new perspective cannot be formulated immediately. Flood plain delineation programs are so poorly formed that none of the agencies principally responsible know exactly what is going on.

Information on pollution is quite another matter. The problem with retrieval, of information on pollution is that it is largely located in regulatory rather than public service agencies. The primary responsibility of regulatory agencies is to control polluters rather than satisfy the informational needs of special constituencies. However, the United States Environmental Protection Agency at the Region I headquarters in Boston does have some information about EPA programs in the State of Maine. In discussing retrieval of pollution data we found that programs as large as three million dollars may be overlooked. (Personal communication, March, 1974). Unfortunately, the Maine Department of Environmental Protection is even less able to disseminate information. A vast quantity of reports and studies are generated by its activities through this agency. Surprisingly, one must search the large repository for most of the reports himself.

C.5.4 TOPICAL SUMMARY OF MAJOR WORKS

This section briefly describes some of the major works completed or in process which pertain to Maine Rivers. The discussion is arranged by topic.

GROUND WATER

Work by Glenn Prescott for the United States Geological Survey gives the most extensive picture of Maine groundwater quality and quantity. Caswell of Maine Geological Survey is continuing with in-depth work for the State Planning Office begun in Knox County; eventually he may be able to provide a more detailed groundwater picture for Maine coastal' counties. Two U.S. Environmental Protection Agency studies on groundwater quality are still in progress.

SURFACE WATER SUPPLY

Maine is water rich - at least for the time being. The last major drought in the Northeast prompted the NEWS study by the U.S. Army Corps of Engineers (see references in C.8). Further creative thinking on this sort of question has led to a conference on water diversions (NECUCD), while at the same time water supply problems raised in connection with new industrial siting, i.e., soup manufacturing and oil refining, have caused some people to ask if Maine actually has enough clean water left to be diverted elsewhere. Most of the information on this matter resides in the files of the Maine Department of Health and Welfare who are concerned with the quality of municipal water supplies, Maine regional planning commissions who have ongoing water studies, and various private interests. Some of the latter are: local water companies, hydro-electric companies, and those paper companies who control large volumes of river flow. 'Also important sources are the published and file records of the U.S. Geological Survey.

FLOODPLAIN MANAGEMENT

The other side of the water supply problem is one of too much in the wrong place. Floodplain problems are of greatest concern to the federal agencies. The U.S. Geological Survey has a series of reports on historical floods and is involved in a current program of mapping flood-prone areas. The U.S. Department of Housing and Urban Development has contracted similar mapping work as a first step in its flood insurance program. The U.S. Army Corps of Engineers in addition to its flood control projects in the past, has already conducted at least two flood plain delineation studies, has contracted for several others, and probably has sufficient information to do more work particularly on the Androscoggin River. The U.S. Soil Conservation Service through its regional Resource Conservation and Development Programs has a large amount of flood plain mapping work planned in addition to its Small Watershed Program which includes stream alteration devices for controlling floods on smaller tributary streams.

SURFACE WATER QUALITY

Although the municipal wastewater treatment plant construction grant program is tangled up in a maze of federal agencies, the basic responsibility is fairly straightforward at all levels of government. At the national level the U.S. Environmental Protection Agency (EPA) provides the following:

(1) a stored data bank on municipal and industrial wastewater dischargers (together with information from various in-stream sampling programs)

(2) a series of ongoing water quality modelling projects

(3) permit applications under the National Pollutant Discharge Elimination System (NPDES)

(4) hearing records, most of them unpublished, on enforcement conferences and on the issuance of permits under NPDES

(5) effluent monitoring data required for NPDES permits will eventually become available through EPA

(6) miscellaneous special research reports

(7) several newsletters on their activities

(8) various reports on the setting of discharge standards for polluting industries

At the state level, the Maine Department of Environmental Protection (DEP) can provide the following information:

(1) all the original and revised classification reports on Maine rivers and coastal areas

(2) interim river basin plans (commissioned by EPA)

(3) river basin implementation plans (essentially an arranged compilation of the agency's historical materials on each basin)

(4) a series of annual reports ending in 1969

(5) a file of license applications and licenses issued under various environmental regulatory laws: site selection, wetlands, wastewater discharge, minimum lot size, mine rehabilitation, oil terminal operation

(6) a file of monthly operation reports for Maine's municipal wastewater treatment plants

(7) data on oil spills

(8) data and sometimes reports on the agency's water quality sampling program (where special intensive efforts have been made)

(9) a file of engineering reports on all Maine municipal wastewater treatment plants.

(10) a file of various reports bearing on industrial wastewater discharge and treatment in Maine

(11) an annual report to EPA on the Department's water quality planning program

Regional planning commissions all have some commitment to regional sewer and water planning; while the private sector, the University of Maine at Orono, and the Maine Pulp and Paper Industry have done much of the water quality research. Two other items are worthy of special note. Oil spill information is available from the Maine Port authority, the organizations of Maine oil terminal operators, and Sea Coast Ocean Services, (an oil spill clean up company), as well as from the DEP. Hunter and Goodnow's Maine Water Resources Plan (1969) is also recommended (see extensive references in Chapter 17.1).

RIVER CORRIDOR LAND USE AND SOILS:

The U.S. Soil Conservation Service is conducting soils mapping. The Maine DEP and Land Use Regulation Commission which is concerned with unorganized territories, have acquired even greater powers of control over new uses of Maine land and thus are in the process of collecting land use information, building files on land use applicants, and refining land use guidelines. One of the most recent statutes having most relevance to rivers is the Shoreland Zoning Act. Since this is meant to be administered on the municipal level, various state agencies and the University of Maine at Orono (Environmental Studies Center) have teamed up to provide towns with information and funds through regional planning commissions.

Reviews of the information and expertise available are being prepared for rivers, lakes, and the coastal zone, and soils. With the end of the federal "701" program funding for town planning commissions. Their work and that of local conservation commissions at the town level in open space planning has great potential for Maine rivers and streams particularly where it can integrate with shoreland

zoning and flood plain delineation work.

BIOLOGY/ECOLOGY

The State has assumed leadership in wildlife management with two agencies dividing up the responsibility geographically. The Maine Department of Inland Fisheries and Game has completed a series of freshwater fish and waterfowl management studies, while the Maine Department of Marine Resources (formerly the Department of Sea and Shore Fisheries) is responsible for marine species and commercial fisheries. The offices of Maine Atlantic Sea-Run Salmon Commission, and the U.S. Bureau of Sport Fisheries and Wildlife are located either on or adjacent to the University of Maine campus; the University's Department of Wildlife Management interpenetrates state agencies; and one organization, the Maine Cooperative Fishery Unit, is a complete integration of all three. The University through its various biological sciences departments has also been cooperating with other state agencies and with private industry to look at a range of problems and organisms from the development of macro-invertebrate sampling techniques (for the DEP) to the development of biological baseline data for the mining and nuclear power industries). The paper industry's role in this sort of research is presently undefined.

NAVIGATION

The U.S. Army Corps of Engineers is the most prominent agency in Navigational studies. Relatively few projects have been conducted on erosional beach studies. The Corps is chiefly responsible for harbor maintenance dredging project. A list of these latter appears in Appendix A.3

HYDRO-ELECTRIC POWER

When the Dickey-Lincoln hydro-electric project was recently revived everyone soon discovered that the only place to get adequate information was from the U.S. Army Corps of Engineers. The two other sources on hydro-storage capacity are the U.S. Federal Power Commission Bureau of Power, with its series of booklets covering all the major basins, and the major electric companies, Central Maine Power and Bangor Hydro-Electric Company, with most of their data residing in private company files. A few other reports on electric power in general are of interest.

RECREATION

The main branches of all major Maine rivers have been considered fit for neither canoe nor camper. Recreational considerations have moved upstream to the Allagash and the upper Penobscot. With increasing

pressures to clean up pollution and reclaim open pit mining operations, perhaps the U.S. Bureau of Outdoor Recreation, the Maine Department o-F' Parks and Recreation, the" Regional Planning Commissions, and the Natural Resources Council of Maine may reorder their priorities and. do some to river studies.

PLANNING

Multi-Agency, multi-purposes comprehensive studies seem to come in twenty year intervals. The "308" studies of the U.S. Army Corps of Engineers in the early 1930's, the New England-New York Interagency Committee report in the early 1950's, and the North Atlantic Regional study in the early 1970's, are examples. These programs appear to be largely motivated by the U.S. Army Corps of Engineers.

C.5.5 SUMMARY OF MAJOR WORKS ARRANGED BY BASIN

For the purposes of organizing this bibliography on Maine rivers we have divided the State into eleven basins. Four of them are large basins, four small basins, and three collections of minor coastal basins as shown in Figure C.5-1. The major point of difference between this geographic division and other systems is where to fit Penobscot Bay and whether to deal separately with certain sub-basins, most notably the Little Androscoggin, the Sebasticook, the Aroostook, and the Allagash. Each basin Presents its own special research significance in terms of the individual problems.

ANDROSCOGGIN RIVER BASIN

Gone are the days when people had to evacuate sections of Lewiston and Auburn during critical summer periods due to the pollution of the Androscoggin River. Dr. Walter A. Lawrance, recently appointed river master handling such problems, points out the reason for the improvement has been the conversion of the major pulp mills from the sulfite to the Kraft process, not court ordered controls, federal intervention, or enlightened industrial management. In spite of the change, the dirty river tradition continues. It is likely this attitude prompted the first Maine Rivers Guide Plan to be done on the Androscoggin. Certainly, it led to the formation of the Maine Sanitary Water Board, a precursor to the Maine DEP, as well as a federally sponsored water quality enforcement conference, and Dr. Lawrance's research. Today the Androscoggin Valley Regional Planning Commission continues with its research and programs on waste disposal, water and sewer planning, storm water runoff, corridor land use and shoreland zoning aid to municipalities.

KENNEBEC RIVER BASIN

The Kennebec runs through the capitol city of Augusta. Though the proximity of the Kennebec has sparked many proposals, few have received legislative approval. The list of submitted proposals includes proposals for corridor planning by the Natural Resources Council (NRC); proposals for regional wastewater handling by DEP; proposals for flood control, proposals for use of principal storage capacity by New England Regional Basins Commission (NERBC); and general proposals to do something positive with the Kennebec.

So far the Natural Resources Council of Maine and the Maine DEP have not met with much success on their ideas nor have the proponents of pumped storage. Howard Trotzky of NRC tried to change this with his campaign to get the logs off and out of the River, and perhaps the North Kennebec Valley Regional Planning Commission will have some success with its investigation of corridor control measures for non-point sources of water pollution.

PENOBSCOT RIVER BASIN

The University scientists at Orono are not faced with the same predicament as the Augusta policy makers and instead the Penobscot River has become Maine's river laboratory. The attractions of the Penobscot Bay have proven particularly powerful with studies conducted by the Maine State Planning Office, Maine Geological Survey, and the U.S. National Oceanic and Atmospheric Administration. The lower river and estuary has seen two major University studies, one designed to maximize the rivers waste assimilation capability, the other to minimize the cost of wastewater treatment and handling. Three ongoing biological studies are concentrating on the upper river. In additon there is the continuing work of the fishery biologists of the two State agencies to monitor water quality and restore Atlantic Salmon. The EPA sponsored one enforcement conference on the estuary and in so doing gathered information on bacterial and organic pollution loading and effects.

SACO RIVER BASIN

Maine's model river, the Saco, had become so prior to any legislative action. Part of the answer may lie in Toynbee's theory of history. Here one sees on a small scale what happens when enough of a threat is offered so that people feel challenged, yet the threat is not so great that they feel overcome by it. The minimal threat rivers such as the Penobscot and Kennebec and maximum threat rivers of the Presumpscot and St. Croix offer the contrast. The challenge on the Saco has been one of the increasing land development pressures felt both because of the expanding megalopolis of the old exurbanites to the

south and changing life styles of the new counterculture. The response has been the organization of the Saco River Corridor Association and its planning efforts which was foreshadowed by Haskell (1969). This means that a whole series of river-related problems arising from land development can be handled in a comprehensive way which includes water pollution, flooding, erosion, and recreation.

PRESUMPSCOT RIVER BASIN

On a small river the discharge of a single pulp mill can make a great deal of difference. Such is the case with the Presumpscot River. The S.D. "Warren Paper Company at Westbrook probably has collected the most information on the river and its varying environmental conditions. These include flow rates from its dam operation, biological studies and monitoring of physical and chemical water quality parameters. Perhaps a DEP-S.D. Warren cooperative study during the summer of 1974 may give some insight into what is actually happening on this river, particularly during the critical summer period when the dar" is shut down, as well as highlighting where real information gaps still exist.

ST. CROIX RIVER BASIN

Most of the information so far developed on the St. Croix, another mill dominated river, is publically available. Asborn (1972) made good use of the work of the International Joint Commission's Advisory Board on Pollution Control, while the EPA has conducted an extensive sampling program on the river.

PISCATAQUA - SALMON FALLS RIVER BASINS

Approximately three quarters of the Piscataqua River Basin is in New Hampshire, thus one must turn to the New Hampshire Water Supply and Pollution Control Commission for information from its special reports on the River, files, and monitoring reports by private industry.

SOUTHERN COASTAL RIVER BASINS

The rivers between the Piscataqua and the Androscoggin Basins, exclusive of the Saco and the Presumpscot, comprise the Southern Coastal Basins. This is a rather arbitrary category, these rivers being neither geographically unified nor sharing a common problem. There has been geological work on the Harraseeket and the Scarborough (Farnsworth n. d.; Farrell, 1970), a recreational study on the Royal River (GPCOG), and water quality monitoring on the Mousam, Nonesuch, and Scarborough Rivers (Cullo; DEP). Also, the Threshold to Maine Resource Conservation and Development Project (SCS) has been very

active throughout the whole of southern Maine in a number of major and minor basins on programs ranging from flood plain delineation to upgrading water quality standards.

MID-COASTAL RIVER BASINS

There are some areas that are better left to make their own statement. So it is with the mid-coast region from Merrymeeting Bay to Penobscot Bay. To gain some appreciation of this, one need only look at a map. The laboratories in the area have quite naturally concentrated on biological and geological studies, much of it oceanographic rather than riverine. This includes the National Marine Fisheries Service at Boothbay Harbor (this laboratory was transferred to the State of Maine in 1973) with work on the Sheepscot River; Maine Sea and Shore Fisheries, now the Department of Marine Resources at Boothbay Harbor, with work on shellfish and mercury monitoring; and the Ira C. Darling Center of University of Maine at Walpole with work on various estuaries and intensive studies for the Maine Yankee Atomic Power Plant on Montsweag Bay, Wiscasset.

NORTHERN COASTAL RIVER BASINS

Lying between the Penobscot and St. Croix basins are a number of relatively untouched, unpolluted, and unstudied coastal rivers. Aside from the Narraguagus River where there is ongoing water quality work (Diamond, see ongoing research), fisheries restoration (ASRSC), and a study on macroinvertebrate fauna (Gibbs, see ongoing research), the bulk of other recent research has been Maine Department of Inland Fisheries and Game work on fisheries management.

SUMMARY

This brief review of river projects and research is both superficial and selective. It is superficial since many relevant major reports have not been included; it is selective because a complete literature review would be both endless and pointless. Some of the areas purposely avoided have been lakes studies (Wallace and Strunk have the definitive work here), meteorology and climatology, geology other than that specifically related to water resources, historical works, and political economic information in general.

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ONGOING RESEARCH: DETAILED DESCRIPTIONS ATTACHED

(1) Thomas Embich: sand shrimp in Penobscot estuary

(2) Maine Department of Environmental Protection: water quality sampling program for summer of '74

(3) Maine Department of Environmental Protection: correction of Maine stream classification system

(4) Maine Atlantic Sea-Run Salmon Commission: immigration of salmon from stream side rearing pond

(5) Maine Atlantic Sea-Run Salmon Commission: evaluation of fish passage facilities

(6) Katherine Gibbs: macroinvertebrate fauna of upper Penobscot River

(7) Maine Department of Environmental Protection, Matt Scott: baseline biological data on Maine rivers

(8) Maine State Planning Office, Brad Caswell: ground water resources of coastal Maine counties

(9) United States Geological Survey, Glenn C. Prescott, Jr.: survey of groundwater resources of Cumberland County

(10) George Cooper: application of ERTS-1 imagery and low level photography to coastal problems in Maine

(11) Michael Mazurkiewicz: effects of thermal addition on sandworms and bloodworms

(12) L. Kenneth Fink, Jr.: heavy metals in estuarine environments

(13) Franklin E. Woodard: water quality monitoring and control in Penobscot River

(14) Geraghty and Miller, Inc. (for U.S. Environmental Protection Agency): groundwater contamination in Northeast

(15) United States Geological Survey, Gordon S. Hayes: mapping of flood prone areas in flood prone Maine towns

(16.) De Leuw, Cather & Company (for U.S. Department of Housing and Urban Development): flood hazard boundary mapping for flood prone towns in Maine

(17) Greater Portland Council of Governments: "208" planning for municipal and industrial regional wastewater treatment

(18) Maine Department of Environmental Protection and S.D. Warren Paper Company: study of summer flow rates on Presumpscot River

(19) Richard Hatch, Maine Cooperative Fisheries Unit: ongoing monitoring program: Penobscot estuary

(20) Robert E. Lennon: salmon restoration in St. Croix River

(21) Reed and D'Andrea coastal areas study for Smithsonian

(22) Wright, Pierce Engineers (Topsham, Maine): study of dams in Maine for U.S. Army Corps of Engineers

(23) Maine Department of Marine Resources: heavy metals in Muscongus Bay, St. George River estuary, Cape Rosier

(24) D. Pratt: bacterial populations in Maine aquatic and estuarine environments

(25) P. Carpenter: heavy metal accumulation in clams, mussels, seaweed and baitworms from St. George estuary

ONGOING RESEARCH: DETAILED DESCRIPTIONS NOT AVAILABLE AT PRESENT

(26) Roy Farnsworth: sediments in Haraseeket River

(27) Thomas Easton: hydrology, ecology, and water quality in Messalonskee drainage

(28) Brunswick Conservation Commission (by Wright Pierce): study of New Meadows River

(29) Sheepscot River Citizen's Conservation Group: study of Sheepscot Basin

(30) MIT-Maine Maritime Academy: current studies in Penobscot Bay

(31) Salmon Falls Citizen's Conservation Group: study of Salmon Falls River

(32) Emmons & Martel, SMVTI: water quality in Goosefare Brook

(33) John Dimond: follow-up study of effect of pesticides on invertebrates (Narraguagus River)

(34) Barry Timson, Maine Geological Survey: classification, description, and evaluation of all Maine estuaries; hydrographic surveys of Union and Narraguagus Rivers

(35) U.S. Bureau of Outdoor Recreation: wild river study of upper Penobscot

(36) Androscoggin Valley Regional Planning Commission: storm water runoff study

(37) Androscoggin Valley Regional Planning Commission: Lewiston-Auburn to Runford corridor study

(38) R.W. Crippen (UMO): Effects of Elevated Temperature on some Meroplanktonic Larvae in the Montsweag Bay-Back River Area (for Maine Yankee Atomic Power Company, Augusta)

(39) Natural Resources Council of Maine, Maine Rivers Committee: canoeable rivers study

(40) Maine Department of Environmental Protection: time of travel study on' Kennebec River (late summer, 1974)

(41) U.S. Environmental Protection Agency: Time of Travel Study on Kennebec River (early summer, 1974)

(42) Edward C. Jordan, Co.: data gathering on Kennebec River .

(43) James W. Sewall, Co.,: flood plain delineation on Presumpscot 'iii ver

(44) Meta Systems (for Northern Maine Regional Planning Commission): modelling for water quality on St. John

(45) Raytheon (for U.S. Environmental Protection Agency): modelling water quality in Salmon Falls-Piscataqua

(46) Greater Portland Council of Governments: flood insurance programs

(47) Greater Portland Council of Governments: storm drainage plan for three core cities

(48) Maine Regional Planning Commissions: ongoing water and sewer planning studies

(49) Maine State Planning Office, Coastal Planning Unit: Maine Coastal Plan

(50) New England River Basins Commission: Maine Guide Plans for Maine Rivers

(51) Maine State Planning Office, Water Resources Planning: stream descents in Knox County

SCIENCE INFORMATION EXCHANGE (SIE) LISTINGS: SEE APPENDIX C.2

(52) Hal con (for U.S. Environmental Protection Agency): modell ing for water quality on Kennebec River

(53) Schnitker and Clark: bedrock topography and sediments off the Kennebec, Sheepscot, and Damariscotta estuaries

(54) Katherine Gibbs: macroinvertebrate fauna of a Maine salmon river subjected to long term multiple pesticide contamination (Narraguagus)

(55) Ellery Keene, North Kennebec Regional Planning Commission: data and management needs for water related land areas

(56) E. Green: dissolved pollution product gases in natural waters (possibly Kennebec or Penobscot estuary)

List of On-Going Research Projects in Maine

ONGOING RESEARCH

SUPPORTING AGENCY:

Maine Cooperative Fishery Unit, University of Maine at Orono

TITLE OF PROJECT:

Ecology of the Sand Shrimp, Crangon septemspinosa, Say, 1818, in the Penobscot River Estuary, Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Thomas R. Embich

RECIPIENT INSTITUTION:

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: Population composition and length distribution of sand shrimp studied in relation to water temperature, salinity, dissolved oxygen, and hours of daylight.

Geographic Coverage: Penobscot River estuary

Index Terms: ECOLOGY: life histories, habitat distribution, population density,

Status to date:

CONTACT FOR INFORMATION:

Dr. Richard Hatch
Maine Cooperative Fishery Unit
Murray Hall
University of Maine at Orono
Orono, Maine 04473

BLM Form 5

2.

ONGOING RESEARCH

SUPPORTING AGENCY: Maine Department of Environmental Protection

TITLE OF PROJECT: Water Quality Sampling Program

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:
Charles King

RECIPIENT INSTITUTION:
Maine Department of Environmental Protection

PERIOD FOR RESEARCH:

From: Summer 1974

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: Intensive water quality survey of selected streams

Geographic Coverage:

Index Terms: POLLUTION: Water Quality; BOD; COD; Bacterial

Status to date:

CONTACT FOR INFORMATION:
Charles King
Maine Department of Environmental Protection
State House
Augusta, Maine 04330

3. ONGOING RESEARCH

SUPPORTING AGENCY: Maine Department of Environmental Protection

TITLE OF PROJECT: Correcting Maine stream classification system

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:
William Hinckley an?- Raeburn MacDonald

RECIPIENT INSTITUTION:
Maine Department of Environmental Protection

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: To correct Maine stream classifications so they are readable and consistent

Geographic Coverage: State of i.sine

Index Terms: [illegible]: Standards

Status to date:

CONTACT FOR INFORMATION:
William Hinckley

BLM Form 5
1/22/74

4.

ONGOING RESEARCH

SUPPORTING AGENCY: United Stales Department of the Interior, Bureau of Sport Fi sheries and Wildlife

TITLE OF PROJECT: Study of Immigration of Salmon from Stream Side Rearing Pond to the Penobscot River

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Alfred Meister

RECIPIENT INSTITUTION:

Maine Atlantic Sea-Run Salmon Commission

PERIOD FOR RESEARCH:

From: Spring 1974 and

To: Spring 1975

FUNDING:

SUMMARY OF PROJECT:

Objectives: To examine immigration of salmon from stream side rearing pond into Penobscot River

Geographic Coverage: Penobscot River at Prewer, Maine.

Index Terms: BIOLOGY/ECOLOGY: Fishes

Status to date:

CONTACT FOR INFORMATION:

Alfred Meister

c-loo'

BLM Form 5

1/22/74

5. ONGOING RESEARCH

SUPPORTING AGENCY: Anadromous Fish Act 1965 and 1970

TITLE OF PROJECT: Evaluation of Fish Passage Facilities on Maine Salmon Rivers

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Alfred Meister (Fishery Biologist)

RECIPIENT INSTITUTION:

Maine Atlantic Sea-Run Salmon Commission

PERIOD FOR RESEARCH:

From: ongoing

To: June 30, 1974

FUNDING:

SUMMARY OF PROJECT:

Objectives: To evaluate fish passage facilities on Maine salmon rivers.

Geographic Coverage:

Index Terms: BIOLOGY/ECOLOGY

Status to date:

CONTACT FOR INFORMATION:

Alfred Meister

6.

ONGOING RESEARCH

SUPPORTING AGENCY:

Maine Department of Environmental Protection

TITLE OF PROJECT:

A Study of Macro Invertebrate Fauna of the Upper Penobscot River in Relation to Water Quality

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Katherine Gibbs
Charles Rabeni, Graduate Assistant

RECIPIENT INSTITUTION:

University of Maine at Orono

PERIOD FOR RESEARCH:

From: Preliminary work summer of 1973;
To: end of 1975 (with field work in summers)

FUNDING:

SUMMARY OF PROJECT:

Objectives: To establish baseline data on macro invertebrate fauna of upper Penobscot River; to develop sampling techniques

Geographic Coverage: Penobscot River: Costigan to Medway; sampling in both East and West Branches.

Index Terms: BIOLOGY/ECOLOGY: Benthic Invertebrates

POLLUTION:

Status to date:

CONTACT FOR INFORMATION:

Katherine Gibbs

7,

ONGOING RESEARCH

SUPPORTING AGENCY:

Maine Department of Environmental Protection

TITLE OF PROJECT:

Establishment of Baseline Biological Data on Maine Rivers

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Matt Scott

RECIPIENT INSTITUTION:

Maine Department of Environmental Protection

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: To establish baseline data on stream benthos (macroinvertebrate samples; artificial substrate samples; periphyton); use of species diversity indices.

Geographic Coverage: Prestile Stream; Sebasticook; Goosefare Brook; Presumpscot; Little Androscoggin; Androscoggin; Kennebec; Aroostook; Kennebunk; (sampling at all DEP Physical-Chemical monitoring stations)

Index Terms:

BIOLOGY/ECOLOGY: Benthic Invertebrates

POLLUTION:

Status to date:

CONTACT FOR INFORMATION:

Matt Scott

BLM Form 5

1/22/74

8.

ONGOING RESEARCH

SUPPORTING AGENCY:
Maine State Planning Office, Water Resources Planning Office

TITLE OF PROJECT: Ground Water Resources of Knox County, Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:
Brad Caswell

RECIPIENT INSTITUTION:
Maine State Planning Office, Water Resources Planning Office

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives:

Geographic Coverage: Knox County, Maine; will then move on to other coastal Maine counties, first Hancock and Cumberland Counties

Index Terms: HYDROLOGY: Groundwater

WATER SUPPLY: Groundwater Studies

Status to date:

"CONTACT FOR INFORMATION:
Brad Caswell

9.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of the Interior, Geological Survey

TITLE OF PROJECT:

Survey of the Ground Water Resources of Cumberland County, Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Glenn C. Prescott, Jr.

RECIPIENT INSTITUTION:

United States Geological Survey
Augusta, Maine 04330

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives:

Geographic Coverage: Cumberland County, Maine

Index Terms: HYDROLOGY: Groundwater

WATER SUPPLY: Groundwater Studies

Status to date:

CONTACT FOR INFORMATION:

Glenn C. Prescott, Jr.
United States Geological Survey
Augusta, Maine 04330

BLM Form 5
1/22/74

10.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of Commerce, National Oceanic and Atmospheric Administration, Sea Grant Program

TITLE OF PROJECT: Application of ERTS-1 Imagery Hid, Low Level Photography to Coastal Problems in Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

George Cooper (Botany and Plant Pathology)

RECIPIENT INSTITUTION:

Ira C. Darling Center
Walpole, Maine

PERIOD FOR RESEARCH:

From: Jan 1973

To: March 1974

FUNDING: $9,517 sea grant
$7,638 matching

SUMMARY OF PROJECT:

Objectives: (attachment)

Geographic Coverage:

Index Terms:

Status to date:

CONTACT FOR INFORMATION:

George Cooper

NOAA FORM 90-2
5-71

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FORM APPROVED.
DECEMBER 31, 1972
OMB NO. 41-R2600

SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

JECT NO. R/CZ-1	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT Application of ERTS-1 Imagery and Low Level Photography to Coastal Problems in Maine	DATE INITIATED, IF CONTINUING
GRANT No. (Office)	OLO TITLE (If different)	DATE OF THIS FORM Jan. 1973
NSTITUTION U. Me.		ESTIMATED COMPLETION DATE March 1, 1974

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
George Cooper Botany and Plant Pathology	31		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	A/EP-1
0	$ 0	$ 0	$ 0	$9 517	$7,638	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Marine Environmental Research	Coastal Zone Mgmt. /Nat. Sci. & Engr.

(39)

OBJECTIVES:

The objective of this project is:

To develop and define methods for the use of high altitude ERTS-1 satellite photographs for applied purposes such as coastal zone management.

HOW INFORMATION WILL BE APPLIED (Be specific):

Coastal Zone Management

1. Inventory of coastal resources (marshes, tidal flats, lakes, beaches, rocky shores, etc.).
2. Monitoring man-induced environmental changes.

Identifying Marine Environments for:

1. Possible sites for intensive aquiculture.
2. Conditions favorable for growth and development of commercially important marine species.

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS (Not more than one sentence per accomplishment):

(Do not use more space.)

11.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of Commerce, National Atmospheric and Oceanic Administration, Sea Grant Program

TITLE OF PROJECT: Effects of Thermal Addition on Sandworms and Bloodworms

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Michael Mazurki ewicz Oceanography)

RECIPIENT INSTITUTION:

Ira. C. Darling Center
Walpole, Maine

PERIOD FOR RESEARCH:

From: Jan 1973

To: Dec 1975

FUNDING: $32,394 sea grant
$114,032 matching

SUMMARY OF PROJECT:

Objectives: (attachment)

Geographic Coverage:

Index Terms: POLLUTION: Thermal

BIOLOGY/ECOLOGY: Worms

Status to date:

CONTACT FOR INFORIVIATION:

Michael Mazurkiewicz

II (cont.)

IOAA FORM 90-2 (5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

SEA GRANT PR0JEc39h+AARy
(Limit all information to this page)

FORM APPROVED. DECEMBER 31, 1972 OMB NO. 41-R2609

PROJECT NO.	PROJECT TITLE ☒ NEW ○ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED. IF CONTINUING
R/A-2	Effects of Thermal Addition on Sandworms and Bloodworms	
GRANT NO. *(Office)*	OLD TITLE *(If different)*	DATE OF THIS FORM: Jan., 1973
INSTITUTION: U. Me. Me.		ESTIMATED COMPLETION DATE: Dec., 1975

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
Michael Mazurkiewicz, Oceanography	30		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS *(By numbers)*
FED. -SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	
0.00	$ 0.00	$0.00	$ 0,00	$32,394	$ 114,032	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Marine Environmental Research	Pollution/Thermal (43)

OBJECTIVES:

Abstract:

This project will determine the impact of coolant waters from the Maine Yankee Atomic Power Plant on the principle commercial fishery near the plant, the harvesting of sandworms and bloodworms. A detailed field program will relate temperature profiles in the water column and intertidal sediments to worm distribution, behavior, gametogenesis and reproduction. In a comprehensive laboratory study worms will be subjected to physical conditions simulating those near the plant. Worms will be studied under both constant and fluctuating temperature regimes. Investigations include acclimation, modifications of metabolic rates, behavior, growth rates, gametogenesis, reproduction "and development, and determination of critical thermal maxima on various life history stages.

HOW INFORMATION WILL BE APPLIED *(Be specific):*

The field studies will determine whether the warm water discharge from the nuclear plant has altered nearby populations of sandworms and bloodworms. This information will assist state and federal regulatory agencies in determining whether Maine Yankee has complied with its licensing requirements.

Both field and laboratory studies will provide new information about these species that will assist many state and federal agencies in the planning, siteing, licensing, and regulating of future power plants.

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS *(Not more than one sentence per accomplishment):*

New project.

12.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of Commerce, National Oceanic and Atmospheric Administration, Sea Grant Program

TITLE OF PROJECT: Relative Contributions by Mining, Industrial, Agriculture, and Untreated Sewage Wastes to the Distribution of the Heavy Metal Levels in Estuarine Environments in Maine.

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

L. Kenneth Fink, Jr. (Oceanography)

RECIPIENT INSTITUTION:

Ira C. Darling Center
Walpole, Maine

PERIOD FOR RESEARCH:

From: 8/1/73

To: 12/31/74

FUNDING: $56,774 Sea Grant
$39,101 matching

SUMMARY OF PROJECT:

Objectives: (attachment)

Geographic Coverage:

Index Terms: POLLUTION: Water Quality, Heavy Metals, Effects of, Standards, Regulations,

BIOLOGY/ECOLOGY:

Status to date:

CONTACT FOR INFORMATION:

L. Kenneth Fink, Jr.

12 (cont.)

NOAA FORM 90-2 (5-71)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

FORM A PPRO VE. O. DECEMBER 31, 1972 OMB NO. 41 - R2600

SEA GRANT PROJECT SUMMARY
(Limit all information to this page)

PROJECT NO.	PROJECT TITLE ☒ NEW ☐ CONTINUING ☐ CHECK IF SEPARATE PROJECT GRANT	DATE INITIATED, IF CONTINUING
R/P- 1	Relative contributions by mining, industrial, agriculture, and untreated sewage wastes to the distribution of the heavy metal levels in estuarine environments in Maine.	
GRANT NO. (Office)		DATE OF THIS FORM: Jan., 1973
INSTITUTION: UMe.		ESTIMATED COMPLETION DATE: Dec. 31, 1974

PRINCIPAL INVESTIGATOR AND COLLEGE OR DEPARTMENTAL AFFILIATION	% TIME	ASSOCIATE INVESTIGATOR	% TIME
L. Kenneth Fink, Jr., Oceanography	40		

FUNDS EXPENDED TO DATE		LAST YEARS FUNDING		PROPOSED FUNDING		RELATED PROJECTS (By numbers)
FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	FED.-SEA GRANT	MATCHING	R1A-1,3,4, &5 A/EP-1
$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 56,774	$39,101	

PART OF UNIVERSITY PROGRAM	OFFICE OF SEA GRANT CLASSIFICATION
Marine Environmental Res earth	Pollution/Metals (449

OBJECTIVES:
The objectives of this proposal are:

1. to determine the distribution patterns of heavy metals in- the waters, suspended particulates, sediments, and biota of selected Maine estuaries which can be characterized by the following specific pollution sources: Mining Activity - Goose Cove on the Penobscot River; Untreated Town Sewage - Union River; Agricultural Activity - Narraguagus River; Untreated Paper Mill Effluent - St. Croix River.
2. to determine the relative impact on the selected estuaries by the different pollution sources as compared to one another and the Class A Damariscotta River.
3. to provide facts on heavy metals in Maine's estuaries as a) a basis for pollution control and prevention legislation, and b) an additional consideration for coastal resource evaluation, planning, and management currently in progress by the State Planning Office.
4. to aid in the assessment of the suitability of the coast of Maine for aquiculture.

HOW INFORMATION WILL BE APPLIED (Be specific):

The data derived from this project will: 1) provide a direct evaluation of the absolute and relative effects of various pollution activities on the different environmental compartments of an estuary; 3) provide a realistic basis by which guidelines and limits can be established for industry licensing and control by the Department of Environmental Protection; 3) provide needed baseline information for use in coastal resources evaluation, planning, zoning, and management; 4) provide a factual basis for new criteria to determine water quality and classification in Maine; 5) help to establish criteria other than coliform bacteri counts for identification of potential health hazards in shellfishing areas; 6) increase the understanding of the pathways of man-introduced pollutants in the marine environment.

ACCOMPLISHMENTS DURING PAST TWELVE MONTHS (Not more than one sentence per accomplishment):

New Project to begin 8/1/73.

(Do not use more spa...

13.

ONGOING RESEARCH

SUPPORTING AGENCY:

Maine Department of Environmental Protection

TITLE OF PROJECT:

Development and Implementation of Water Quality Monitoring and Contol in Maine: Phase II

PRINCIPAL INVESTIGATORS, AND DEPARTMENT S P E C I A L I T Y :

Franklin E. Woodard
Department of Civil Engineering
Aubert Hall
University of Maine a-b Orono
Orono, Maine 04473

RECIPIENT INSTITUTION:

Environmental Studies Center
Coburn Hall
University of Maine at Orono
Orono, Maine 04473

PERIOD FOR RESEARCH:

From: Phase I- 12 months
Phase II- 12 months
To: Phase III- 12 months

FUNDING: $128,736 (3 year budg

SUMMARY OF PROJECT:

Objectives: (attachment)

Geographic Coverage: Penobscot River, Old Town to Bucksport

Index Terms: POLLUTION: Water Quality; BOD

Status to date: Phase I completed; embarking on Phase II (April 3, 1974)

CONTACT FOR INFORMATION:

Franklin E. Woodard
(address above)

I. Statement of Goals and Objectives

A. General Goals

1. To develop a comprehensive plan for water quality monitoring, data-processing: and ultimate water quality control for the Penobscot River Estuary.

2. To provide the Department of Environmental Protection the capability of monitoring the quality of water in Maine rivers and estuaries and the capability of predicting water quality in light of hypothetical or expected events.

3. To enhance the state of the art with respect to the application of systems engineering to water quality monitoring and control.

B. Central Operational Objectives

1. To validate a predictive mathematical water quality model for the Penobscot River Estuary

2. To select necessary in-stream sampling, telemetering, data processing, and computing equipment for a functional river basin management program.

3. To develop the details of a program for monitoring and control of the water quality in Maine rivers and estuaries.

4. To implement the program by transferring all acquired equipment, skills and capabilities to the Department of Environmental Protection.

C. Specific Objectives

(These objectives are itemized to illustrate the steps required to attain the central operational objectives.)

1. Refine the computer programs used in the execution of the mathematical simulation and optimization models making them more easily useable by the State of Maine Department of Environmental Protection to manage the water resources of Maine

2. To determine, through laboratory studies, oxygen uptake rates (K_1) for Penobscot River water at different points and at different times of the year.

3. To determine, using laboratory and field studies, accurate reoxygenation rates (K2) for Penobscot River water at different locations and at different times of the year.

4. To determine, using laboratory and field studies, accurate data on lxygen production from algal activity in Penobscot River water in different locations and at different times of the year.

5. To determine, using laboratory and field studies, accurate diffusion coefficients for Penobscot River water at different locations and at different times of the year.

6. To determine, using laboratory and field studies, accurate eddy diffusion coefficient data for Penobscot River water at different locations and at different times of the year.

7. To conduct a series of dye studies to determine the wastewater plume dispersion characteristics in the Lower Penobscot River and Estuary.

8. To develop a model which is capable of simulating wastewater plume dispersions and which will become, an integral part of the water quality simulation model.

9. To conduct a series of computer runs to determine oxygen levels in the Penobscot River and to compare these results to actual data obtained in the field.

10. To select two points in the Penobscot River Estuary where water quality monitoring apparatus should be located.

11. To evaluate water quality monitoring equipment which are considered to be accurate and reliable which could provide necessary information for real time input to the mathematical models.

12. To select items of equipment based on the above evaluation providing that the results of the evaluation show that a full-scale monitoring system would be reliable and worthwhile.

D. Specific objectives to be addressed during Phase II.

1. Evaluation and updating of water quality simulation model will continue as carried out in Phase I.

2. The river water quality sampling work will continue as in Phase I with the following exceptions:

   a. Sixteen points will be sampled rather than eight.

b. More emphasis will be placed on gathering DO and BOD data while less emphasis will be placed on gathering K_1 data.

3. General sets of data input will be prepared based on conditions which exist at certain times of the year.

4. The following studies will be carried out during the months of July, August, September and October:

   a. Aeration (K_2) studies will be carried out at the sites of the Veazie and Bangor overflow dams. Results showing the influence of the tidal cycle on reaeration at the Bangor dam should be interesting and valuable.

   b. Extensive work will be carried out to determine differences in DO concentration and temperature at different locations in the cross-section at selected locations in this study area.

5. Continued use of dye studies will be employed to study the wastewater plume dispersion characteristics in the study area.

6. The water quality simulation model will be rewritten to include the simulation of wastewater plume dispersion, both from point discharges and from outfall diffusers.

7. Water quality monitoring equipment which are considered to be accurate and reliable will be evaluated by onsite observation and by communication with present users.

8. Water quality monitoring equipment will be selected for use in a full-scale monitoring system based on the above evaluation, providing that the evaluation shows that the purchase of such equipment would be worthwhile.

14.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Environmental Protection Agency, Environmental Research Laboratory (Ada, Oklahoma)

TITLE OF PROJECT:

Ground Water Survey of the Northeastern United States

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Geraghty and Miller, Inc.
Water Research Building
Manhasset Isle
Port Washington
New York

RECIPIENT INSTITUTION:

Same as above

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: inventory of ground water contamination problems and recommendations for future research and control

Geographic **Coverage:** northeastern United States

Index Terms: POLLUTION: water quality
WATER SUPPLY: ground water studies
HYDROLOGY: groundwater

Status to date:

CONTACT FOR INFORMATION:

Mr. Miller 516-883-6760
Geraghty and Miller, Inc
(address above)

15.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of the Interior, Geological Survey

TITLE OF PROJECT:

Flood Hazard Mapping in Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Gordon Hayes

RECIPIENT INSTITUTION:

United States Geological Survey

PERIOD FOR RESEARCH:

From: early 1970's

To: ongoing

FUNDING:

SUMMARY OF' PROJECT:

Objectives: approximate boundaries of the "regional flood" are delineated on U.S.G.S. quadrangle sheets (may or may not coincide with 100 year flood plain).

Geographic Coverage: (list of towns attached)

Index Terms: HYDROLOGY: flooding; floodplains

Status to date:

CONTACT FOR INFORMATION:

Gordon Hayes
United States Geological Survey
Augusta, Maine 04330

BLM Form 5
1/22/74

15.(cont) Summary of Quadrangle sheets for which "quick and dirty" flood hazard maps have been prepared by the U. S. G. S., and which are, or shortly will be, in the U .S. G .S. Augusta Office

Anson
Augusta
Bangor
Bar Harbor
Bath
Belfast
Biddeford
BuckSport
Calais
Camden
Cape Elizabeth
Caribou
Cumberland Center
Dover-Foxcroft
Eagle Lake
Eastport
Ellsworth
Farmington
Fort Fairfield
Fort Kent
Freeport 7½ "
Freeport 15"
Frenchville
Gardiner
Gorham
Gray
Guilford
Houlton
Kennebunk
Kittery
Lewiston
Lincoln
Livermore Falls
Millinocket
North Windham
Norway
Old Orchard Beach
Orono
Pittsfield
Poland
Portland East
Portland West
Presque Isle
Prouts Neck
Rockland
Rumford
Skowhegan
South Harpswell
Van Buren
Waterville
Yarmouth

16.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of Housing and Urban Development, Federal Insurance Administration

TITLE OF PROJECT:

Flood Hazard Mapping

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

De Leuw, Cather & Co.
Washington, D.C.

RECIPIENT INSTITUTION:

De Leuw, Cather & Co.
Washington, D.C.

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: To provide community base maps and flood hazard boundary maps for some of the Maine towns on the Federal Insurance Administration's list of flood prone communities (to thus fill gaps in the flood hazard mapping work of U.S. Geological Survey).

Geographic Coverage: (list of towns attached)

Index Terms: HYDROLOGY: flooding; floodplains

Status to date:

CONTACT FOR INFORMATION:

W.F. Moore, Boston office of De Leuw, Cather & Co.
24 School Street
Boston , Massachusetts 02108
(617-523-4001)

BLM Form 5
1/22/74 . . . . .

16 (cont.)

Communities for which the firm of De Leuw, Cather & Co. ", is preparing Flood Hazard Boundary Maps

L ivermore Fal Is	Bar Harbor		Kenduskeag
Ash land	Buck sport		Mil I inocket
Blaine	Ellsworth		Passadumkeag
Eagle Lake	Appleton		Patten
Fort Fairfield	Camden		Bath
Fort Kent	Owls Head		Richmond
Houlton	Rock land		Anson
Island Falls	Rockport		Bingham
Limestone	S o u t h	Thomaston	Fairfield
Madawaska	Thomaston		Madison
Mars Hill	Union		Pittsfield
Oakfield	Warren		Skowhegan
Sherman	Washington		Burnham
Van Buren	Dresden		Addison
Washburn	Jefferson		Beals
Westfield	Waldoboro		Calais
Woodland	Whitefield		- Cherry field
Bridgton	Bethel		Dan forth
Freeport	Buckfield		Machiasport
Gray	Canton		P e m b r o k e
Harrison	Dixfield		Berwick
Farmington	Fryeburg		Cornish
Kingfield	Hiram		Dayton
New Sharon	Peru		Hollis
Phillips	West Paris		Wel Is
Strong	Alton		York
Wilton	Greenbush		

17,

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Environmental Protection Agency

TITLE OF PROJECT:

"208" planning: areawide waste treatment planning and management

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Greater Portland Council of Governments, Richard Hubble

RECIPIENT INSTITUTION:

Greater Portland Council of Governments working in cooperation with the Portland Water District

PERIOD FOR RESEARCH:

From: grant not yet made

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: areawide planning and management for waste water in metropolitan regions: in this case the region encompassed by the Greater Portland Council of Governments

Geographic Coverage: Greater Portland Council of Governments region

Index Terms: POLLUTION: Water Quality; Standards, Regulations

Status to date: EPA grant has yet to materialize (April 1974) but undoubtedly will

CONTACT FOR INFORMATION:

Richard Hubbel
Greater Portland Council of Governments
189 A Ocean Street
South Portland, Maine 04106
(799-8523)

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18.

ONGOING RESEARCH

Supporting AGENCY:

Maine Department of Environmental Protection and S.D. Warren Paper Company

TITLE OF PROJECT: Study of summer flow rates on the lower Presumpscot River, Maine

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

RECIPIENT INSTITUTION:

Maine Department of Environmental Protection, Augusta, Maine 04330

S.D. Warren Paper Company
Westbrook, Maine

PERIOD FOR RESEARCH:

From: Summer 1973

To: Summer 1974

FUNDING:

SUMMARY OF PROJECT:

Objectives: To measure rates of flow in lower Presumpscot River during critical summer period when S.D. Warren Company dam is closed for maintenence work; will also look at River biota.

Geographic Coverage: Lower Presumpscot River especially in area of S.D. Wareen Company dam.

Index Terms: HYDROLOGY: discharge rates
BIOLOGY

Status to date:

CONTACT FOR INFORMATION:

Charles King
Maine Department of Environmental Protection
Augusta, Maine 04330

ONGOING RESEARCH

SUPPORTING AGENCY:

TITLE OF PROJECT: Hydrography of the Penobscot River estuary

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Richard Hatch

RECIPIENT INSTITUTION:

Maine Cooperative Fishery Unit
Murray Hall
University of Maine at Orono
Orono, Maine 04473

PERIOD FOR RESEARCH:

From: continuation of Haefner's work done in 1963-1965
To: ongoing

FUNDING :

SUMMARY OF PROJECT:

Objectives: To perform basic monitoring of water quality on a polluted river: temperature, dissolved oxygen, salinity

Geographic Coverage: five monitoring stations: head of Penobscot estuary to Rucksport, Maine

Index Terms: PHYSICAL OCEANOGRAPHY: Salinity, Temperature
CHEMICAL OCEANOGRAPHY: Oxygen
POLLUTION: Water Quality

Status to date:

CONTACT FOR INFORMATION:

Richard Hatch
(address above)

"TEMPERATURE, DISSOLVED OXYGEN AND SALINITY DATA FOR THE PENOBSCOT RIVER ESTUARY, 1966-1970" Water Resources Center 1971; 17 pages.

A presentation of isopleth diagrams showing temperature, dissolved oxygen, and salinity at stations from Bangor to Bucksport on the Penobscot River during summers (June-September) 1966 - 1970. Also a diagram of total monthly discharge 1966-1970 for the Penobscot River at West Enfield.

To perform basic monitoring of water quality on a polluted river: a continuatic of work done by Haefner - thus making subsequent data available to other workers.

Fisheries biologists; state and federal environmental agencies

Published report.

Penobscot Estuary: five monitoring stations, head of estuary to Bucksport: (1) Bangor Harbor, (2) Hampden, (3) Bald Hill Cove, (4 downstream from Marsh River, (5) Bucksport Harbor.

A continuation of Haefner's work done 1963-1965 (Paul A. Haefner, "Hydrogr the Penobscot River (Maine) Estuary", J. Fish. Res. Bd. Canada 24(7): 15 71; 1967). Hatch continues to meniter during the summer.

Temperature and salinity measured with an Industrial Instrument salinometer; dissolved oxygen, with sodium azide modification of the Winkler method. station ordinarily sampled three times between low slack and high slack during daylight hours of a given day. Three days were used to sample the stations. The estuary south of Bucksport was not regularly sampled.

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report

20.

ONGOING RESEARCH

SUPPORTING AGENCY:

United States Department of the Interior, Fish and Wildlife Service, Bureau of Sport Fisheries and Wildlife, Atlantic Salmon Investigations

TITLE OF PROJECT:

Biological survey of St. Croix River

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Robert E. Lennon

RECIPIENT INSTITUTION:

(same as stove)

PERIOD FOR RESEARCH:

From: field work: June-August 1974

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: Basic biological survey of the St. Croix River, fish populations, andaquatic invertebrates; some creel census on the chain pickerel-smallmouth bass-and-land-locked salmon sport fisheries may be accomplished

Geographic Coverage: Mainstem of St. Croix between Calais and Vanceboro, Maine

Index Terms: BIOLOGY/ECOLOGY: Fishes; Benthic Invertebrates

Status to date: planning stages (as of April 1974).

CONTACT FOR INFORMATION:

RobertE. Lennon, Director
Atlantic Salmon Investigations
319 Murray Hall
University of Maine at Orono
Orono, Maine 04473

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ONGOING RESEARCH

SUPPORTING AGENCY :

Smithsonian
New England Regional Commission

TITLE OF PROJECT:

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Bill Reed, Anne LaBastille, Malcolm Hunter, Tom Reeves

RECIPIENT INSTITUTION:

Reed and D'Andrea
South Gardiner, Maine

PERIOD FOR RESEARCH:

From :

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives:

Geographic Coverage:

Index Terms:

Volumes: (1) Coastal Overview - Staff (in draft form); (2) An Approach to Coastal Conservation - Bill Reed (not yet in draft form); (3) Coastal Ecosystems - Malcolm Hunter (in draft form); (4) Rare, Endangered, Threatened and Peripheral Species of Wildlife and Fish of the Maine Coast - Anne LaBastille (in draft form); (5) Tidal Wetlands Dilemma - Tom Reeves; (6) a separate report to be issued for each of thirty coastal zones, e.g. Merrymeeting Bay report by Staff is now being prepared; more will be done as funds become available (e.g. Damariscotta, Upper Sheepscot region); in short this is a resource study for selected regions of the Maine coastal zone. (form completed April 1974).

Status to date: see above

CONTACT FOR INFORMATION:

Bill Reed
Reed and D'Andrea
South Gardiner, Maine

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22.

ONGOING RESEARCH

Supporting AGENCY:
United States Army Corps of Engineers

TITLE OF PROJECT:
Inventory of Maine Dams

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Mr. Sullivan
Wright, Pierce Engineers
Topsham, Maine

RECIPIENT INSTITUTION:
Wright, Pierce Engineers
Topsham, Maine

PERIOD FOR RESEARCH:
From: first phase completed
To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: Inventory of dams (over six feet or holding over 50 acre feet); part of nationwide survey to examine dams from safety point of view; will become part of a national data bank

Geographic Coverage:
State of Maine

Index Terms: HYDROLOGY-modifications

Status to date: first phase completed by Wright, Pierce Engineers: location of dams; second phase will be an actual investigation of the dams to look at conditions

CONTACT FOR INFORMATION:

Mr. Sullivan
Wright, Pierce Engineers
Topsham, Maine

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23.

ONGOING RESEARCH

SUPPORTING AGENCY :

Maine Department of Marine Resources

TITLE OF PROJECT:

Heavy Metals in Marine Environments

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Don Nelson
Maine Department of Marine Resources
West Boothbay Harbor Laboratory

RECIPIENT INSTITUT'1ON:

Maine Department of Marine Resources

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: to monitor heavy metals: initially copper, cobalt, cadmium, nickel, zinc, iron, lead, silver; eventually may add mercury, chromium, vanadium; first year: Muscongus Bay at Blue (Kerr American Mine); second year: St. George River estuary (Knox Mine);and Cape Rosier (deactivated Callahan Mine)

Geographic Coverage:

Index Terms: POLLUTION: Water Quality

Status to date: planning stages (April 1974)

CONTACT FOR INFORMATION:

Don Nelson

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ONGOING RESEARCH

SUPPORTING AGENCY:

United States Agricultural Experiment Station, Cooperative Research Service

TITLE OF PROJECT:

Bacterial Populations in Maine Aquatic and Estuarine Environments

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Darrell B. Pratt with Robert Thorup (Ph.D. Candidate)
Professor and Chairman, Department of Microbiology; Professor of Zoology
Hitchner Hall
University of Maine at Orono
Orono, Maine 04473

RECIPIENT INSTITUTION:

see above

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: to discover the natural population of bacteria in unpolluted waters (not dealing with coliform)

Geographic Coverage: now working on headwaters of Penobscot River: ponds and Pushaw Pond; plan to move to Penobscot estuary later

Index Terms: ECOLOGY: Aquatic Bacteria

Status to date: see above; problems have arisen over methodologies

CONTACT FOR INFORMATION:

see above

BLM Form 5
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ONGOING RESEARCH

SUPPORTING AGENCY:

Knox Mining Company

TITLE OF PROJECT:

A Survey of the Heavy Metal Accumulation in Marine Clams, Mussels, Seaweed and Baitworms from the St. George River Estuary

PRINCIPAL INVESTIGATORS, AND DEPARTMENT SPECIALITY:

Paul Carpenter
Associate Professor of Agronomy
Deering Hall
University of Maine at Orono
Orono, Maine 04473

RECIPIENT INSTITUTION:

see above

PERIOD FOR RESEARCH:

From:

To:

FUNDING:

SUMMARY OF PROJECT:

Objectives: to develop baseline data on heavy metals in the St. George estuary prior to the opening of a mining operation in the area; samples taken every month for past five years; water from various sources: streams, sediments, clams, mussels, seaweed; problem is that analytical techniques keep getting more and more refined: e.g. can now measure down into the quadrillions on lead

Geographic Coverage:

Index Terms: POLLUTION: water quality

Status to date: Started in 1969; project still ongoing.

CONTACT FOR INFORMATION:

see above

State Data"Files

*1. Maine Department of Environmental Protection, Bureau of Land Quality Control: file of applications under Maine Site Selection Law.

*2. Maine Department of Environmental Protection, Bureau of Land Quality Control: file of applications under the Maine Wetlands Law.

*3. Maine Department of Environmental Protection, Bureau of Land Quality Control: file of applications under the Maine Minimum Lot Size Law.

*4. Maine Department of Environmental Protection, Bureau of Land Quality Contro, Division of Review and Planning: file of applications under the Maine Mining and Rehabilitation of Land Law.

*5. Maine Department of Environmental Protection, Bureau of Water Quality Control, Division of Oil Conveyance Services: file of licenses for oil terminal facilities.

*6. Maine Department of Environmental Protection, Bureau of Water Quality Control, Division of Water Quality Services: river monitoring

*7. Maine Department of Environmental Protection, Bureau of Water Quality Control, Division of Municipal Services: file containing all pertinent data on municipal wastewater treatment plant construction program.

*8. Maine Department of Environmental Protection, Bureau of Water Quality Control, Division of Municipal Services: monthly report on operation of municipal wastewater treatment plants.

*9. Maine Land Use Regulation Commission: file of applications for building permits, subdivision permits, and development permits in Maine's unorganized territories.

*10. Maine Department of Health and Welfare: water supply data file.

11. Maine Public Utilities Commission-United States Geological Survey: monitoring for flow and quality on Maine rivers, ground water data.

*12. Maine Department of Marine Resources: shellfish monitoring program.

13. Maine Department of Marine Resources: mercury monitoring program.

14. Maine State Planning Office: National Environmental Policy Act, environmental impact statements issued for Maine

15. Maine Departments of Inland Fisheries and Game and Marine Resources: Maine Information Display Analysis System (MIDAS).

16. Maine Department of Inland Fisheries and Game: wetlands inventory.

17. North Kennebec Regional Planning Commission: aerial photographs of 1973 flooding on Kennebec River: Augusta to Madison; Sebasticook River: to Newport.

Private Sector Data

*18. Bangor Hydro-Electric Company: gaging of flow on Penobscot River.

19. Central Maine Power Company: gaging of flow.

*20. Portland Water District: chemical analysis of water supplies in the Portland Mater District.

21. Public Service Company of New Hampshire: monitoring of Piscataqua River.

*22. Diamond International Corporation (Old Town, Maine): air and water monitoring of Diamond International Corporation (Old Town, Maine) effluents.

*23, Georgia Pacific: St. Croix River water quality monitoring.

*24, International Paper Company: Androscoggin River water quality monitoring in area of Jay-Chisholm, Maine

*25, Scott Paper Company: Kennebec River water quality monitoring in area of Winslow, Maine.

26. Fraser Paper Company: St. John River water quality monitoring in area of Madawaska, Maine.

27. S.D. Warren Paper Company: gaging of flow on Presumpscot River.

28. Natural Resources Council of Maine: Natural Areas Inventory.

*29. Oxford Paper Company: Androscoggin River water quality monitoring in area of Rumford, Maine

* Detailed descriptions attached.

Federal Data Files: see Appendix A.

1. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File of Applications under Maine Site Selection Law

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Wetlands; uplands

Disciplinary Field: Land Use; pedology; pollution; economy

Index Terms: PEDOLOGY; POLLUTION: Solid Waste Disposal; Water Quality; LAND USE; ECONOMY
(for complete listing of data required see attachments)

Geographic Location or Extent

Present: State of Maine

Proposed:

Study Unit: Unit of land considered for development

Period of Data Coverage:

From: 1970

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: Those who wish to develop an area over a certain size (generally over 20 acres or structures over 60,000 square feet) required to file for approval with DEP.

Frequency:

AVAILABILITY:

Contact: Henary E. Warren, Director, Bureau of Land Quality Control

Procedures:

costs:

COMMENTS :

BLM #4
1/22/74

2. Data Files

INSTITUTION/ORGANIZATION (location):
Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File of Applications under the Maine Wetlands Law

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Wetlands

Disciplinary Field: Land Use;

Index Terms: LAND USE (see attached form for types of data *requested)*

Geographic Location or Extent

present: State of Maine

Proposed:

Period of Data Coverage:

From:

To: Ongoing

Study Unit: Coastal Wetlands to be dredged, filled, or otherwise developed.

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: All those wishing to dredge, fill, or otherwise develop coastal wetlands must file for a permit with the DEP

Frequency:

AVAILABLITY :

Contact: Henry Warren, Director, Bureau of Land Quality *Control*

Procedures:

costs:

COMMENTS:

BLM #4
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3. Data Files

INSTITUTION/ORGANIZATION (location):
Maine Department of Environmental Protection
State House
Augusta , Maine 04330

FILE NAME: File of -Applications under the Maine Minimum Lot Size Law

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Upland se

Disciplinary Field: Pedology; Land Use;

Index Terms: PEDOLOGY; LAND USE (for specific data required see attached file form)

Geographic Location or Extent

Present: State of Maine

Proposed:

Study Unit: Land units for which forms are filed

Period of Data Coverage:

From:

To: Ch2g-sing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: All not served. by a public or private community sewer developing a lot of land containing less than 20,000 square feet or if on a public road or a water body less than 100 feet frontage shall file for approval with DEP and Maine Department of Health and Welfare

Frequency:

AVAILABILITY:

Contact: Henry Warren, Director, Bureau of Land Quality Control

Procedures:

costs:

COMMENTS :

BLM #4
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4. Data Files

INSTITUTION/ORGANI ZATION (location):

Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File of Applications under the Maine Mining and Rehabilitation of Land Law

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Upland; wetlands;

Disciplinary Field: Land Use; Geology; Pedology;

Index Terms: GEOLOGY: See attached form for types of data requested; PEDOLOGY; LAND USE

Geographic Location or Extent

Present: State of Maine

Proposed:

Study Unit: Land Area to be Rehabilitated after Mining

Period of Data Coverage:

From:

To: Ongoing file

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: Those wishing to operate mines must file with DEP

Frequency:

AVAILABILITY:

Contact: John A. Bader, Chief, Division of Review and Planning (of the Bureau of Land Quality Control)

Procedures:

costs:

COMMENTS:

BLM #4
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5. Data Files

INSTITUTION/ORGANIZATION (location):
Maine Department of Environmental Protection
State House
Augusta, Maine 04-330

FILE NAME: File of Licenses for Oil Terminal Facilities

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Estuaries;Coastal;Uplands

Disciplinary Field: Land Use; Pollution;

Index Terms: POLLUTION; LAND USE

Geographic Location or Extent

Present: State of Maine

Proposed:

Study Unit: Site of Oil Terminal Facilities

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: All oil terminal operators required to file for a license each year with DEP.

Frequency:

AVAILABILITY:

Contact: Paul Sova, Chief, Division of Oil Conveyance Services

Procedures: All data is public information

costs: Photocopying costs

COMMENTS:

BLM #4
1/22/74

6. Data Files

INSTITUTION/ORGANIZATION (location):
Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: River Monitoring

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine; Estuarine

Disciplinary Field: Pollution

Index Terms: POLLUTION: Water Quality, COD, Ambient Levels.

Geographic Location or Extent

Present: see attached list

Study Unit: see attached list

Proposed:

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantative

COLLECTION OF DATA:

Method:

Frequency: see attached list

AVAILABILITY:

Contact: Henry Mann, DEP, Augusta, Maine 04330

Procedures: All Data is public information

costs :

COMMENTS:

6. Data Files (cont.)

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION MONITORING [illegible]

(1) Little Androscoggin River "at Welchville Rte. 215 Bridge" (river mile 182) Critical Water Quality Problem; monthly sampling for chromium; (low DO point)

(2) Aroostook River at Caribou Dam (river mile 14.9) Critical Water Quality Problem; (low DO point near Municipal water intake)

(3) Presumpscot River at Presumpscot Falls, Falmouth (river mile 0.0) Critical Water Quality Problem; annual sampling for mercury, monthy for zinc (low DO point)

(4) Kennebunk River at Shamut Dam Head Pool (river mile 24,7) Baseline Station Below ____ Scott Mill; monthly sampling for zinc and mercury; (develop base line before mill is built; use as paired station later)

(5) Prestile Stream at Rte 10 Bridge, Easton (river mile 17.4) Baseline station.

(6) Sebasticook River at Rte 2 Bridge, Palmyra (river mile 30.0) Critical Water Quality Problem (low DO point)

(7) Kennebec River at South Gardiner (river mile 11.4) Critical Water Quality Problem (low DO point)

(8) Androscoggin River at Riley Dam, Jay (river mile 58.6) (low DO point) PAIRED STATION WITH #9

(9) Androscoggin River at Virginia Bridge, Rumford (river mile 80.0) (low DO point) PAIRED STATION WITH #8

In FY 75 another set of paired stations will be located on St Croix River.

PARAMETERS

D.O., Temperature, and pH	monthly (in FY74 and bi-weekly lat
Total Phosphorus, Total Kjeldehl Nitrogen, NO_2, NO_3, Total Organic Carbon, Chemical Oxygen Demand	quarterly in FY 74. and monthly to begin in FY 76 .
Stream Flow at time of Sampling	

7. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: File Containing all Pertinent Data on Municipal Wastewater Treatment Plant Construction Program

MEDIUM OF FILE: Reports

DESCRIPTION OF DATA BASE:

Physiographic Category: Estuaries; Riverine; Coastal; Uplands

Disciplinary Field: Pollution

Index Terms: POLLUTION: Water Quality; BOD; COD; Bacterial; Point Sources

Geographic Location or Extent

Present: State of Maine

Study Unit: Site of Facilities

Proposed:

Period of Data Coverage:

From:

To: Ongoing (see Attached list)

CHARACTERISTICS OF DATA: Narrative/Textual (Engineering Studies)

COLLECTION OF DATA:

Method: All municipalities, sanitary districts, regional planning commissions, and others wishing to build wastewater treatment facilities with government aid file preliminary and final plans with DEP for approval.

Frequency:

AVAILABLITY:

Contact: Dennis A. Purington, Bureau of Water Quality Control, Division of Municipal Services

Procedures: All data is public information

costs: Photocopying costs

COMMENTS:

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7. Data Files (Cont.)

MAINE MUNICIPAL WASTEWATER
TREATMENT PLANTS (April 1974)

Operational

Ashland: facultative lagoon
Augusta: separate sludge (primary with digester)
Bangor: (1) Bangor: vacuum filter; (2) Capehart
Bath: extended aeration
Belfast: extended aerarion
Bethe 1: extended aeration
Biddeford: modified aeration
Bingham: contact stabilization
Boothbay Harbor: separate sludge (primary with digester)
Brunswick: vacuum filter
Calais: contact stabilization
Camden: modified aeration
Cape Elizabeth: (1) Main Plant: oxidation ditch;
(2) Broad Cove 10,000 gal.
Caribou: separate sludge (primary with digester)
Corinna: modified aeration
Falmouth: contact stabilization
Farmington: oxidation ditch
Fort Kent: oxidation ditch
Freeport: imhoff tank
Kennebunk: separate sludge (primary with digester);
(1) Boothbay Road primary; (2) Water Street primary
Kennebunkport: extended aeration
Kittery: (1) Admiralty Village imhoff tank; (2) Main
Lewiston-Auburn Water Pollution Control Authority: extended aeration
Lewiston: Thorns Corner: facultative lagoon
Limestone: extended aeration
Mapleton: extended aeration
Mars Hill: separate sludge (primary with digester)
Mount Desert: conventional activated sludge: (1) Northeast
Harbor; (2) Otter Creek; (3) Seal Harbor; (4) Somerville
Norway: aeration lagoon
Oakland: extended aeration
Ogunquit: extended aeration
Old Orchard: separate sludge (primary with digester)
Orono: extended aeration
Portland: extended aeration; package plant: Stroudwater
Presque Isle: separate sludge (primary with digester)
Rangeley: oxidation ditch
Richmond: imhoff tank
Saco: extended aeration; (1) Industrial Park; (2) Main
Facility; (3) Factory Island
Saint Agatha: extended aeration

7. Data Files (cont.)

Sanford: facultative lagoon
Scarborough: extended aeration
South Berwick: separate sludge (primary with digester)
Thomaston: extended aeration
Unity: facultative lagoon
Van Buren: extended aeration
Waldoboro: modified aeration
Wiscasset: extended aeration
Yarmouth: oxidation ditch
North Jay: extended aeration
Castine: extended aeration

Under Construction

Anson-Madison: aeration lagoon
Bar Harbor: extended aeration; (3 separate contracts: main facility and two small compact plants)
Berwick: joint facility with tannery; secondary
Brewer: joint facility with paper mill; secondary
Castine: contract stabilization?
(al ready have extended aeration operational)
Greenville: tertiary
Lisbon: secondary
Livermore Falls-Jay: activated sludge with pretreatment
Machias: extended aeration
Paris Utilities District: activated sludge with pre-treatment (joint facility with tannery)
York: extended aeration (interceptor to York Harbor proposed)

Construction Delayed

Hartland: joint facility with tannery stalled by a marginal industry; secondary
Waterville: activated sludge; a regional facility for towns in area and Keyes Fiber; held up by wage rates

Proposed Funded

Blue Hill: secondary
Mexico: secondary
Southwest Harbor: secondary
Mechanic Falls: secondary (funded?)
Rockland: secondary; fish processing plants thinking of pretreating considerably; (funded?)

7. Data Files (cont.)

Proposed: One Year List

Winslow:
Manchester Sanitary District:
Monmouth Sanitary District:
Jackman Sanitary District: tertiary or land application
Old Orchard Beach: (have primary operational)
Scarborough: (have extended aeration operational); plan new interceptors and a larger treatment plant to replace one now operating
Freeport Sanitary District:
South Portland: activated sludge (approved)
Wells Sanitary District: secondary
Winter Harbor: activated sludge (not yet approved)

Proposed: Two Year List

Cape Elizabeth (North):
Westbrook: secondary; (final plans but not yet approved)
Millinocket: lagoon?
(final plans but not yet approved)
Ellsworth:
Northport (Bayside): activated sludge - seasonal
Madawaska: secondary
York Sanitary District: (extended aeration under construction; interceptor to York Harbor proposed)
Wilton: no final plans done yet

Proposed: Other

Rangeley: tertiary (oxidation ditch operational)

7. Data Files (cont.)

STATE AND FEDERAL INSTALLATIONS IN MAINE: WASTEWATER TREATMENT PLANTS (April 1974)

Indian Reservations

Peter Dana Point: oxidation ditch
Pleasant Point: oxidation ditch
Princeton Strip: oxidation ditch
Penobscot Tribal Reservation Housing Authority, Old Town: proposed

Military Installations

Bucks Harbor Air Force Station: diffused air
Cutler Naval Station: extended aeration
Winter Harbor Naval Base - Cores Site: package unit, extended aeration mode
Limestone Air Force Base: secondary with trickling filters
Topsham Naval Station: primary with separate sludge handling
Charleston Air Force Station: package unit, extended aeration mode
Casewell Air Force Station: package unit, extended aeration mode

State and Federal Facilities

Togus Hospital V.A.: secondary with trickling filters
Pineland: trickling filter
Women's Correctional Institute - Skowhegan: package unit
State Men's Prison Farm - Warren: oxidation ditch
Scare School - Rangeley: package unit, extended aeration mode

8. Data Files

INSTITUTION/ORGANIZATION (location):
Maine Department of Environmental Protection
State House
Augusta, Maine 04330

FILE NAME: Monthly Report on Operation of Municipal Wastewater Treatment Plants

MEDIUM OF FILE: Data forms.

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine, Estuarine, Coastal

Disciplinary Field: Pollution (water)

Index Terms: POLLUTION: Water Quality; BOD; Bacterial; Point Sources;

Geographic Location or Extent

Present: State of Maine

Study Unit: Site of facilities

Proposed: Same

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method: Monthly report filed with DEP by each Maine municipal wastewater treatment plant.

Frequency: Monthly

AVAILABILITY :

Contact: George Gormley, Director of Bureau of Water Quality Control or Dennis Purington, Chief, Division of Municipal Services

Procedures: All data is public information

Costs: Photocopying costs

COMMENTS :

9. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Land Use Regulation Commission
State House
Augusta , Maine 04330

FILE NAME: File of Applications for Building Permits, Subdivision Permits, and Development Permits in Maine's Unorganized Territories

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Upland; Lakes and Ponds; Freshwater Wetlands; Riverine; Coastal; Estuarine;

Disciplinary Field: Pedology; Pollution; Land Use; Water Supply;

Index Terms: PEDOLOGY; POLLUTION; LAND USE; WATER SUPPLY (for complete list of data required see attached forms)

Geographic Location or Extent

Present: Unorganized territories in State of Maine

Proposed:

Study Unit: parts of unorganized territories undergoing development

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: Those wishing to develop land in Maine's unorganized territory must file for a permit from LURC

Frequency:

AVAILABILITY :

Contact: James Haskell, Director of LURC

Procedures:

costs :

COMMENTS:

1. Data Files (cont.)

me as above)

ATE AGENCY

te House, Augusta, Maine 04330

ND USE; POLLUTION; SOILS; WATER USE: PLANNING

LE OF APPLICATIONS FOR BUILDING PERMITS, SUBDIVISION PERMITS, AND DEVELOPMENT PERMITS IN MAINE'S UNORGANIZED TERRITORIES.

) Building permits application includes information on water on property, distance of building from it, source of water, disposal of human waste, was water, and rubbish, a before and after plan, a location map, and a soil investigation of the site; (2) subdivision permit application includes information on water on property, source of water supply, methods of sewage disposal, rubbish disposal, location map, site plan, preliminary subdivisio plan, legal restrictions on buyers, soils map and cm-site soils investigati on lots where on-site sewage disposal planned, plans for central sewage system if so proposed, structures plan; (3) development permit application includes information on water on property, source of water supply, mot.sods waste water disposal, solid waste and air-borne waste problems, location map site plan, development plan, soils map, plans for waste disposal system if planned, on-site soil investigation if underground sewage disposal planned, and structures plan.

gather necessary data on which to make a judgment for suitability of development plans in Maine's unorganized territories.

mission's use.

mission's files.

going file.

10. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Health and Welfare

FILE NAME:

records kept by Public Health Laboratory on samples sent to them by Maine citizens who wish to test the quality of their water supply

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine; Lakes and Ponds; Groundwater Estuaries; Coastal

Disciplinary Field: Pollution

Index Terms: Pollution: Water Quality; bacterial

Geographic Location or Extent

Present: State of Maine Study Unit:

Proposed:

Period of Data Coverage:

From:

T o : Ongoing service

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: water samples sent to Laboratory by Maine citizens

Frequency: n/a

AVAILABILITY :

Contact:

Procedures:

costs:

COMMENTS:

10. Data Files

INSTITUTION/ORGANIZATION (location):

Maine Department of Health and Welfare

FILE NAME:

Quality of Maine's Public Water Supplies

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine; Lakes and Ponds; Groundwater

Disciplinary Field: Water Supply and Quality

Index Terms: Water Supply: surface water; groundwater

Geographic Location or Extent State of Maine

Present: Study Unit:

Proposed:

Period of Data Coverage:

From: 1963

To: ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: water companies send in water samples to Department's Laboratory where they are checked for various qualities

Frequency: twice a year

AVAILABLITY:

Contact: Mr. Howard, Health Engineering, Maine Department of Health and Welfare

Procedures: information is available to public

costs:

COMMENTS:

12. Data Files

INSTITUTION/ORGANIZATION (location):
Maine Department of Marine Resources

FILE NAME:
Bacteriological monitoring of shellfish on Maine Coast

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Coastal

Disciplinary Field: Biology; Pollution

Index Terms: Biology: Marine terrestrial
Pollution: Bacterial

Geographic Location or Extent

Present: State of Maine Coast: all shellfish areas Study Unit:

Proposed:

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method:

Frequency:

AVAILABILITY:

Contact: John Hurst
Department of Marine Resources
Procedures: West Boothbay Laboratory

Costs:

COMMENTS :

18. Data Files

INSTITUTION/ORGANIZATION (location):

Bangor Hydro-Electric Company
Bangor, Maine

FILE NAME: Flow Rates on Penobscot River

MEDIUM OF FILE:

PRESCRIPTION OF DATA BASE:

Physiographic Category: Riverine

Disciplinary Field: Hydrology

Index Terms: HYDROLOGY: Discharge Rates

Geographic Location or Extent

Present: see attached list

Proposed:

Study Unit: see attached list

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method:

Frequency: see attached list

AVAILABILITY:

Contact:

Procedures:

costs:

COMMENTS :

BLM #4
1/22/74

18 Data Files (cont.)

(Same as above)

INDUSTRY

Bangor, Maine

HYDROLOGY: WATER CHARACTER

Flow rates on Penobscot River

Location	Activity
Medway Plant	Hourly head-and tailwater gaging
West Enfield Plant	Daily"head-and tailwater gaging
West Enfield below Piscataquis	Continuous surface elevations
Milford below Sunkhaze	Continuous surface elevations
Milford Plant	Hourly head-and tailwater gaging
Stillwater Plant	Daily head-and tailwater gaging
Orono Plant	Daily head and tailwater gaging
Veazie	Hourly head-and tailwater gaging

(perform frequency distribution analyses of head and discharge)

Flow measurement for purposes of running hydro-electric installations.

Bangor Hydro-Electric company

(See above)

(See above)

20. Data Files

INSTITUTION/ORGANIZATION (location) :

Portland Water District
16 Casco Street
Portland, Maine 04104

FILE NAME: Chemical Analysis of Water Supplies

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Lakes and Ponds; Other (Groundwater)

Disciplinary Field: Water Supply

Index Terms: WATER SUPPLY: Surface Water Studies; Groundwater Studies; Regional
(Parameters measured: Color; Turbidity; pH; Alkalinity; Total Hardness; Chloride; Iron; Manganese; Sodium; Silica; Sulfate; Nitrate; Nitrite; Ammonia; Phosphate; Fluoride.

Geographic Location or Extent

Present: Sebago Lake; Cumberland; Steep Falls; North Windham

Study Unit:

Proposed:

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method:

Frequency: Sanitary survey of Sebago Lake (in its entirety) is conducted every summer.

AVAILABLITY:

Contact: Mr. Mayberry, Portland Water District

Procedures:

costs :

COMMENTS :

BLM #4

22. Data Files

INSTITUTION/ORGANIZATION (location):
Diamond International (Old Town, Maine): The Penobscot Company
Old Town, Maine

FILE NAME: Air and Water Monitoring of Diamond Intention Corporation (Old Town) Effluents

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine; Atmospheric

Disciplinary Field: Pollution

Index Terms: POLLUTION: Water Quality; BOD; air quality (water monitoring instream measures: pH; BOD; Dissolved Oxygen; lignin; also monitoring of intake water)

Geographic Location or Extent

Present: Air Monitoring: company air shed Study Unit:
Water: 4 points Old Town Dam 'Go Veazie
Proposed: Dam; intake water at Mill

Period of Data Coverage:

From:

To: Ongoing

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method:

Frequency:

AVAILABILITY:

Contact: Augustus Moody, Diamond International Corporation, Old Town

Procedures: Data unavailable for public scrutiny

costs :

COMMENTS :

23. Data Files

INSTITUTION/ORGANIZATION (location):
Georgia Pacific
Woodland, Maine

FILE NAME: St. Croix Water Quality 'Monitoring

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine, Estuary

Disciplinary Field: Pollution {water) .

Index Terms: POLLUTION: Water Quality; BOD; Point Sources

Geographic Location or Extent

Present: 4 stations: above and below Georgia Pacific outfall and two stations further downstream

Study Unit:

Proposed:

Period of Data Coverage:

From: 1963

To: Ongoing Program

CHARACTERISTICS OF DATA: Quantitative

COLLECTION OF DATA:

Method:

Frequency:

AVAILABLITY:

Contact: Clinton VanCleve 427-3311 (Georgia Pacific)

Procedures: Data unavailable for public scrutiny

costs:

COMMENTS :

24. Data Files

INSTITUTION/ORGANIZATION (location):
International Paper Company
Chisholm, Maine

FILE NAME:
Androscoggin River water quality monitoring
MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine
Disciplinary Field: Pollution (water)
Index Terms: POLLUTION: Water Quality; BOD; point sources

Geographic Location or Extent

Present: At, above, and below Jay, Maine Study Unit:
Proposed: mill site

Period of Data Coverage:

From: ongoing
To:

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: parameters: pH, BOD, dissolved oxygen, temperature, solids
Frequency: daily

AVAILABLITY:

Contact: T.E. Linder
Air and Water Improvement Manager
Procedures:

costs :

COMMENTS :

25, -DLd726' ks

INSTITUTION/ORGANIZATION (location):

Scott Paper Company
Winslow, Maine

FILE NAME:

Kennebec River water quality monitoring

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine

Disciplinary Field: Pollution

Index Terms: POLLUTION : Water Quality; BOD; point sources

Geographic Location or Extent

Present: Kennebec River: just north of Study Unit:
Winslow Mill to Dresden
Proposed:

Period of Data Coverage:

From: in summer make a sampling run eve ry
week; in winter: once a month
To:

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method: parameters: BOD, dissolved oxygen, temperature, pH,
nutrients, turbidity, Pearl-Benson Index,
Frequency: nitrates, phosphates (nitrites close to zero
so no longer sample for this)

AVAILABILITY :

Contact:

Procedures:

costs:

COMMENTS :

BLM #4

29. Data Files

INSTITUTION/ORGANIZATION (location):

Oxford Paper Company
Rumford, Maine 04276

FILE NAME:

Androscoggin River water quality monitoring

MEDIUM OF FILE:

DESCRIPTION OF DATA BASE:

Physiographic Category: Riverine

Disciplinary Field: Pollution

Index Terms: POLLUTION: Water Quality; BOD; point source;

Geographic Location or Extent

Present: 16 locations on the Androscoggin River between Berlin, New Hampshire and Lewiston, Maine

Proposed:

Study Unit:

Period of Data Coverage:

From: each summer (May to October) once a week each Thursday

To:

CHARACTERISTICS OF DATA:

COLLECTION OF DATA:

Method:

Frequency:

AVAILABILITY:

Contact: Stuart R. Cooper
Director of Pollution Abatement

Procedures:

costs:

COMMENTS:

C.6 DIRECTORY OF THE NEW ENGLAND CONSORTIUM ON ENVIRONMENTAL PROTECTION.

The New England Consortium on Environmental Protection (NECEP) is an unincorporated body formed by fourteen member colleges and universities in New England: Boston College, Boston University, Brown University, Dartmouth College, Harvard University, Lowell Technological Institute, Massachusetts Institute of Technology, Northeastern University, Tufts University, University of Maine, University of Massachusetts, University of New Hampshire, University of Vermont, and Worcester Polytechnical Institute. Its purpose is to stimulate educational programs and to provide information and assistance to the public, in the field of environmental protection. Organized in 1970, in response to encouragement from the National Air Pollution Control Administration, the Consortium has now expanded its concern from air quality programs to all environmentally-oriented efforts.

In 1973 the Consortium published the Directory of Investigators and Environmental Activities (Meadows, 1973). This 119 page report lists on-going environmental research at each of the member institutions including the department, the investigator, and the project. The listing is arranged by school in the first section and by project topic in the second, to facilitate cross--reference. Constant efforts will be made to keep the information current. Theodore H. Rider, Lowell Technological Research Institute Research Foundation, Lowell, Massachusetts is the managing director. A description of the resources file questionnaire is given on Table C.6-1.

C.7 U. S. ARMY CORPS OF ENGINEERS INVENTORY

The Center for Natural Areas formerly a part of the Smithsonian Institution recently completed for the U. S. Army Corps of Engineers an 800-page listing of agencies and organizations in the United States involved in conducting environmental impact inventories. Each entry provides the name of the person or organization responsible for the inventory, the address of the organization, and a brief description of the nature and extent of the inventory. A listing of relevant literature, and a computer printout are also included in the report.

In May, 1974 this report was submitted by the Center to the Army Corps of Engineers for duplication and distribution. Further specific information may be obtained from C. Grant Ash, Chief Environmental Resource Branch, Planning Division, DAEN-CWP-V, 1000 Independence Avenue, Washington, D. C., 20314. A table of contents of the report is reproduced on the following pages.

Table C.6-1 RESPONSE AND UPDATE INFORMATION

Name _____ Institution _____

Department _____ Phone No. _____

___ The following corrections should be made in the Directory (indicate page number)

_____

___ Please add the following information to the Directory _____

_____

_____

_____

___ Please note the following address change _____

_____

___ New information regarding the nature of my research work _____

_____

_____

_____

___ Send ( ) additional copies of the Directory to _____

_____

___ Send ( ) Directory questionnaires to _____

_____

General Comments:

Table C.6-1 (cont.) NECEP RESOURCES FILE QUESTIONNAIRE

1. Name : _____ Position: _____

   Department: _____ Telephone: _____

   Address: _____

2. Courses taught (Please give course title and number)

   _____

   _____

   _____

3. Following is a typical categorical breakdown in the fields of air and water quality and solid waste management. Place a ( ) mark in spaces appropriate to your current research activity. We are interested in expanding capabilities beyond these areas. If your work encompasses areas other than those delineated, please use part "D" to so indicate.

   A. Air Pollution:
   - monitoring technology ____
   - source emissions control ____
   - atmospheric dispersion ____
   - health effects ____
   - vegetation effects ____
   - economic aspects ____
   - land use planning aspects ____
   - policy planning ____
   - other _____
     _____

   B. Solid Waste:
   - disposal technology ____
   - recycling technology ____
   - economic aspects ____
   - land use planning aspects ____
   - policy planning ____
   - other _____

   C. Water Pollution:
   - monitoring technology ____
   - treatment technology ____
   - diffusion and mixing ____
   - vegetation and wildlife aspects ____
   - economic aspects ____
   - water resource management ____
   - land use planning aspects ____
   - policy planning_ .
   - other _____
     _____

1'able C.6-1 (cont.) NECEP RESOURCES FILE QUESTIONNAIRE (Continued)

D. Other (i.e., forestry, recreation, transport planning, legal aspects, energy resource management):

4. The Consortium is interested in fostering student training and interdisciplinary research programs. As its scope of activity widens, funds may become available to provide support to on-going projects. Please indicate, in which of the above fields you might like project support and/or student research assistance. (Information concerning activities" relating to NECEP's 1973-74 projects can be supplied as it becomes available).

5. Give a brief description of current or potential projects and research interests related to environmental protection."

6, Would you be willing to supervise student research assistant(s) in connection with a project of yours? Graduate students?_____ Undergraduate students?_____

7. Would you be willing to modify a current or potential project so that "it would apply to a set of conditions specific to New England?

8. Do vou desire more information on the New England Consortium on environmental Protection? Specify, if possible

9. If you are involved with any special project, please "supply a brief description of that project. If possible, attach a statement of capability for any Laboratories, Institutes, or Centers.

10. Please list names of additional faculty who might be interested in being contacted.

Table C.6-1 (cont.)

DEFINITIONS OF ENVIRONMENTAL PROTECTION RESEARCH

These definitions, developed cooperatively by the Smithsonian Science Information Exchange and the Environmental Protection Agency, were used in the preparation of the Environmental Protection Research Catalog.

1. Air Quality

   A. Emission Sources

      Research concerned principally with sources of air pollution including types, industries, materials, and processes.

   B. Effects - Human

      Medical and epidemiological studies; laboratory animal studies and other biological effects research relating to effects of air pollution on man.

   C. Effects - Animal, Plant, and General Environment

      Studies of air pollution effects on livestock, vegetation, crops, materials, and structures. Includes (deterioration, corrosion, and other deleterious effects.

   D. Economic Aspects

      Includes losses from pollution damage and costs of control programs.

   E. Legal, Administrative, and Social Aspects

      Air quality research concerned with standards, management, social attitudes, legislation, and related subject areas.

   F. Control Methods

      Equipment, abatement, and operations relating to air quality control.

   G. Measurements

      Instrumentation, air pollution monitoring, and identification of pollution sources.

   H. Basic Research

      Basic chemical and physical properties of pollutants. Theoretical and laboratory studies concerned with air pollutant formation, identify, and effects.

Table C.6-1 (cont.)

DEFINITION OF ENVIRONMENTAL PROTECTION RESEARCH (Continued)

2* Water Quality

A. Sources of Pollution

Projects concerned primarily with the origin of a water pollutant (e.g., eutrophication, environmental cycling, runoff-erosion-sedimentation). Includes unusual pollutant sources or special interest sources (e.g., oil spills, trace element pollution, rain-atmospheric washout, radioactive fallout, dredging).

B. Pollution Identification

Measurement, monitoring, bioassay, bioindicators, and instrumentation. Includes ecological baseline studies, prediction and forecasting of water pollution potential.

C. Water Treatment

Physical management or treatment applied to poor quality water before utilization. Includes chlorination for potable water and related sanitation measures.

D. Water Management and Pollutant Dispersal

Dispersal of effluents, hydrologic mixing, disposal on soil waste fields, dilution of pollutants, assimilative capacity, ocean dispersion, self-purification. Includes management of polluted natural waters to improve quality.

E. Waste Treatment

Includes sewage, sludge, or wastewater treatment techniques or processes, waste reuse, recycling, or related commodity development.

F. Pollution Effects

Ecological, physiological, and physical effects of water pollution. Includes environmental degradation.

G. Societal Implications, Management, and Other Aspects of Water Pollution

Legislation, administration, standards, socio-economic studies, government relations, planning, protection and miscellaneous environmental pollution studies.

Table C.6-1 (cont.)

DEFINITIONS OF ENVIRONMENTAL PROTECTION RESEARCH (Continued)

3. Solid Waste Management

A. Agricultural Sources

Animal feedlot residues, plant waste, farm domestic wastes, manure disposal.

B. Industrial Sources

Includes processing slurries, spoil banks, ash, mine refuse.

C. Municipal Sources

Garbage, litter, junk, and trash.

D. Collection, Transportation, Processing and Disposal Methods

Includes incineration, ocean dumping, sewage treatment and processing, sanitary landfill management, sludge application to croplands.

E. Recycling and Utilization

Byproduct development, reprocessing, conservation of raw materials, and other related studies.

4. Pesticides

Undesired residues and effects

A. Air or Water Environments

Aerial drift, atmospheric contamination, or aquatic environmental cycling of pesticides.

B. Soil Environment

Unwanted pesticide residues and persistence in soils.

C. Adverse Effects on Plants

Includes nontarget phytotoxicity, degenerate morphological effects, and crop yield reduction.

D. Adverse Effects on Animals and Man

Includes toxicity, reduction in reproduction rates, survival of nontarget wildlife, and food chain cycling.

Table C.6-1 (cont.)

DEFINITIONS OF ENVIRONMENTAL PROTECTION RESEARCH (Continued)

E. Adverse Effects on the General Environment

Nonspecific studies on the animal and plant community and habitat. General ecological effects, material effects.

F. Analysis, Monitoring, and Instrumentation

Residue analysis, long-term monitoring, or pesticide detection techniques and instrumentation.

5, Radiation

Nondesired radiation and effects.

A. Sources

Primary sources of radiation detrimental to human health, animal or plant communities, materials, or the general environment. Includes ultraviolet, radioactive isotopes, electromagnetic, and radiation sources in general.

B. Effects

Physical, chemical, and biological injury. Medical studies utilizing radiation are excluded.

C. Measurement

Instrumentation, dosimetry, monitoring, equipment. Includes bioindicators.

6. Noise

A. Air Transportation

Sources such as airports, airplanes, and related equipment.

B. Surface Transportation

Trains , automobiles, tractors, buses, trucks, and highway noise in general.

C. Urban and Industrial Sources

Includes construction, factory noise, home environment , and office noise.

Table C.6-1(cont.)

DEFINITIONS OF ENVIRONMENTAL PROTECTION RESEARCH (Continued)

D. Aquatic Environment

Ambient underwater noise such as underwater construction and vehicular (submarine) sounds.

E. Effects, Measurement, and Equipment

Effects of noise on behavior, physiology (deafness), and ecology; instrumentation and techniques; monitoring.

Table C.6-1 (cont.)

BOARD OF DIRECTORS

UNIVERSITY	BOARD MEMBERS	PHONE NO.
Boston College	Dr. George Goldsmith	617 969-0100 X2237
Boston University	Prof. Guy C. McLeod	617 742-8830 X70
Brown University	Dr. Harold R. Ward	401 863-2321
Dartmouth College	Prof. Edward S, Brown	603 646-2227, 2235
Harvard University	Dr. Dade W. Moeller	617 734-3300 X540
Lowell Technological Institute	Dr. Pasquale Marino	617 454-7811 X363
Massachusetts Institute of Technology	Prof. William H. Matthews	617 253-1997
Northeastern University	Dr. Constantine J. Gregory	617 437-2444
Tufts University	Dr. N. Bruce Hanes	617 628-5000 X442
University of Maine	Dr. Millard W. Hall	207 581-7092
University of Massachusetts	Dr. Lawrence Ambs	413 545-0948
University of New Hampshire	Dr. Alexander R. Amen	603 862-1550
University of Vermont	Dr. Carl Reidel	802 656-2685
Worcester Polytechnic Institute	Dr. Imre Zwiebel	617 253-1411 X372
Managing Director	Mr. Theodore H. Rider	61.7 458-2501 X35

Reference Cited

Meadows, C. Edwin, Jr. 1973. Directory of investigator and environmental activities. Under auspices of New England Consortium on Environmental Protection on EPA Grant T-900258,

COPY

STATE ENVIRONMENTAL INVENTORY ACTIVITIES: A GUIDE TO INDIVIDUALS, INFORMATION SOURCES, AND SELECTED LITERATURE IN FORTY-FOUR STATES

Sponsored By:

Office of the Chief of Engineers
Department of the Army
Washington, D.C.

Contract No. DACW73-73-C-0073
Dated 22 February 1973

SMITHSONIAN INSTITUTION

OFFICE OF INTERNATIONAL AND ENVIRONMENTAL PROGRAMS

Center for Natural Areas

Washington, D.C.

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C.8 NEWS STUDY (NORTHEASTERN U. S. WATER SUPPLY STUDY)
U. S. ARMY CORPS OF ENGINEERS

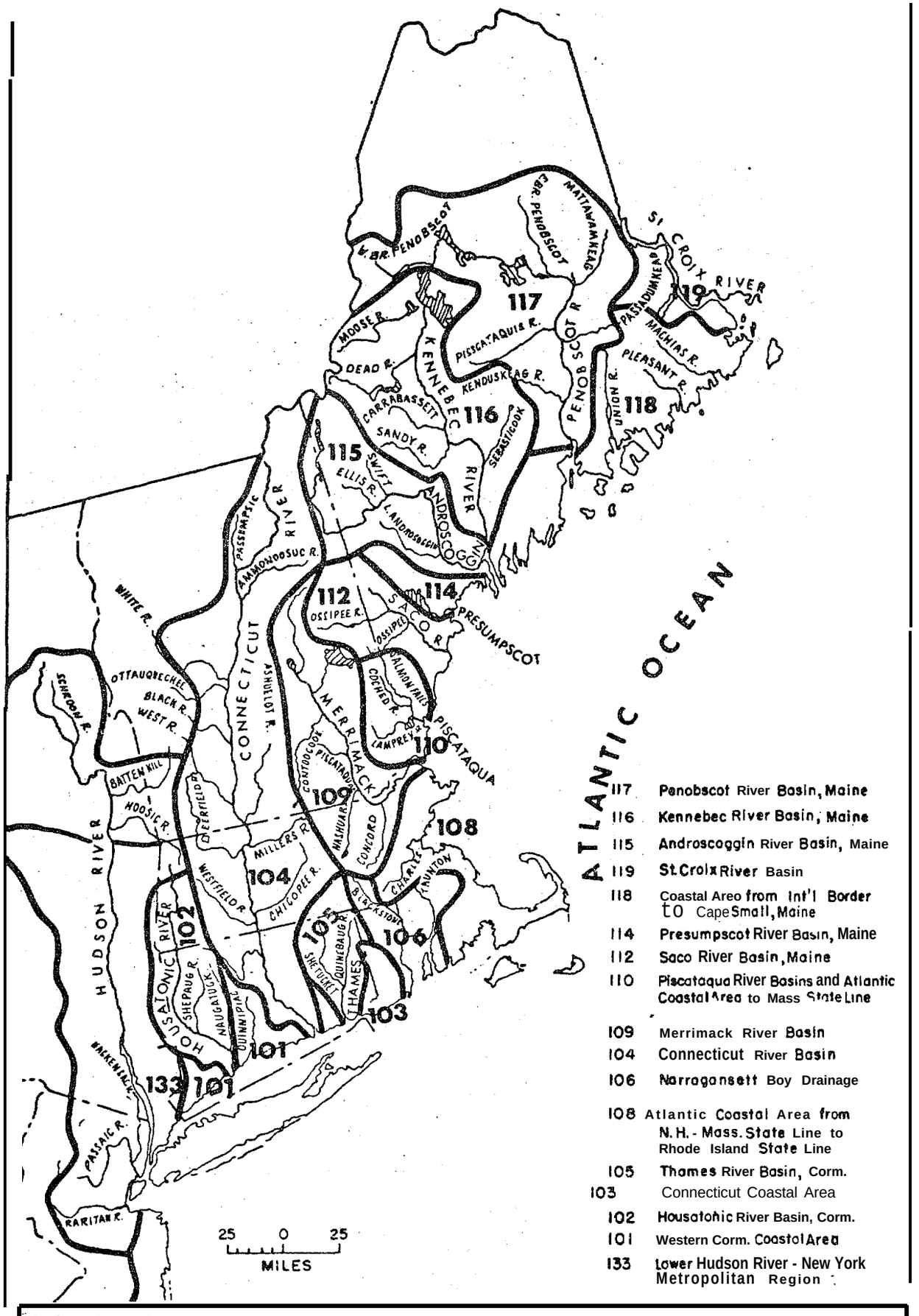
In response to the New England drought of the 1960's, the 89th Congress authorized the Northeastern United States Water Supply (NEWS) Study on October 27, 1954, under Title I of Public Law 89-298. The study is yet ongoing, and is intended to assure adequate supplies of water for the metropolitan centers which had experienced problems during the drought. It includes those river basins in the U. S. which drain into Chesapeake Bay, the Atlantic Ocean north of Chesapeake, the St. Lawrence River, and Lake Ontario (see Figure C.8-1 and C.8-2).

Priorities for problem areas have been established on the premise that work will be done first in areas in which projected demands for water in 1980 will probably exceed supply capabilities. Areas in this category are:

Eastern Massachusetts - Rhode Island
Northern New Jersey - New York City - Western Connecticut
South Central Pennsylvania
Metropolitan Washington, D. C.

Studies completed and ongoing are listed in Table C.8-1.

A second priority effort, called the "Long-Range Study", has been undertaken involving an evaluation of areas not seriously affected by the 1960's drought, but which could be potential problem areas by 2020. The study was conducted by Anderson-Nichols and Company, Inc., and a series of draft reports issued, dated November, 1971. Table C.8-2 lists the areas considered in these reports, within the BLM study region. More detailed information on the project may be obtained by contacting the North Atlantic Division, Corps of Engineers, 90 Church Street, New York, New York 10007 (Telephone 212-264-7508).



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC | FIG C. | FIGURE C.8-1 | Major Watersheds

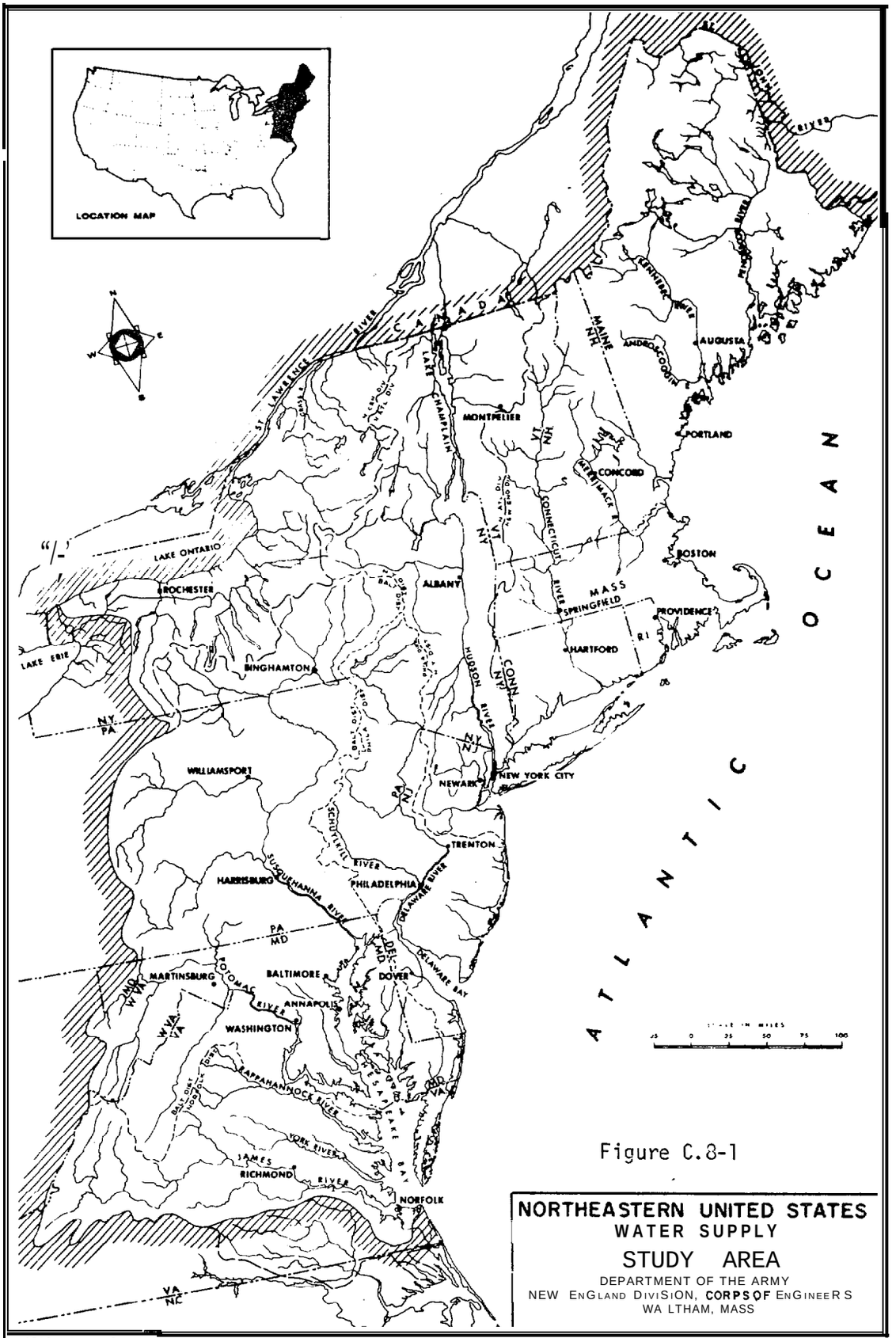


Figure C.8-1

NORTHEASTERN UNITED STATES
WATER SUPPLY
STUDY AREA
DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS

1969 U.S. Army Corps of Engineers

A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC

FIGURE C. 8-2

Northeastern U.S. Water Supply

Table C.8-1
NORTHEASTERN U.S. WATER SUPPLY STUDY

NEW YORK METROPOLITAN AREA:

1. Surface Water Supply. Capabilities of Northern New Jersey River Basins, December 1968. The objective of this study was to obtain firm yields, for various drought occurrences, of the surface water supply systems within the Hackensack, Raritan, Passic, Navesink, and Shark River basins. Considerations included firm yields of these systems, employing current operating rules and procedures; improvements in yield obtainable by relaxation or modification of various operating constraints; and yield improvement associated with construction of new facilities. (copies , unavailable)

2. Engineering Feasibility Report on Alternative Regional Water Supply Plans for the Northeastern New Jersey-New York City-Western Connecticut Metropolitan Area (Joint Venture) (Metcalf & Eddy-Hazen & Sawyer) November 1971 Reprinted May 1973. This investigation was performed to develop feasible-engineering alternatives for water supply systems to meet the domestic and industrial water needs of the study area to the year 2020. It was specifically stipulated that the selection of alternatives be based solely on engineering considerations, without regard to restrictions of 'law, jurisdictional authority, boundary limits, or details of project financing. Nearly 50 water supply projects were described, of which fourteen were examined in detail; from the latter, seven illustrative regional water supply programs were composed and displayed. ($9.75).

3. Organizational, Legal, and Public Finance Aspects of Regional Water Supply (Institute of Public Administration) July 1972. This report investigated the legal, institutional and economic issues involved in regionalization of public water supply in the New York and southwest New England NEWS Study Areas, and presentated alternative general institutional frameworks for regional water supply management.. ($5. 00).

4. Effect on the Environment of Regional Water Supply Alternatives for the Northern New Jersey-New York City-Western Connecticut Metropolitan Area (The Center for the Environment and Man, Inc.) November 1972. This report contains an 'overview and preliminary analysis of probable environmental impacts for the fourteen projects used to develop the seven regional programs described in the Joint Venture report, assuming maximum development of facilities for water supply (which would not necessarily be the case). The report describes qualitative rather than quantitative impacts and does not attempt to rank projects by their impacts. ($3.75).

Table C.8-1 (cont.)

5. Water Supply: Wastewater Management Aspects for Northern New Jersey-New York City-Western Connecticut Metropolitan Area (Nebolsine, Toth, McPhee Associates) June 1973
The objective of this study was to perform a survey of the existing legislation, programs, water quality and future quality conditions of water sources of the study area and the Delaware, Hudson and Housatonic River Basins, and to examine programs to protect or enhance quality of alternate ve water supply sources which may be utilized to meet the projected needs of the New York Metropolitan Study Area. This work was developedat a low level of detail, utilizing existing data. ($4.25).

6. Further Developmentof Regional Water Supply Development Alternatives for the Northern New Jersey-New York City-Western Connecticut Metropolitan Area (Parsons, Brinckerhoff, Quade, Douglas, Inc.) June 1973
The objective of this contract is to develop additional project alternatives and illustrative regional programs for water supply in the New York Metropolitan Study Area, supplementary to the work in the Joint Venture study, and to prepare a computer programming algorithm to serve as a tool for analysis of additional regional programs by the contracting agency. ($1.50)

7. Legal, Institutional and Cost Sharing Requirement for Implementing Water Supply Projects in the Northern New Jersey-New York City-Western Connecticut Metropolitan Area (Booz, Allen Public Administration Services, Inc.) June 1973
The purpose of this study was to further examine the legal, institutional cost-sharing requirements for the implementation of both individual projects and regional programs of projects for water supply in the New York Study Area. ($2.00)

8. Development of a Regional Multiple-Objective Evaluation Framework and Program for Public Information and Involvement in Planning for the Northern New Jersey-New York City-Western Connecticut Metropolitan Area. The purpose of this study is to develop a general regional multi-objective evaluation framework with the attendant plan formulation process, and to apply this framework to the seven illustrative regional programs for the New York Study Area developed in the Joint Venture report. Pursuant to the plan formulation process, a program for public information and involvement is being developed for the New York Study Area. (To be published)

Table C.8-1 (cont.]

9. Hydrologic and Hydraulic Studies for Regional Water Supply Alternatives for the Northern New Jersey-New York City-Western Connecticut Metropolitan Area. The objective of this study is to develop hydrologic and hydraulic information to be utilized in refining and detailing regional water supply alternatives, including a hydrologi c analysis of the upper Hudson Ri ver Basin, a hydraulic analysis of the New York Water Supply System and an analysis of the interconnections between water systems. These studies are three separate analyses whi ch are to be treated independently of one another. (To be published)

10. Wa.stewater-Total Resource Management Program for Long-Island. The objective of this study is to evaluate the feasibility of implementing a wastewater-total resource management program for Long Island, N. Y., which would eventually combine a nuclear power plant, a waste treatment facility and a land application system and/or other methods of waste heat utilization for the. overall purpose of system efficiency and improvement of water supply management on Long Island. (To be published)

SOUTHEASTERN MASSACHUSETTS - RHODE ISLAND

1. Millers River Basin Water Supply Project, March 1973. New England Division, Corps of Engineers. A study of southeastern Massachusetts and Rhode Island which concludes with a recommended water supply project. 4 volumes

Source: U.S. Army Corps of Engineers, written communication, 1973.

Table C.8-2
Long - Range Study Areas

Maine
- Bangor
- Lewis ton-Auburn
- Portl and

New Hampshire
- Manchester
- Nashua

Massachusetts
- Pittsfield

Connecticut
- New London-Groton-Norwich
- New Britain
- Bristol
- Hartford

New York
- Albany-Schenectady-Troy
- Utica-Rome
- Syracuse
- Rochester
- Binghamton
- Elmi ra

New Jersey
- Trenton
- Atlantic City
- Vineland

Source: U.S. Army Corps of Engineers, 1971.

C.9 NEW ENGLAND RIVER BASINS COMMISSION COMPREHENSIVE STUDIES

C.9.1 southeastern NEW ENGLAND STUDY (SENE)

The Southeastern New England Water and Related Land Resources Study is, a comprehensive federal-state planning effort for the most densely populated area of New England (see Figure C.9-1). The study covers nearly all of Rhode Island, about forty percent of Massachusetts, and a small part of Connecticut. The New England River Basins Commission, under the authority of the Water Resources Planning Act of 1965, is the coordinator. The objective of the study is the formulation of a "plan for managing the water and related lands of the region, developed through the optimization of two alternatives: one emphasizing economic and one emphasizing environmental concerns. The plan is being developed through a series of phases, listed below:

(1) Develop environmental and socio-economi c framework;

(2) Develop resource inventory and analysis;

(3) Formulate preliminary single-purpose alternative plans;

(4) Formulate preliminary multi-purpose alternative plans;

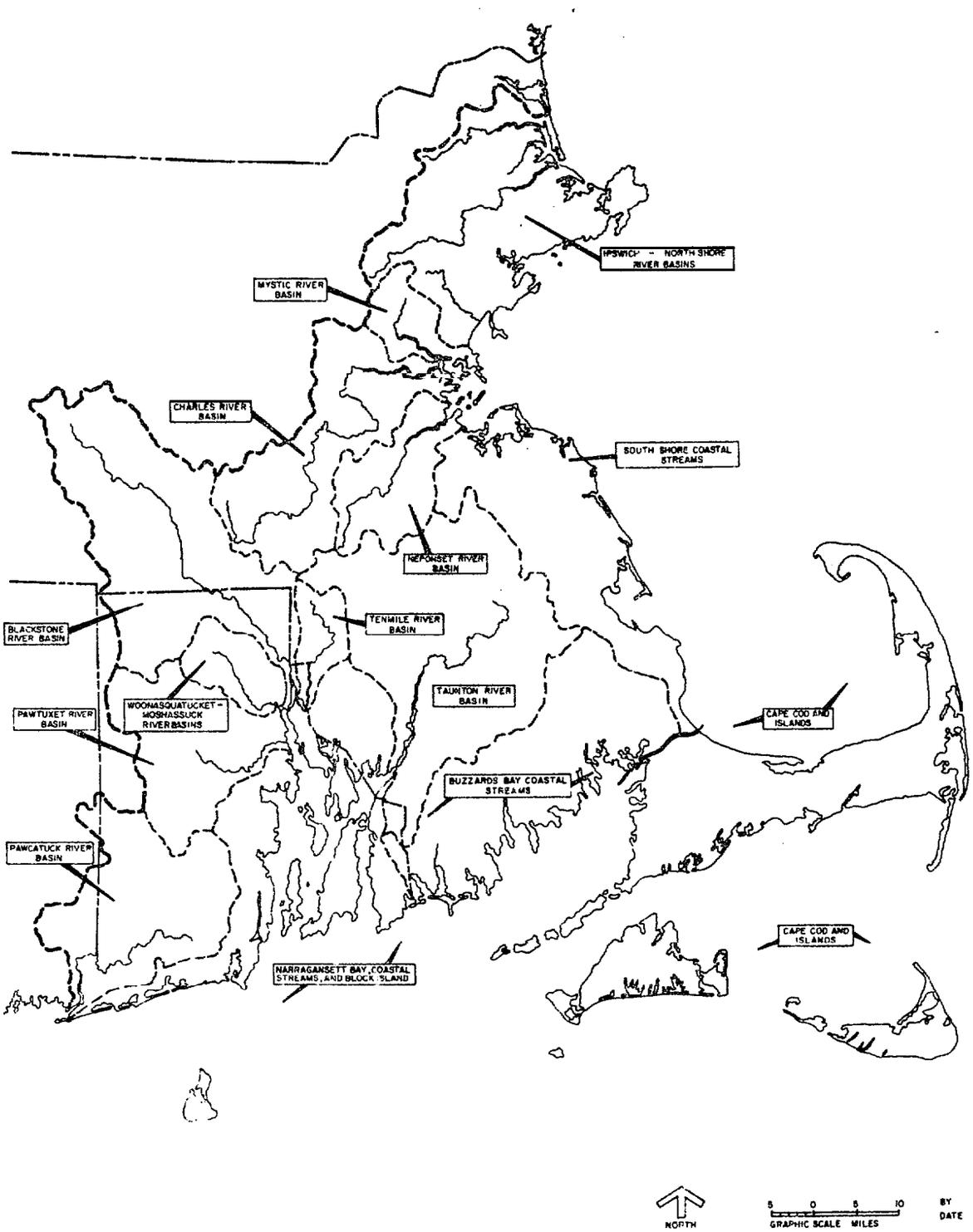
(5) Review and refine preliminary multi-purpose alternatives;

(6) Produce a best economic and a best environmental plan and formulate a recommended plan; and

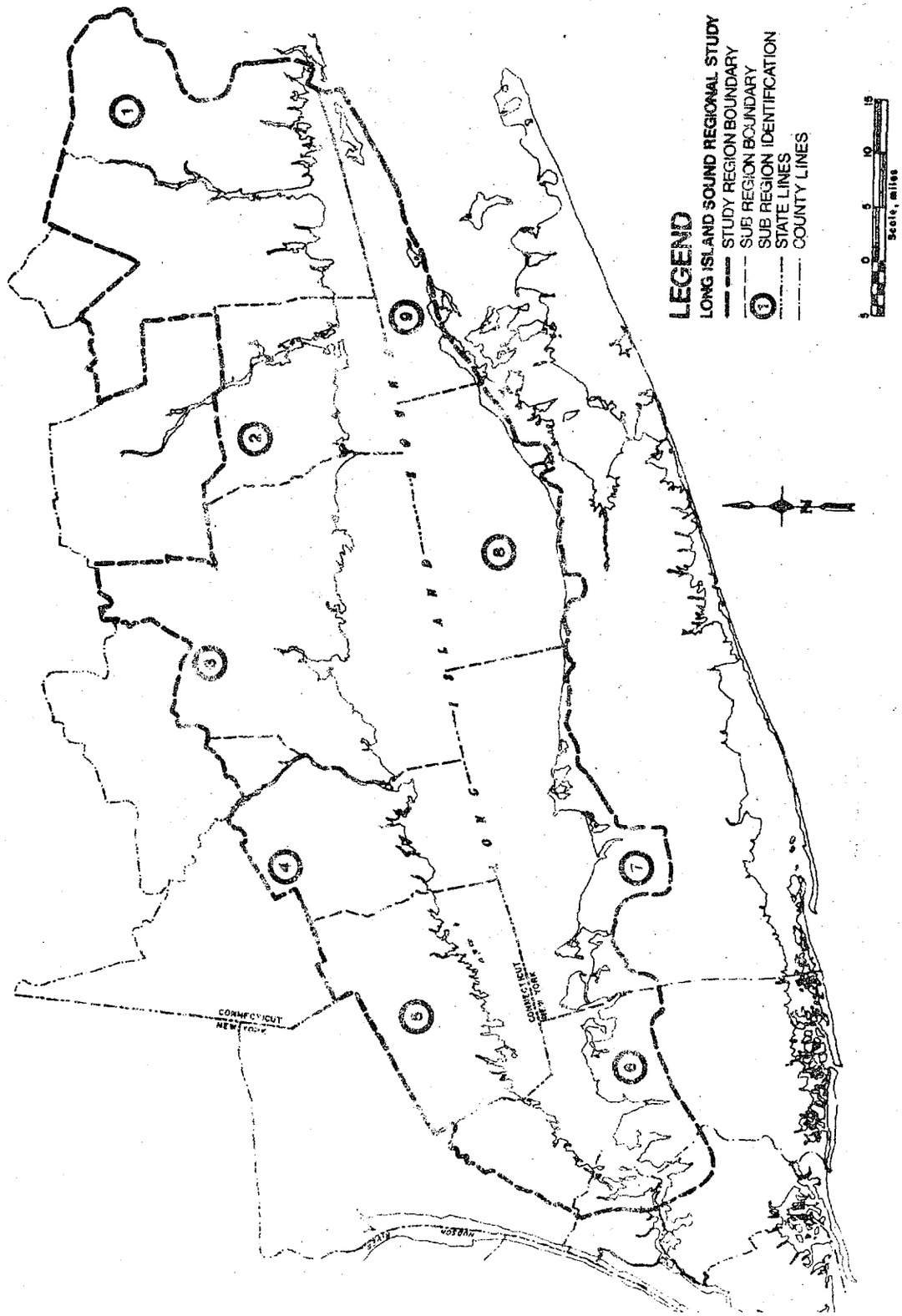
(7) Review and transmit recommended plan with major economic and environmental plans detailed to provide a basis for choice.

Progress on the study is reported by NERBC in their 1973 Annual Report:

> During the past year, SENE study participants pursuing this comprehensive approach, have been collecting information and analyzing resource issues for each of ten major basin planning areas in the region. For each basin, a team of state and federal resource agency professionals and SENE staff planners prepared 'reports on fifteen individual resource issues. Some of the issues covered included flood plain and groundwater management, coastal and wetlands resources, recreation, water supply, water quality power, navigation, transportation, fish and wildlife, minerals and others. Information on each of these issues has been placed on maps large enough to permit identification and comparison of resources between towns and thus allows problems and conflicts to be seen from a regional point of view.



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION		
TRIGOM PARC	FIGURE C.9-1	Major Drainage Areas Mass. and R. 1.



A SOCIO-ECONOMIC AND ENVIRONMENTAL INVENTORY OF THE NORTH ATLANTIC REGION

TRIGOM PARC	FIGURE ., C.9-2	Long Island Sound Study Regions

A full listing of single purpose reports on file is included in Table C.9-1. Descriptions of the information supplied by these reports are contained in Table C.9-2.

To date, published materials for the study include a two volume "Plan of Study" (1972), by NERBC staff; a "Survey of State and Regional Planning Studies" by Rhode Island Statewide Planning (1972); an annotated bibliography (NERBC, 1971a) and a series of interim reports, including "An Initial Assessment of the Deepwater Coastal Zone" (NERBC, 1971b), an "Environmental Base Study" by the University of Massachusetts Department of Landscape Architecture and Regional Planning (1972), and a two volume "Socio-Economic and Environmental Framework" report (NERBC, 1973a).

C.9.2 LONG ISLAND SOUND STUDY (LISS)

The Long Island Sound Regional Study is a comprehensive planning effort by federal government, and New York and Connecticut, led by the New England River Basins Commission. The study area is shown on Figure C.9-2. The goal of the study is "to produce a plan of action by January, 1975, which balances the needs to protect, conserve and wisely develop the Sound and its related shorelands as a major economic and life-enriching resource for the 12 million people who live near it." The study, similar in nature to the SENE Study, has completed its inventory stage and has published a "Bibliography for Planning" (NERBC, 1973b) and a series of interim reports including the following:

Soils (NERBC, 1973c)
Sources and Movements of Water (NERBC, 1973d)
Erosion and Sedimentation (NERBC, 1973e)
Recreation (NERBC, 1973f)
Mineral Resources and Mining (NERBC, 1973g)
Electric Power Generation (NERBC, 1973h)
Flood Plains (NERBC, 1973i)
Scenic and Cultural Resources (NERBC, 1974b)
Water Supply (NERBC, 1973c)
Water Quality (NERBC, 1974d)
Transportation (NERBC, ?)
Land Use (NERBC, ?)

These reports are summaries of more extensive reports prepared by a variety of federal and state agencies, on file at the New Haven NERBC offices in Connecticut.

Table C.9-1 Single Purpose Reports of the SENE Study

STUDY ELEMENT ,

1.00 Environmental and Socio-Economic Framework

2.00 Water & Related Land Supply & Availability Rels.
- 2.01 Climate, Meteorology, Hydrology, Water Quality, Geology & Groundwater Availability
- 2.02 Related Land

3.00 Water & Related Land Needs & Action Programs
- 3.01 Flood Plain & Streamflow Mgmt.
- 3.02 Water Quality Control
- 3.03 Groundwater Management
- 3.04 Water Supply
- 3*05 Land Use Patterns, Allocations & Mgmt.
- 3.06 Special Environmental Factors
- 3.07 Fish & Wildlife
- 3.08 Outdoor Recreation
- 3.09 Inland Wetlands Management
- 3.10 Navigation
- 3.11 Coastal Resources
- 3.12 Power
- 3.13 Minerals
- 3.14 Irrigation and Drainage
- 3.15 Sediment and Erosion
- 3.16 Health Aspects

4.00 Legal and Institutional Framework

5.00 Special Studies
- 5.01 Urban Waters
- 5.02 Coastal Zone

6.00 Water Resource Program Elements & Alternatives

Public Participation

Early Management Recommendations Task Force

Overall Management and Coordination

Source: NERBC, 1972. Southeastern New England Water and Related Land Resources Study, Plan of Study. NERBC, Boston

Table C.9-2 Description of Study Elements

1.00 ENVIRONMENTAL AND SOCIO-ECONOMIC FRAMEWORK

Information will be provided on the environmental and socio-economic characteristics of the SENE area to all study participants for orientation and use in the development of their particular study elements. These characteristics will be projected under specific assumptions in order to develop alternative futures as they may occur under the two proposed resource analyses.

2.01 CLIMATE, METEOROLOGY, HYDROLOGY, WATER QUALITY, GEOLOGY AND GROUNDWATER AVAILABILITY

This background material will provide a quantitative-qualitative description of existing opportunities and constraints useful to all study participants for evaluating and planning water resources in the SENE region.

2.02 RELATED LANDS

General identification, classification arid assessment of the relationships existing between flood plains, shoreline, wetlands, ground water recharge areas, etc., and existing and presently proposed land use patterns and general soils and soils limitations data and maps (+) in the study area.

3.0? FLOOD PLAIN AND STREAMFLOW MANAGEMENT

Hydrologic analysis
High and low steramflow pattern evaluation
Flood plain identification
Identification of flood plain land use patterns
Identification of potential water storage impoundments
Natural valley storage area, identification estimates of surface water discharges necessary for wetlands maintenance
Evaluation of loss of natural valley storage areas resulting from increased urbanization
Flood plain and streamflow management programs including flood plain regulation and flood flow, low flow regulation and augmentation

3.02 WATER QUALITYCONTROL

Present water quality identification
Pollution point/non point source information
Combined sewer identification
Identification of water pollution control (plants and other abatement practices)
Analysis of preservation of existing high quality areas (land use and subsurface disposal)
Estimates of streamflow requirements for environmental enhancement
Factors effecting water quality and forecasts of anticipated change
Assessment of proposed water quality
Proposals for water quality programs and alternatives

Table C.9-2 (cont.) .

3.03 GROUNDWATER MANAGEMENT
- Study of surficial geology
- Aquifer and recharge area identification
- Identification of groundwater occurrence availability and quality
- Identification of quantity and quality controlling relationships between groundwater and surface water
- Estimates of groundwater use and land use conflicts (subsurface disposal constraints)
- Proposals for groundwater programs and alternatives for achieving sound management of quality and quantity

3.04 WATER SUPPLY
- Identification of surface and groundwater potential-quantity, quality
- Identification of municipal and industrial sources and use
- Analysis of existing plans
- Identification of water quality aspects important to supply
- Identification of existing interbasin transfer - quantity and quality
- Forecasts of future needs
- Forecasts of interbasin transfer requirements
- Proposals for water supply programs and alternatives - individual, regional major regional

3.05 LAND USE PATTERNS. ALLOCATIONS AND MANAGEMENT
- Identification of-present land use patterns
- Analysis of land use relationship to water resources management
- Projection of future land uses
- Development of alternative land. use management plans providing linkage to water related land system

3.06 SPECIAL ENVIRONMENTAL FACTORS
- Identification of unique ecological, aesthetic, cultural, natural and environmental values
- Identification, classification and evaluation of the visual and cultural environment in quantitative terms
- Projected environmental holding capacity
- Projected impact of growth on the visual and cultural environment, vocationally and quantitatively
- Proposals for enhancement and protection of environmental factors

3.07 FISH AND MILDLIFE
- Fresh and salt water fishery inventory
- Identification, recreation and commercial fishery values
- Wildlife inventory and habitat identification
- Identification of land acquisition and management requirements for habitat and access
- Estimates of streamflow requirements
- Estimates of water quality requirements
- Management recommendations

Table C.9-2 (cont.)

3.08 RECREATION
- Identification of -federal, state, and private recreation facilities
- Analysis of recreation supply-demand relationships
- Water quality-recreation conflict identification
- Identification of streamflow, and water quality and land requirements
- Estimates of current and future outdoor recreation needs
- Development of recreation programs and alternatives

3.09 INLAND WETLANDS MANAGEMENT
- Location of wetlands by towns
- Identification of wetlands for flood control, groundwater, fish and wildlife, recreation, water quality, and unique ecological values
- Estimates of wetland water level requirements for waterfowl management
- Evaluation of wetlands as natural valley storage areas
- Evaluation of wetlands as groundwater recharge areas
- Proposals for wetland programs and alternatives

3.10 NAVIGATION
- Identification of navigation activity
- Identification of port, harbor, and waterway capabilities
- Analysis of impact of navigation on SENE area and coastal zone
- Projected navigational demands
- Possible alternative navigational improvements and impacts
- Proposals for navigation programs and alternatives

3.11 COASTAL RESOURCES
- Inventory of coastal wetlands, coastal shorelines, estuarine, and near shore areas, and special coastal resource values
- Determination of unique ecological, recreational, aesthetic, industrial and commerical values
- Future needs based upon population densities and distribution
- Recommendations for alternative coastal management, improvement, and protection programs

3.12 POWER
- Presentations and selection of types of prime movers
- Identification of condenser water requirements
- Suggested transmission routing and power siting
- Identification of power plant siting criteria and evaluations
- Alternative forecasts of power supply
- Development of alternative power management programs

3.13 MINERALS
- Identification of existing mineral production areas
- Identification of potential mineral production areas including submarine
- Indicate effect of urbanization on mineral resources
- Indicate water requirements
- Indicate economic and environmental implications of land use conflicts
- Development of suggested mineral resource management alternatives recognizing economic and environmental considerations

Table C.9-2 (cont.)

3.14 IRRIGATION AND DRAINAGE
Existing agricultural irrigation and drainage activity inventory
Identification of potential agricultural and non-agricultural irrigation and drainage activity
Drainage problem area identification
Estimates of supply, demand, and future irrigation and drainage needs
Proposals for irrigation and drainage programs and alternatives

3.15 SEDIMENT AND EROSION
Identification of sediment sources
Analysis of sediment transport and disposition
Identification and erosion activity
Future problems caused by factors contribution to excessive rates of erosion and sedimentation
Development of sediment and erosion programs and alternatives

3.16 HEALTH ASPECTS
Identification of vector control measures
Analysis of water supply aspects including water borne disease
Identification of present and potential health
Need for contemplated health aspect programs
Development of health programs and alternatives

4.00 LEGAL AND INSTITUTIONAL FRAMEWORK
(not all of the following are identifiable on maps)
Analysis of constraints and opportunities identified by study elements (3.01 through 3.16)
Identification of federal constitutional and state constitutional statutory framework
Local ordinance identification
Analysis of administrative framework
Definition of key policy instruments
Indicate significance of regional inter-governmental 'relationships
Analysis of impact of legislative developments and enforcement experience
Potential need for legal and institutional innovation
Proposals for legal and institutional alternatives

5.00 SPECIAL STUDIES: Urban Waters; Coastal Zone
The agencies responsible will report on the special problems, values and public concerns relevant to the specific subjects above.

6.00 WATER RESOURCE PROGRAM ELEMENTS AND ALTERNATIVES
All members of the plan formulation team would carry out and elaborate, as necessary, the various tasks described under each of the phases of activity described in Section 5 of this Plan o f Study.

Source: NERBC, 1972, SENE Study, Plan of Study. NERBC, Boston.

C.9 REFERENCES

New England River Basins Commission. 1971a. An annotated bibliography of major water and related land resources studies in southeastern Nw England. NERBC, Boston. 181 pp.

_____. 1971b. An initial assessment of the deepwater coastal zone. Interim report to the Southeastern New England Study. NERBC, Boston. 69 pp.

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_____. 1973c. Soils, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Connecticut. 20pp. & App.

_____. 1973d. Sources and movements of water, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Corm. 45 pp. & App.

_____. 1973e. Erosion and sedimentation, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Conn. 27 pp. & App.

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_____. 1973h. Electric power generation, an interim report for the Long Island Sound Regional Study, NERBC, New Haven, Corm.

_____. 1973i. Flood plains, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Corm, 23 pp. & App.

_____. 1974a. Scenic and cultural resources, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Corm. 30 pp. & App.

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_____. 1974c. Water supply, an interim report for the Long Island Sound Regional Study. NERBC , New Haven, Corm. 30 pp. & App.

_____. 1974d. Water quality, an interim report for the Long Island Sound Regional Study. NERBC, New Haven, Corm. 47 pp. & App.

Rhode Island Statewide Planning. 1972. A survey of state and regional planning studies. For New England River Basins Commission, SENE study. Rhode Island Statewide Planning, Providence, Rhode Island,

University of Massachusetts Department of Landscape Architecture and Regional Planning. 1972. Environmental base study. Interim report for NERBC, SENE Study. NERBC, Boston, 156 pp.

C.10 MAINE COASTAL PLAN

Under funding received from NOAA, Coastal Zone Management Office (CZMO) as part of Public Law 92-583, Title II, Sec. 305, Maine has developed a coastal plan which may be completed as early as the end of 1975. The designated recipient state agency to receive these federal funds is the State Planning Office, Coastal Planning Group. The award of this contract in the amount of $230,000 was the third made to the states after the creation of CZMO. Preparation of this coastal plan is the result of previous work by this group beginning in 1970 with Phase I Report, and including the Penobscot Bay Resource Plan (1972), and Maine Coastal Resources Renewal (1971). The Maine Coastal Plan (1974), the proposal for the subsequent work, is divided into three sections:

(1) Overall Program Perspective, Current Program

(2) Elements

(3) Analysis of CZM Act in relation to Maine

Various parts of the current elements are already underway in the form of inventories. Most of these activities are being conducted by other State agencies with the CZMO funds. These elements are:

(1) Land and Mater Capability Analysis. . .
Bedrock Geology
Surficial Geology
Soils
Slopes
Watersheds and Water Classification
Forest Types and Land Use
Facilities and Activities
Wildlife and Marine Resources

(2) Applied Research for the Coastal Zone...
Marine Environments
Aquiculture Suitabilities
Biological Tolerances
Coastal Lakes and Great Ponds
Coastal Hydrology
Marine Water Classification
Scenic and Historic Inventory
Recreation and State Critical Areas
Socio-Economic Research

(3) Local and Regional Citizen Participation

The following is taken from the Maine Coastal Plan (1974):

"The Maine Coastal Plan is an evolving strategy for reconciling the many conflicting uses of Maine's coastal resources. It is a two-pronged effort aimed at generating and compiling environmental data and using this information as a stimulus to public

policy formation. These activities constitute the formative elements of the Coastal Plan and are in various stages of progress as described in the previous sections of this application.

Resource Limitations and Opportunities

"A final element of the Coastal Plan will synthesize the results of the Land and Water Capability Analysis, Applied Research for Coastal Zone Management, and Local and Regional Public Participation Programs.

"Preliminary syntheses will identify conflicting activities in the coastal zone. The method used will be a combination of data overlays and possibly resource-use matrixes.

"Opportunities and limitations will be identified on separate maps and published in the various resource Plans for each coastal planning area. Cross reference between the resource opportunity and limitation maps and the basic data maps in the Resource Atlas will indicate the specific nature and extent of the opportunity or limitation. This interpretation will be aided by suggestions for various groupings of suitable activities geared to specific resource situations.

Environmental Zones

"Final synthesis will result in the division of the. coastal zone into four resource management categories. These categories will be designated by the Coastal Planning Group.

"This program would bear an obvious evolutionary relationship to the Mandatory Shoreland Zoning Law which requires the towns to zone their shorelines (salt and fresh) in conformance with minimum State guidelines. Under existing law, any land use zones and accompanying performance standards established by the Coastal Planning Group would be simply advisory in nature, giving both the state and the towns some guidance in granting variances under existing laws. This is especially necessary as it is the pattern of variances granted at both state and local levels that will determine the ultimate effectiveness of laws such as the Mandatory Shoreline Zoning Act. Furthermore, using this information, the state will have a basis for measuring the adequacy of local ordinances in protecting key natural resource."

References Cited

Maine State Planning Office 1970. Maine coastal development plan, Phase I Report, June 1970.

Maine State Planning Office 1971. Maine coastal resources renewal; A summary, August 1971

Maine State Planning Office, Coastal Planning Group, 1972. Penobscot Bay Resources Plan September 1972.

Maine State Planning Office, Coastal Planning Group 1974. Maine Coastal Plan; application for financial assistance from federal Coastal Zone Management Act of 1972, January 1974.

C.11 TRIGOM DIRECTORY OF MARINE RESEARCH FACILITIES AND PERSONNEL IN MAINE

TRIGOM initially assembled and published a directory on this subject in 1970. A second edition which updated research and included additional persons engaged in some form of marine science or research was published in 1972. This directory was divided into six parts:

Part I: Marine Science Personnel

Part II: Marine Research and Educational Facilities

Section A: Academic

Section B: Independent

Section C: Municipal

Section D: State

Section E: Federal

Section F: Industrial

Part III: Current Research Projects by Agency

Part IV: Personnel by Keyword Interests

Part V: Personnel by Agency Affiliation

Part VI: Selected Computer Facilities

The section on current research, listed projects with which each scientist was involved and was, as such, a catalogue of on-going research.

During 1974 TRIGOM has polled all the personnel in the 1971 edition for an update of current research or change of position. This revision has been completed and contains about 265 scientists within the State of Maine or working in Maine. The directory was published September 1974 and can be obtained by writing to TRIGOM, Box 2320, South Portland, Maine, 04106 (207) 773-2981 Ext. 306.

ATTACHMENT 1

APPENDIX C-2

SMITHSONIAN SCIENCE INFORMATION EXCHANGE NOTICES

Maine

SMITHSONIAN
SCIENCE INFORMATION EXCHANGE, INC.
1730 M STREET. N.W. PHONE 202-3 S1-5511'
WASHINGTON, D.C. 20036

SIE NO
GSV-3720

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCYS NuMBERIS)

GA-32454

TITLE OF PROJECT:

CARBONIFEROUS AND MESOZOIC RIFT STRUCTURES OF THE GULF OF MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

E UCHUPI

WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

2/72 TO 2/73
FY72 FUNDS $21,500

The primary goal of this research is to determine the geologic and tectonic framework of the Gulf of Maine. Preliminary investigations of the Gulf and surrounding land areas reveal the possible presence of a major rift system landward of the continental slope. This rift system and associated sedimentary basins apparently are part of a linear fracture belt which developed along the eastern margin of the North American continent in the Late Paleozoic-Early Mesozoic. It is believed that the tectonic forces which folded and faulted the sedimentary strata in these structural basins also are responsible for the rifting of the crust that lead to the opening of the North Atlantic Ocean. These Triassic and Carboniferous rift basins within the Gulf of Maine will be investigated using seismic reflection and obltg~e-reflection profiling, magnetic, and sampling techniques. These data subsequently will be used to construct geologic and tectonic maps of the onshore and offshore regions of the northeastern United States and. Canada in an attempt to better understand the early history of the continental margin.

SMITHSONIAN
SCIENCE 1NFORNL4TION EXCHANGE, INC.
1730 M STREET, N.W. PHONE 202-381-5511
WASHINGTON, D.C. 20036

SIE NO.
GRP-17088

NOTICE OF RESEARCH PROJECT

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

NG-2-72

TITLE OF PROJECT:

GEOTECHNICAL PROPERTIES IN TWO SEA FLOOR GEOTECHNICAL DEVELOPMENT & DEMONSTRATION AREAS - A PRECURSOR TO APPLIED TECHNOLOGIES (ABBREV)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

AF RICHARDS
JM PARKS
TJ HIRST
TA TERRY

RECIPIENT INSTITUTION:

LEHIGH UNIVERSITY
CTR. FOR MARINE & ENV. STUDIES
ALUMNI MEMORIAL BLDG.
BETHLEHEM, PENNSYLVANIA 18015

PERIOD FOR THIS NRP:

8/72 TO 7/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: 1. To develop and test new equipment to measure geotechnical properties of deep sea sediments in situ from research submersibles (vane shear, cone penetrometer, transmission gamma-ray densitometer, etc., to depths of 3.4 meters). 2. To establish two specific relocatable areas on the sea floor and to determine the geotechnical properties and their variabilities, for the purpose of systems testing of instruments and equipment whose successful operation depends at least in part on the bearing strength and/or settlement characteristics of sea floor soils. 3. To make this information available to potential users (industries, government agencies and universities) through publications, demonstrations. 4. To establish a computerized data bank for world-wide geotechnical properties of sea floor soils.

How information will be applied: Industries and others developing bottom-resting devices, new anchoring systems, etc., will be able to test the operation of these devices in known geotechnical environments in easily accessible locations before deploying them at their ultimate sites. It is very difficult to simulate soils with realistic geotechnical properties in pressure-testing tanks.

Accomplishments during the past twelve months: 1. Two in situ probe systems have been designed, developed, constructed, tested and successfully operated to specifications on DEEP QUEST off San Diego and on ALVIN in Gulf of Maine. 2. The Vane Shear Probe has worked to design penetrations of 3.4 m, and the combination Cone Penetrometer and Transmission Gamma-Ray Densitometer has worked to design penetrations of 1.2 m. 3. 5 dives with DEEP QUEST were made in October 1971 and 4 dives in June 1972 with a total of 28 stations occupied. 6 dives were made with ALVIN in July 1972 with a total of 18 stations occupied. 4. Sufficient data have now been obtained for the initial characterization of the proposed two Sea Floor Geotechnical Development and Demonstration Areas.

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WASHINGTON, D.C. 20036

SIE NO
GBP-553

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY S NUMB ER(SI

720084

0241340

TITLE OF PROJECT

OCEAN ENGINEERING AND HABITATS

PRINCIPAL INVESTIGATOR. ASSOCIATES ANDDEPARTMENT/ SPECIALTY

DR G SAVAGE MECHANICAL ENGINEERING

RECIPIENT INSTITUTION

UNIV. OF NEW HAMPSHIRE
SCHOOL OF ENGINEERING
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Technical Objective: To determine alternate methods of solid waste disposal in the oceans and the impact of those methods on the marine environment;tocontinue development of ocean engineering experience education programs; to develop a methodology for reclaiming coastal real estate and making optimum use of the coastal zone; to initiate mariculture activities in New Hampshire waters,

Approach: Baled wastes will he placed in the marine environment under controlled conditions sothatthe physical and biological responses of the bales can be determined over a period of time; at the same time, investigations will be conducted to determine optimum locations for waste disposal in the Gulf of Maine in the event an environmentally compatible methodology 1s developed The ocean engineering undergraduate program will establish Practical problems for solution by engineering students, duplicating "real world" situations. The project to reclaim coastal real estate will examine the maximum impact expected from waves and storms for the purpose of developing parameters for the placement of storage, power production, and similar facilities offshore with the coastal zone ultimately reclaimed for recreational and human housing use. The mariculture program will begin by determining appropriate marine organisms for culture in New Hampshire waters. The project FLARE program will utilize the university's mini.rnal habitat in support of a NOAA project to be conducted in Florida waters early in 1972.

progress: This is a new coherent area proposal and there is no progress to report.

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GUN-9040-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

F-30-R-3-4

TITLE OF PROJECT,

ANDROSCOGGIN AND SACO RIVER WATERSHEDS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GR MORRISON

RECIPIENT INSTITUTION:

STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:

8/72 TO 7/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: To acquire title or easement to lands beside and under the Androscoggin and Saco Rivers and their tributaries, wherever needed, to gain access to the rivers and streams for fishing or for the protection of the fishery habitat, as well as for other water-bodies in the watershed.

Procedure: The help of the river biologist will be enlisted to determine what portions of the river are critical spawning, resting or fishing areas for anadromous fish, as well as for resident species. An investigation of what acquisition is necessary to protect these areas will be made by a visual inspection of the watershed.

After the number and location of access sites is determined, a study will be made of the amount of land needed at each site for access and parking. This will be determined by the distance between the waterway and public roads and by the proximity and density of centers of population. The cost and availability of land in the area will also be a consideration.

A personal inspection of the area will be made to talk with landowners and brokers regarding land for sale or available for purchase.

Department of Resources and Economic Development records will be studied to determine land use, population centers and transportation facilities. A personal inspection will be made of the region to study its geography, regional and local growth and the attitude of the population toward the installation of state facilities.

In determining the market value of lands a study will be made of past and present land sales at the Registry of Deeds. A visual inspection of land that has been sold in the last two years will be made to determine comparability of the different parcels. ISG

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SIE NO
ZTK-40

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S)

CONTINUATION OF PERMANENT EXPOSURE STATIONS

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY:

HT THORNTON

RECIPIENT INSTITUTION

U.S. ARMY
CONCRETE DIVISION
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Purpose of Study/Investigation: To maintain a field exposure station at Treat Island, Cobscook Bay, Maine, to continue the development of data on the resistance of concrete and concrete materials to the effects of natural weathering.

Approach or Plan: A permanent exposure Installation at Treat Island, Cobscook Bay, Maine, provides for the exposure of specimens containing various test components to longtime freezing in air and thawing in sea water,

Progress to Date: The specimens at the Treat Island exposure station are inspected and tested by appropriate nondestructive procedures each year and the results are distributed as supplements to the two-volume loose-leaf summary reports, Tr 6-553, "Performance of Concrete and Concreting Materials Exposed to Natural Weathering",

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SIE NO.
ZTK-39

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT,
TENSILE CRACK EXPOSURE TESTS ON REINFORCED CONCRETE BEAMS

HT THORNTON

RECIPIENT INSTITUTION:
U.S. ARMY
CONCRETE DIVISION
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose of Study/Investigation: To obtain information on the influence of variation in class of reinforcing steel, depth of concrete coverage over steel, quality of concrete cover, and magnitude of tensile stress in steel on the performance of reinforced concrete beams subjected to severe natural weathering.

Approach or Plan: The weathering resistance of reinforced concrete beams exposed at Treat Island, Maine, using new- and old-type deformed rail and billet steel bars with shallow and thick coverage of concrete in top- and bottom-poured positions, stressed to varying degrees from 20,000 to 50,000 psi, is being determined.

Progress to Date: Specimens consist of 7-ft-9-in.-long beams of varying cross sections loaded in pairs in third-point loading to the desired stress through calibrated springs, with observation of cracking due to loading, and cracking and other deterioration due to weathering caused by freezing-and-thawing and cyclic tidal action on the exposure rack at Treat Island, Maine. The investigation consists of two phases. Phase I included 82 beams, most of which were of nonair-entrained concrete, which deteriorated rapidly under the severe weathering conditions encountered. Phase II consists of 76 beams, all of which are of air-entrained concrete. Exposure of the specimens of both phases is being continued.

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SIE NO.
GBP-608

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

720497

0241301000

TITLE OF PROJECT

INVESTIGATION OF GEOTECHNICAL PROPERTIES IN TWO SEA FLOOR GEOTECHNICAL DEVELOPMENT & DEMONSTRATION AREAS (ABBREV)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

JM PARKS

RECIPIENT INSTITUTION

LEHIGH UNIVERSITY
CTR. FOR MARINE & ENV. STUDIES
ALUMNI MEMORIAL BLDG.
BETHLEHEM, PENNSYLVANIA 18015

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS $182,200

SUMMARY OF PROJECT

Technical Objective: The objectives of this project are to develop improved techniques anddevicesfor measuring the characteristics of sea floor sediments. This grant provides support for the terminal year of a 3 year program. During this third year in situ measurements, data analysis and reduction for both the San Diego trough and the Wilkinson Basin, Gulf of Maine. In addition, supplementary environmental analysis related to improved understanding of geotechnical properties will be made.

Approach: Two new probe systems which were constructed during the second year of the project are being modified to increase reliability and ease of operation These probes are a vane shear-strength probe and gamma-ray transmission densitometer probe. The latter probe includes a cone penetrometer attachment. A cone penetrometer will also be added to the vane penetrometer drive. The probes have been developed for operation abroad deep submersibles.

Progress: The two probes have been constructed and tested successfully from the submersible DEEP QUEST, at 1,200 meters depth. Thirteen stations in the San Diego troughs were occupied for in situ measurements of geotechnical properties. Also 10 stations were made during three dives with the WHOI submersible ALVIN, during which a modified penetrometer-densitometer probe was successfully used. These dives were made at the Gulf of Maine.

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SIE NO.
ZTK-38

NOTICE IIF RESEARCH PROJECT

SUPPORTING AGENCY:

DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

DURABILITY AND BEHAVIOR OF PRESTRESSED CONCRETE BEAMS

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

HT THORNTON

RECIPIENT INSTITUTION;

U. S. ARMY
CONCRETE DIVISION
P.O. BOX 80
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP.

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose of Study/Investigation: To develop information on the factors affecting the performance of prestressed concrete members subjected to severe natural weathering as this performance is affected by the nature of the prestressing system employed, the state of stress of the member during exposure, and the quality and properties of the concrete.

Approach or Plan: Pretensioned and post-tensioned concrete beams have been placed under various loads and have been exposed at mean tide elevation at Treat Island, Maine, and St. Augustine, Florida.

Progress to Date: The testing of the 24 4-1/2-by 9- by 81-in. pretensioned beams with tendons stressed to 0.7 ultimate has been discontinued. The second phase of the project consisting of the exposure of a limited number of post-tensioned beams using several prominent systems of post-tensioning, and various means of protecting the end anchorages against corrosion is being continued.

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SIE NO.
GPH-25

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ATOMIC ENERGY COMMISSION
REACTOR DEVEL. & TECH. DIV.

AGENCY'S NUMBER(S)

TITLE OF PROJECT:

GULF OF MAINE STUDY

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

PF SMITH ENVIRONMENTAL EQUIPMENT DIV

RECIPIENT INSTITUTION

E G & G INCORPORATED
WALTHAM, MASSACHUSETTS 02154

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

The objective of this study was the development of methods for forecasting the environmental effects of the operation of nuclear power plants using nearshore waters for cooling. The program was based upon an engineering application of modern oceanographic techniques. Work included the collection of relevant environmental data on the Gulf of Maine Coastal Zone from all available sources, as well as the collection of new data from the portion of the coastal zone under immediate study. Field data-gathering techniques used include moored instrument installations, droque current studies, dye studies, shore-mounted meteorological stations and tide gauges. Four one-month moorings were made. Current meter data was processed and analyzed and correlations between simultaneous measurements were developed.

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SIE No
A0-20606

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY.
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMB ER(S):
68-01-0795
CONTRACT
72P20606

TITLE OF PROJECT:
MODIFICATION AND APPLICATION OF MATHEMATICAL MODELS TO THE KENNEBEC RIVER BASIN OF MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
IH RINARD

RECIPIENT INSTITUTION:
HALCON COMPUTER TECH. INC.
NEW YORK, NEW YORK 10016

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $28,742

SUMMARY OF PROJECT.

(1) Objectives. The major objective of this work is to develop water quality simulation models for the fresh-water and estuarine portions of the Kennebec River Basin of Maine. These models are intended for use as water quality management analysis tools by local and regional personnel. (2) Approach. Historical water quality and hydrological data will be assembled from all available sources for use in the calibration and verification of the models. A data report will be prepared in which the adequacy of the data for the purpose of model development is assessed. Two existing general purpose programs (DOSAG for the fresh-water region and DEM for the estuarine region) will be adapted to meet the specific needs of this project. An expanded water quality model will be incorporated which tracks, in addition to BOD and dissolved oxygen, phosphorus, coliforms, ammonia, nitrite, nitrate, chlorophyll alpha, algal production and respiration, benthic uptake, and chromium. A sensitivity analysis is part of the project. A seminar will be held for the local personnel. (3) Current Plans. The project is in its early stages. It is to be completed within eight months.

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SIE NO.
ZUA-2215-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S)

9710-00297

TITLE OF PROJECT:

ORLAND QUADRANGLE, LUCERNE PLUTON, MAINE.

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR WONES

RECIPIENT/INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
18TH & F STS. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20242

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

States to which project pertains: Maine.

Establish geologic setting, chemistry, and crystallization history of Lucerne Pluton, Maine, and other granitic plutons in the New England states. Establish stratigraphy, structure and metamorphic rocks northeast of Penobscot Bay. Determine extent of mineralized area and relationship of those areas to bedrock geology. Cooperation with surficial geologists and geophysicists in order to contribute to environmental studies of Maine coastal areas, and structures underlying Gulf of Maine.

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SIE NO
GPE-1884-4

NOTICE IOF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV, RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT
AT(11-1)3024

TITLE OF PROJECT:
INTERRELATIONSHIP BETWEEN CERTAIN HYDROGRAPHIC FEATURES ASSOCIATED WITH CURRENTS AND PRIMARY PRODUCTION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CS YENTSCH
ES GILFILLAN
CS YENTSCH UNIV. OF LONDON

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
MARINE STATION
GLOUCESTER, MASSACHUSETTS 01930

PERIOD FOR THIS NRP:
9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

In essence, this study is a seasonal study of the distribution of plankton at a specific station in the Gulf of Maine. This entails occupying the station from a research vessel, water sampling, and measuring the environmental parameters. The physical, chemical and biological factors associated with plankton growth in the temperate waters of the Gulf of Maine are being explored with special reference to the understanding of biochemical mechanisms involved. This study entails measurement of photosynthetic rate, the distribution of biochemically active nutrients, and rate-limiting activities within the system. Associated with the biological studies are measurements of temperature, salinity and assessment of the vertical transport within the water mass. Of particular interest is the environmental factors which stimulate spring and fall blooms, as well as those associated with the decline of the bloom. Timing and duration of the blooms are of interest and the resulting data is of use on a comparative basis with other areas.

Results: The observational program has been going on for a period of 18 months. In both years (1971, 1972) sizeable spring outbursts occurred in April. The difference in timing between the two years was within a few days. The spring outburst is accompanied by a mammouth decrease in the amount of nitrate in the waters which has suggested that the declining populations are nitrogen deficient. In 1971, the nitrogen deficiency (ammonium enhancement, measurements showed no or little adverse effect after the decline of the spring bloom. However, 1972 showed a marked ammonium enhancement. The difference between the two years appears to be due to the fact that a greater amount of the fixed form of nitrogen was removed in the second year than in the first.

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SIE
GY-62233-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
MAINE ORONO

AGENCY'S NUMBER(S)
0062233
ME00278
SUBGROUP H
CSRS ME. 0000000000

TITLE OF PROJECT
BACTERIAL POPULATIONS IN MAINE AQUATIC AND ESTUARINE ENVIRONMENTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
PRATT D B
THORUP R

KIND A AN ARE
DATE SP01 DISTR

RECIPIENT INSTITUTION
UNIV OF MAINE
MICROBIOLOGY
AGRICULTURAL EXPER. STATION
ORONO MAINE 04473

PERIOD FOR THIS NRP
BEG 720701 END 770630
FY 74 FUNDS 00000000
50512053 sub

SUMMARY OF PROJECT

OBJECTIVE: Survey bacterial populations of Maine aquatic and estuarine environments: develop methodology for analysis of aquatic and estuarine bacterial populations; correlate water quality with bacterial populations.

APPROACH: Characteristic-bacterial species will be isolated from aquatic and estuarine environments. These will be characterized and suitable selective and differential media will be adapted or developed for a quantitative analysis of the bacterial populations- Samples from selected environments will be analysed for size and composition of the population. Results will be analysed with respect to environmental parameters with particular attention Faid to pollution.

PROGRESS: Plate counts, using the spread plate technique, were obtained from water samples taken from lakes of different trophic state-s. Standard agar media for freshwater plate counts were compared with gelatin agar, with and without supplementation. Maximum counts were obtained, with few exceptions, on unsupplemented gelatinagar. Pigmentation was poorest on this medium. Incubation at 23 C for 14-21 days or 15 C for 21-28 days produced maximum counts. Preliminary screening showed that randomly selected isolates were predominantly non fermenting, gram negative rods. Further characterization is in progress, together with a comparison of the effect of plating procedures upon individual organisms and the entire aquatic Copulation. Polymyxin has been employed as a selective agent in the study of populations of intertidal zone bacteria. A slowly growing polymyxin resistant population has been observed; these bacteria do net appear on non-polymyxin containing media and are inhibited by rapidly growing polymyxin sensitive bacteria.

0160 10
WATER-QUALITY POLLUTION ESTUARIES MICROORGANISMS WATER AQUATIC-BACTERIA
016010
MARINE-BACTERIA SELECTIVE-MEDIA DIFFERENTIAL-MEDIA BACTERIA AUTOCHTHONOU
0 160 10
S-BACTERIA WATER-POLLUTION POPULATION-!2ENS1TY COUNTING POPULATION AQUATI
0 160 10 C-ENVIRONMENT CUANTITATIVE-AN ALYSIS

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SIE NO.
GRP-1202

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35209

TITLE OF PROJECT:
LARGE-SCALE CIRCULATION OF THE GREEN BAY-LAKE MICHIGAN SYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
CH MORTIMER

RECIPIENT INSTITUTION:
UNIV. OF WISCONSIN
CENTER FOR GREAT LAKE STUDIES
PEARSE HALL, ROOM 107
MILWAUKEE, WISCONSIN 53201

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $0

SUMMARY OF PROJECT

Objectives: The objectives of this project have been: 1. Determination of large-scale circulation patterns in Green Bay and the northern half of Lake Michigan under actual (or model) wind stresses of differing force and direction, and (when desired) in combination with forcing action of observed water level changes at the mouth of the Bay. 2. Verification of the model by comparison of its output with recorded motions (level fluctuations and currents) at selected points. 3. Provisions of physical data needed by other investigators. Termination of project is expected in 1972.

How information will be applied: The recently renewed interest in using the Bay of Fundy for the generation of tidal power has raised the question of modal behavior of the Bay oscillation near its mouth. A solution of this problem will be of great practical importance in determining the effect of engineering structures on the tidal amplitudes and on the amount of power which can be generated from them. The Green Bay study is the first, to the investigator's knowledge, which has considered these "bay mouth" conditions. We find that in Green Bay an expected mode does not in fact exist. The striking resonant oscillation of Green Bay, therefore, turns out to be a co-oscillation involving the whole of Lake Michigan. It may turn out, therefore, that the Bay of Fundy oscillation also involves the Gulf of Maine and perhaps a large portion of the Continental Shelf, and that the Green Bay study, which was terminated by the Sea Grant Office on the grounds that it seemed to be an enterprise in basic science, may have practical applications in coastal engineering.

Accomplishments: This study, for which funding terminated in August 1972, is now being prepared for publication, first in the form of a report and later in a scientific journal.

For additional information pertaining to this project contact Dr. Robert A. Ragotzkie, Sea Grant Program Coordinator, University of Wisconsin, Madison, Wisconsin 53706.

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SIE NO
YME-44-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

MAINE STATE GOVERNM ENT

AGENCY S NuMBER(SI

TITLE OF PROJECT

AREAL DISTRIBUTION AND PROVENANCE OF SEDIMENTS IN ST. GEORGE RIVER, KNOX COUNTY, MAINE

PRINCIPAL INVESTIGATOR,ASSOCIATES AND DEPARTMENT, SPECIALTY

DR LK FINK

RECIPIENT INSTITUTION

UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP

7/71 TO 6/72 TERMINATED
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Sediment cores are being collected from the St. George Estuary. Grain size analyses and heavy mineral suites will be determined. This information will be used to determine areal distribution of the various heavy mineral suites and the provenance of the sediments in the St, George River. The possible contamination by pollutants of the estuary's sediments will be considered. The parameters which will define a signature of a specific estuary will be determined and will form the basis for further studies in other estuaries of the Maine coast, ISG

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GY-58059-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
~~U. S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
MAINE ORONO

AGENCY'S NUMBER(S):
0058059
ME03500
SUBGROUP S
SAESME. 0000000000

TITLE OF PROJECT
CULTURE OF RESOURCES IN A COLD WATER MARINE ENVIRONMENT

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY:
DUNHAM W C
ROWE R J
HOGAN J M

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION
UNIV OF MAINE
AGRI EN GIN EERING Dept
AGRICULTURAL EXPER. STATION
ORONO MAINE 04473

PERIOD FOR THIS NRP:
BEG 710201 END 76013
FY 74 FUNDS 00000000

5 0 5 1 2 0 5 3

SUMMARY OF PROJECT.

OBJECTIVE: Assist in the development of a system of mariculture for selected species of shellfish that have potential for commercial production on the Maine coast. Develop new feed products, by-products and processing methods for utilization of shellfish. Determine market potential and consumer acceptance of shellfish products.

APPROACH: As a contributing effort to an overall sea grant project on the development of a commercial system of mariculture for selected species of shellfish, the departments of Agricultural Engineering, Agr. and Resource Economics, Animal Science and Food Science will participate in the engineering, food technology, and marketing aspects of developing a total mariculture and marketing system. Work will include hatching mechanization, development of submersible rafts, harvesting techniques, new product development, processing techniques, consumer acceptance and analysis of marketing system. Selected species will include European oysters, Cancer crabs, Blue mussels and scallops.

PROGRESS: Growing oysters in trays successful on a trial basis and seems more practical than reattaching oysters to a board. Mobile service raft developed and tested for mechanizing submerged tray culture system. Collected data on market conditions and potential for half-shell oysters in U.S. markets, Montreal, and exploring prospects of export to France. Made analysis of variables affecting oyster consumption and developed predictive equation for use in estimating consumption. Raw scallop viscera ground, dried. Chemical analyses shows value as protein supplement teed but preliminary feed trials resulted in paralysis of chicks and high mortality. Later tests with autoclave viscera were excellent. Suspect enzyme thiaminase in raw material caused thiamin deficiency in preliminary tests. Mussels tested for keeping quality in ice", vs. sea water at 32 and at 50 F. Mussels acceptable after 13 days on ice but not at 17 days; acceptable after 10 days in 32 sea water but not at 13 days; acceptable after 3 days in 50 sea water but not at 6 days. Further work will evaluate methods for detecting incipient spoilage.

016010
FISH-CULTURE / ARKETING-SYSTEMS BY-PRODUCTS MARINE-RESOURCES NEW-FOODS FO

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SIE NO.
GUW-3843

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMB ER(SI

A-028-ME

TITLE OF PROJECT.

THE MACROINVERTEBRETE FAUNA OF A MAINE SALMON RIVER SUBJECTED TO LONG-TERM MULTIPLE PESTICIDE CONTAMINATION

PRINCIPAL INVESTIGATOR ASSOCIATES ANDDEPARTMENT/SPECIALTY

KE GIBBS ENTOMOLOGY

RECIPIENT INSTITUTION

UNIV. OF MAINE
SCHOOL OF LIFE SCIENCES
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP

7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS $2,420

SUMMARY OF PROJECT

The proposed research plan involves an investigation of the macroinvertabrate fauna of the Narraguagus River, a Maines salmon river subjected to long-term multiple pesticide contamination from blueberry production. The history of pesticide usage includes Guthion,DDT, Dieldrin, calcium arsenate, 2,4-D and 2,4,5-T.

Field investigations will include qualitative and quantitative analyses of macroinvertebrate populations in riffle areas of eight sample ~tati.ens) four of which are subject to pesticide contamination and four of which are not. Information on the specific identity, biology and distribution of as many species as possible will be accumulated. Sampling of macroinvertebrate populations will be by means of benthic and drift samplers and emergence traps.

Laboratory investigations will consist of periodic analyses of pesticide residues within riffleecosystem.

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SIE NO. YME-46-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
BEDROCK TOPOGRAPHY AND SEDIMENTS OFF THE KENNEBEC, SHEEPSCOT AND DAMARISCOTTA RIVER ESTUARIES, MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF D SCHNITKER
P CLARK

RECIPIENT INSTITUTION
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The surficial deposits that now exist in the Central Maine coastal area are the result of processes that have been active here for not much more than the past 11,000 to 10,000 years, offering a unique opportunity to study a rather uncomplicated geologic model. A combination of seismic profile studies with sediment core and grab samples will allow us to determine the bedrock topography of the area and the amount and nature of the sediments present. The relationship of the existing sediment accumulations to the bedrock configuration will provide information about the sediment dispersal patterns and thus the hydraulic conditions within the area. ISG

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SIE NO.
GUW-3023-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(SI

A-025-ME

ATTITUDES OF VOTERS AND OFFICIALS RELATIVE TO ALTERNATIVES OF WATER QUALITY AND MANAGEMENT SYSTEMSFOR THE PENOBSCOT RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

J HENDERSON POLITICAL SCIENCE

RECIPIENT INSTITUTION

UNIV. OF MAINE
SCHOOL OF ARTS
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $8,288

SUMMARY OF PROJECT

The proposed research plan involves the application of survey research techniques to determine politically relevant environmental attitudes in several target groups: registered voters and municipal officials in communities bordering the lower Penobscot River, all State Legislators, and selected State agency personnel who deal with environmental quality.

Objectives include determining target group attitudes on 1) environmentalism (committment to improvement), 2) environmental awareness (of problems and proposed solutions), 3) government role in environmental Protections 4) liberalism-conservatism (government intervention in solving social problems, 5) political awareness.

Each of the five dimensions will be scaled (Likert type), and "environmentalism" will be treated as an dependent variable in a multiple regression analysis which will include the other attitude scales and personal characteristics as independent variables.

The overall purposeof the study S.s to determine the factors influencing "environmental" attitudes at several levels of public policy making in a river basin.

ISG

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SIE NO.
GUW-3725

NOTICE OF "RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):

CONTRACT
C-4297

TITLE OF PROJECT

DATA AND MANAGEMENT NEEDS FOR WATER RELATED LAND AREAS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

E KEENE
J ROBERTS

NORTH KENNEBEC REG. PLN. COMM.
173 MAIN ST.
WATERVILLE, MAINE 04901

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project will investigate the data needs necessary to enable rational decision-making with respect to flood plain zoning and proper utilization of riparian lands along the main stem of the Kennebec River in Maine. Recommendations will be made for involving local governments in the decision making and incorporate long term planning for community development as well as non-structural alternatives such as local zoning and the new State level zoning authority.

Certain kinds of data are available, but no comprehensive analysis of availability and need has ever been done. The regional planning commission provides a regional organization for planning, but their authority is advisory only. Better involvement of State and local decision makers may be needed for effective management of land use controls for riparian land.

The project includes: (1) analysis of criteria for corridor definition; (2) review of related literature including State and local ordinances; (3) preparation of a corridor plan against which to measure proposals; and (4) drafting of aproposed management scheme.

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SIE NO.
GUO-334-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMB ER(S1

MAINE 3-16-R-4

TITLE OF PROJECT.

ECOLOGICAL FACTORS THAT INFLUENCE MARINE WORM ABUNDANCE

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY.

EP CREASER
RL DOW

RECIPIENT INSTITUTION

STATE DEPT. OF SEA & SH. FISH.
AUGUSTA, MAINE 04330

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

objective: To determine the ecological factors that influence the abundance of worms in the intertidal flats.

Procedure: Routine hydrographic surveys will continue in the area of Wiscasset, Maine, until the termination of the monthly sampling for bloodworms i-n July, 1969. The collection of vertical and horizontal data on salinity, pH and the H2S content of marine muds will continue using an interstitial mud water sampler designed especially for this purpose. Compacting will be measured with a modified penetrometer, mud moisture content continued by wet-dry weight ratio, and percolation rate with a percolation apparatus. No satisfactory method has yet been designed for the determination of sediment sizes in the silt and clay range. Preliminary sediment size preference studies indicate the need for various modifications including the need of running the experiment in triplicate. A seven day temperature recorder will be mounted near the sandworm and bloodworm areas at Wiscasset to determine the mud, water and air temperature at the time of spawning for both species. ISG

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SIE NO.
GUW-3022-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMB ERIS):
A-024-ME

TITLE OF PROJECT.
DISSOLVED POLLUTION PRODUCT GASES IN NATURAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
E GREEN OCEANOGRAPHY

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP,
7/72 TO 6/73
FY73 FUNDS $73,246

SUMMARY OF PROJECT:

The project involves the development of a method of analysis for certain dissolved gases in natural waters. The gases of interest are methane, carbon monoxide, hydrogen sulfide, sulfur dioxide, mercaptans, and alkyl sulfides. These gases promise to play an important role in future studies of natural water quality. Methane anomalies appear to be associated with raw sewage outfalls, carbon monoxide with primary productivity, while the sulfur-containing species are products of kraft pulp mill discharge. Preliminary investigations suggest the possibility of a practical field analyzer for use in environmental and pollution studies of rivers, lakes and streams. The principal experimental work for the first year of this proposed research will consist of adapting existing gas chromatographic techniques to field operations and to improving standardization methods and accuracy. The continuing and final phase of the work will involve a survey of dissolved trace pollution product gases in the estuarine environment, probably the Kennebec and Penobscot estuaries of Maine. There an attempt will be made to correlate the water chemistry with observed anthropogenous effects on the ecosystem.

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SIE NO.
GUN-8847-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)

AFS-4-5-3

ANALYSIS OF STRIPED BASS SPORT CATCH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

LN FLAGG

RECIPIENT INSTITUTION

STATE DEPT. OF SEA & SH. FISH.
AUGUSTA, MAINE 04330

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $4,500

Objectives: To determine the seasonal and annual variation in the composition of the striped bass sport catch.

Procedures: A creel census of striped bass fishermen will be conducted to obtain specimens for analysis of size, age, and sex to determine the seasonal and annual variation in the sport catch composition. A census will be conducted on a weekly basis from May through October in areas frequented by saltwater anglers in mid-coastal Maine, to include the areas listed under Job #1.

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GUO-335-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

MAINE 3-16-R-4

TITLE OF PROJECT,

BIOLOGICAL CHARACTERISTICS OF WORM POPULATIONS IN GROWING AREAS

EP CREASER
RL DOW

STATE DEPT. OF SEA & SH. FISH.
AUGUSTA, MAINE 04330

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: To determine certain biological characteristics of worm populations in different types of growing areas.

Procedure: The growth rates of bloodworms will be determined from monthly length-frequency data. The age composition of sandworms and bloodworms will be established by both length and weight distribution for various areas in the Sheepscot River. A continued investigation of the sexual maturity characteristics, spawning behavior, migration and mortalities will be conducted during the spring and early summer. Evidence of a prespawning mortality of mature bloodworms will be checked out. The male - female, nonspawner ratio for all lengths of sandworms will be checked. Diving techniques will be employed in the study of spawning behavior and the estimations of subtidal worm populations. Studies of sandworm and bloodworm eggs and sperm will continue for the Sheepscot River, and include the Sasonoa River where it is thought that the addition of warm water from a nuclear power plant under construction may affect egg development or spawning. ISG

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SIE NO.
GSE-3137-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL. SCIENCE FOUNDATION
DIV. OF ENGINEERING

AGENCY'S NUMBER(S)

GK-27879

RESTORATION DYNAMICS FOR ESTUARIES

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

KI MUMME CHEMICAL ENGINEERING

UNIV. OF MAINE
SCHOOL OF TECHNOLOGY
251 AUBERT HALL
ORONO, MAINE (?4473

9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Chemical reactor theory has been applied to the problem of maintaining water quality control of the Penobscot Estuary in Maine. This research will investigate the possibility of operating the "reactor" (the river) such that the reaction becomes "runaway" (dissolved oxygen content of the water increases in a runaway manner). It is intended to develop a means of assisting restoration of the river rather than simply controlling or stopping deterioration of the river.

If the research is successful the river can be considered in either of two ways: active restoration would allow the river to handle even more waste without violating the stream classification; or, the same amount of waste could be discharged into the river but the water could maintain a higher classification than is now possible. This new study will be extended to the entire tidal estuary and. the dynamic interaction between the ocean and the river. ISG

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SIE NO.
GUH-152-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FISHERY SERVICES DIVISION

AGENCY'S NUMBER(S),

TITLE OF PROJECT:
H YDROGRAPHY OF THE PEN OBSCOT RIVER ESTUARY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DRRW HATCH ZOOLOGY

RECIPIENT INSTITUTION:
UNIV. OF MAINE
GRADUATE SCHOOL
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS N R P.
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

A long range program of studies on the ecology of the Penobscot estuary has been established by the Maine Cooperative Fishery Unit. Part I involves a detailed study of the hydrography of 30 miles of estuary from Bangor Dam to Belfast. Salinity, temperature, density and dissolved oxygen have been and will continue to be monitored with the view toward detecting changes in the estuarine environment from anticipated pollution abatement in Penobscot River. This project was initiated July, 1963.

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SIE NO.
GMA-1646

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

EN VI RONMENTAL PROTECT, AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMB ER(S,

8010 06

TITLE OF PROJECT

THE FEASIBILITY OF IDENTIFYING MYSTERY OIL SPILLS

PRINcIPAL INVESTIGATOR, ASSOCIATEs AND DEPARTM EN T/SPECIALTY

GS HUNT

RECIPIENT INSTITUTION

STATE DEPT. OF ENV, PROTE CTICN
AUGUSTA, MAINE

PER1o O FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $39,303

SUM MARY OF PROJECT

This project will determine the feasibility of identifying oil spilled in coastal and inland waters, in conjunction with the state of Maine's Oil Conveyance law, by chemically and physically matching spilled oil to reference oil samples using readily available laboratory techniques. Oil samples will be taken from ships as required by this state law. Each sample will be divided into three parts; one for storage as a reference sample, one for field weathering, and one for weathering under laboratory conditions. The reference samples, as per the Oil Conveyance Law, will be stored for a 15-day period at a cool temperature, in a dark room, under custody of project personnel. The sample for field weathering will be spilled under controlled conditions in the waters of Casco Bay, Maine. Weathering will take place for periods up to two weeks. The laboratory weathered third sample will provide a backup for the "field" sample. This simulated weathering will take place in 500 gallon, continuously flushed, salt water tanks located with the Trigon Laboratory in South Portland, Maine. In addition to providing backup spill samples, these laboratory tests will also develop some important information on physical and chemical changes due to exposures of the oil to the environment.

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SIE NO
GMA-1664

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
72P00607

TITLE OF PROJECT:
THE FEASIBILITY OF IDENTIFYING MYSTERY OIL SPILLS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
GS HUNT
SJ DORRLER

RECIPIENT INSTITUTION:
STATE ENVIRON. IMPROVE. COMM.
AUGUSTA, MAINE 04330

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

The research grant project will determine the feasibility of identifying oil spilled in coastal and inland waters, in conjunction with the state of Maine's Oil Conveyance Law, by chemically and physically matching spilled oil to reference oil samples using readily available laboratory techniques. Oil samples will be taken from ships as required by this state law. Each sample will be divided into three parts; one for storage as a reference sample, one for field weathering, and one for weathering under laboratory conditions. The reference samples, as per the Oil Conveyance Law, will be stored for a 15 day period at a cool temperature, in a dark room under custody of project personnel. The sample for field weathering will be spilled under controlled conditions in the waters of Casco Bay, Maine. Weathering will take place for periods up to two weeks. The laboratory-weathered third sample will provide a backup for the field sample. This simulated weathering will take place in 500 gallon, continuously flushed, salt water tanks located within the Trigon Laboratory in South Portland, Maine. In addition to providing backup spill samples, these laboratory tests will also develop some important information on physical and chemical changes due to exposures of the oil to the environment.

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SIE NO
GNR-989

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

NG-40-70

CULTURE OF RESOURCES IN A COLD WATER MARINE ENVIRONMENT

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/ SPECIALTY

DR H HIDU ZOOLOGY
D DEAN

RECIPIENT INSTITUTION

UNIV. OF MAINE
SCHOOL OF ARTS
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP

9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Objectives: The objectives of this project are: (1) to adapt and develop techniques for intensive off-bottom culture of shellfish (3 spp. oysters, mussels, quahogs, 2 spp. scallops) in Maine waters, (2) To evaluate the potential of coastal waters of Maine for intensive shellfish culture. (3) To adapt hatchery procedures for development of commercial shellfish seed stocks in the Maine environment. (4) To assist private citizens and corporations in developing commercial-level intensive shellfish culture.

How information will be applied: All information is being applied to bring on new marine industry in Maine. Several prototype systems are being evaluated for their commercial applications Sea Grant research developments are being applied through cooperative research efforts with potential users and publication of research results.

Accomplishments during the past twelve months: A 5000 sq. ft. marine hatchery facility has been constructed and is now operative. Environmental evaluation indicates that Maine waters may produce a marketable American, European or Japanese hatchery oyster in 2 years by rafting technique Approximately 20 private citizens and 3 corporations on the Maine coast have begun pilot commercial oyster culture operations in conjunction with the Sea Grant program. Rafted Maine mussels exhibit superior growth rate and lower pearl incidence than shorebound populations indicating a potential for intensive culture. Hatchery techniques have been adapted for several species of shellfish; progeny of 3 species of oysters, hay scallops and quahogs are available for genetic studies, environmental evaluation and development of rafting technique. Field c~].itch experiments are in progress to enhance the natural reproductive potential of introduced stocks of European oysters in the Boothbay region, thus helping to preserve our Maine adapted brood stock.

For additional information pertaining to this project contact Dr. David Dean, Coherent Project Director, The Ira C. Darling Center for Research, Teaching & Service, Univ. of Maine at Orono, Walpole, Me. 04573.

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GMA-788

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY, S NUMBER(S):

16110 DPT

TITLE OF PROJECT:

THE NORTHERN MAINE REGIONAL TREATMENT SYSTEM

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

RE HUNTER

RECIPIENT INSTITUTION

NORTHERN MAINE REG. PLAN. COM.
PRESQUE ISLE, MAINE 04769

PER IO D. FOR THIS NRP:

7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS $121,360

SUMMARY OF PROJECT

Development of an optimum water quality protection plan for the Northern Maine Region, including analysis of a transport-treatment system.

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SIE NO.
GBP-760

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY S NUMBER(S)

CONTRACT
18121000

NUTRIENT SAMPLING IN THE COASTAL WATERS OF THE GULF OF MAINE

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

H APPLIN FISHERY RESEARCH LAB
JJ GRAHAM

RECIPIENT INSTITUTION

STATE DEPT. OF SEA & SH. FISH.
WEST BOOTHBAY HARBOR, MAINE 04575

PERIOD FOR THIS NRP:

?/7'2 TO 6/73
FY73 FUNDS $8,000

SUMMARY OF PROJECT

Technical Objective: To continue the coastwise sampling of nutrients between Grand Manan and Cape Newagen through and after September 1972, thereby completing a full year of coverage of concentrations and distributions at approximately two-month intervals. Analyze the nutrient distribution data in terms of the physical and biological forces acting on the nutrients. Conduct sampling within the inner coastal waters to determine patterns of nutrient utilization in conjunction with direct measurements Of primary productivity.

Approach: Continuation of sampling coastwise stations on a quarterly basis with the addition of dissolved oxygen and iron analysis which may be useful in tracing the origin and seasonal formation of high-nutrient, high salinity water that is found at 125-150m at 20-mile stations off MoosePeakand Schoodic. A substantial amount of time will be spent in analyzing the results of nutrient variations and distributions obtained from September 1971 through September 1972 which are the result of a varying combination of biological and physical factors. The physical data will be used to compute dynamic heights, horizontal currents, and vertical eddy coefficients.

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SIE NO.
GBP-988

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

NG-40-72

TITLE OF PROJECT:

OPTIMIZATION OF FIELD REARING TECHNIQUES FOR HATCHERY CULTURED SHELLFISH IN ,MAINE WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATESAND DEPARTMENT/SPECIALTY:

DR RJ ROWE AGRICULTURAL ENGINEERING
J RILEY

RECIPIENT INSTITuTION.

UNIV. OF MAINE
SCHOOL OF TECHNOLOGY
251 AUBERT HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:

9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: The objectives of this project are: 1. To design and develop systems, equipment and procedures for the planting, servicing and harvesting of cultured shellfish. 2. To evaluate and compare reattachment and traying as potentially mechanizable oyster rearing systems.

How information will be applied: Demonstration equipment will be installed in Maine waters. Project personnel will work in cooperation with other research and extension personnel to conduct educational programs and demonstrations to acquaint fishery-minded individuals with project results as soon as they are available. Reports and publications will make information available to other researchers.

Accomplishments during the past twelve months: (1) Pilot studies on biological response of oysters to reattachment identified suitable adhesives, materials and techniques. (2) Several different panel and tray rearing systems have been designed, together with an inexpensive mobile winching raft for the deployment and servicing of these units. (3) Small scale models of their components have been constructed for initial concept evaluation.

For additional information pertaining to this project contact Dr. David Dean, Coherent Project Director, The Ira C. Darling Center for Research, Teaching & Service, Univ. of Maine at Orono, Walpole, Me. 04573.

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SIE NO.
GRP-374

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY S NUMB ER(S!

710150

294329000

DEVELOPING OF TECHNIQUES TO CULTURE OF RESOURCES IN A COLD WATER MARINE ENVIRONMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

D DEAN ZOOLOGY

UNIV. OF MAINE
SCHOOL OF ARTS
36 WINSLOW HALL
ORONO, MAINE 04473

7/71 TO 6/72
FY72 FUNDS $100,300

SUMMARY OF PROJECT

Technical Objective: Efforts under this grant will be devoted to the developing of techniques for the culture of several species of marine organisms in Maine waters. Where techniques for these organisms have been developed elsewhere, tests will be undertaken to determine whether these same procedures will work in Maine's colder waters. Where such techniques have not been developed, they will be worked on by the University of Paine group. Some modification of techniques developed elsewhere are to be expected. However, in most instances they will not have to duplicate earlier work. Species to be cultured are the deep sea scallop and the European oyster. Other studies will include an assessment of the cancer crab fishery of Maine and an exploration of possible ways to increase the demand for blue mussel.

Approach: Initial efforts on the deep sea scallop will include the spawning and rearing of the scallop and an investigation to determine the feasibility of using a large natural bottom area in the Damariscotta River as an experimental scallop bed. The work on the European oyster will begin with an assessment of the population levels in several areas along the Maine coast where the oyster was introduced in past years. This will be followed by adaptation of known cultural techniques for Ostrea edulis to the Maine environment. Later work will include the construction and testing of submersible rafts and a study of the potential market outlets and consumer acceptance In addition to the assessment of the cancer crab fishery, efforts will also be undertaken to explore the adapting of the crab meat picking machine devised for blue crabs to the picking of meat from rock crabs and an evaluation of consumer demand for the rock crabs.

Several approaches will be used to explore the ways of increasing the demand for mussel-s such as their use as an additive in animals feeds, the potential of mussel protein concentrate, improving 'f mussel dishes for human consumption and the promotion of the fresh product.

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SIE NO.
GBP-754

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
78121000

TITLE OF PROJECT:

CONTINUATION OF STUDY INTO DISTRIBUTION, ABUNDANCE, AND DEVELOPMENT OF SELECTED ICHTHYOPLANKTON OF THE GULF OF MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

HH DEWITT ZOOLOGY

RECIPIENT INSTITUTION:

UNIV. OF MAINE
SCHOOL OF ARTS
36 WINSLOW HALL
ORONO, MAINE 04473

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $8,400

SUMMARYOF PROJECT:

Technical Objective: The abundance of resource species in the ocean is, to a large extent, dependent on events which occur during the early phase of the life cycle. Mortality is very high and slight modification in mortality rate can have a considerable influence on the numbers of new recruits. An understanding of the mechanisms involved in determining the survival of the early stages of exploited stocks including the effects of environmental variation is needed to interpret stock-recruitment relationships. Also the position of fish larvae in the tropho-dynamics of the sea is different from that of the adults. The availability of the right kind of food at a given time is more critical for the larvae than for the adults and could be an important factor in determining the size of the year class. The MARMAP ichthyoplankton survey is designed to provide a balanced system of broad-area low intensity sampling supplemented by high intensity "zoom" studies relating to specific hypotheses. This approach will lead to an understanding of the factors controlling the abundance levels of resource populations, and allow for more rapid predictions of the status of living marine resources. A part of the study will provide information on the spawning abundances, times and places of the more abundant fish species in the Northwest Atlantic Ocean.

Approach: The initial step towards reaching this goal has been taken by the National Marine Fisheries Service under the MARMAP Program. The University of Maine Ira C. Darling Center, will sort, enumerate and identify to family taxon (and where possible to species), fish eggs and larvae collected on MARMAP cruises in the Gulf of Maine. Dr. Hugh H. DeWitt of the University of Maine will be responsible for supervising the sorting and processing the samples by graduate students.

Progress: Progress reports will be submitted quarterly and a final report including a description of the seasons and areal abundance of the dominant species found in the collections will be submitted at the end of the contract period.

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SIE NO.
AH-652

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

MAINE YANKEE ATOMIC POWER CO.

AGENCY'S NUMBER(S)

THE HOLOCENE SEDIMENTATION IN MONTSWEAG BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

PROF D SCHNITKER
K LEBLANC

RECIPIENT INSTITUTION

UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:

7/71 TO 6/72 TERMINATED
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

The history of the sedimentary filling of Montsweag Bay is to be studied by a variety of techniques. A series of seismic profiles will permit estimates of the sediment volume present within the bay and Provide information about internal sedimentary structures. Sediment cores, taken by vibracorer, will be analyzed for microfossils(pollen, spores, ostracods, foraminifera) sediment granulometry, organic matter content. Radiocarbon dates will provide an absolute time reference frame.

Actual sedimentation processes and rates are studied throughout the bay to permit prediction of shoaling events in certain sections of the bay.

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SIE NO.
AK-566-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE YANKEE ATOMIC POWER CO.

AGENCY'S NUMBER(S):

TITLE OF PROJECT
EFFECTS OF TEMPERATURE AND MECHANICAL STRESS ON PLANKTON ENTRAINED BY THE MAINE YANKEE ATOMIC POWER PLANT, MONTSWEAG BAY, MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
R CRIPPEN
P LINDSAY

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $43,380

SUMMARY OF PROJECT:

Plankton samples are collected at the intake and discharge of the Maine Yankee Atomic Power Plant (MYAPCo), and in the discharge channel at the northern end of Long Ledge, Montsweag Bay, Maine. The ichthyoplankton samples are left in tact, and the flagellate, diatom, and zooplankton samples are divided into several homogeneous subsamples. All samples are returned to the laboratory and maintained at the intake or ambient temperature. The survival of the ichthyoplankters and the estimate of the flagellate population is determined by direct obsevation after returning to the laboratory. Stains are used to determine the survival of diatoms 24 hours after collection, and zooplankton one and 24 hours after collection.

The independent effects of mechanical and thermal stress are evaluated separately. "Cold" samples (mechanical stress only) were taken when the plant was pumping but not imparting a T, and treated as above. Thermal stress is evaluated in the laboratory by subjecting one of the "intake" subsamples to the same temperature rise and cooling experienced in the plant and discharge channel at the time of sampling. The experimental "intake" sample and its control are treated as above. The results of the above samples (field samples, "cold" samples, and experimental samples) will assist not only in the evaluation of possible effects of thermal and mechanical stress, but also on possible synergistic effect between these two stresses.

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AP-877

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

MAINE YANKEE ATOMIC POWER CO.

AGENCY'S NUMBER(S):

TITLE OF PROJECT

HYDROGRAPHY, SEDIMENTS, PLANKTON, BENTHOS & COMMERCIALLY IMPORTANT PLANTS & ANIMALS INCLUDING FINFISH, IN MONTSWEAG BAY-BACK RIVER AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

D DEAN
RJ MCALICE
JM MCCLEAVE
RL VADAS
GT REED
W LEE

RECIPIENT INSTITUTION

UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP

7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT

The project is designed to establish ecological baselines for the unaltered environment, and to assess the effects of subsequent thermal alteration. Monitored at frequent intervals throughout the year are: temperature, salinity, nutrient levels, phytoplankton, zooplankton, benthic communities, attached algae, and fishes. Stocks of commercially important shellfish and sea worms are assessed quarterly. Sediment distribution, current patterns, and rates of sedimentation are also being studied.

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SIE NO.
AA-773-6

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE YANKEE ATOMIC POWER CO.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
HYDROGRAPHIC AND BIOLOGICAL SURVEY OF MONTSWEAG BAY AND VICINITY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY;
PROF BJ MCALICE
D DEAN
HH DEWITT
JM MCCLEAVE
RL VADAS

RECIPIENT INSTITUTION.
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $106,420

An 850,000 KW nuclear-powered electric generating facility began operation in late 1972 at Bailey Point, Montsweag Bay, Lincoln County, Maine. Ecological baselines have been established in the unaltered environment prior to plant operation. The project is now attempting to evaluate the effects of thermal alteration.

Monitored at frequent intervals throughout the year are: temperature, salinity, nutrient levels, phytoplankton, zooplankton, benthic communities, attached algae, and fishes. Stocks of commercially important shellfish and sea worms are assessed quarterly.

INVESTIGATORS (CONT)
GA JEAGER
B PORTER
RD CLIME
SA MACKO
WP REYNOLDS
M KESER

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SIE NO.
PW-2247

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
SOCIETY OF THE SIGMA XI

AGENCY'S NUMBER(S)

ANALYSIS OF ESTUARINE DEPOSITIONAL ENVIRONMENTS ON AN INTERMEDIATE WAVE AND TIDAL ENERGY COAST, WELLS BEACH AREA, MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
BS TIMSON

RECIPIENT'S INSTITUTION
UNIV. OF TEXAS
GRADUATE SCHOOL
200 W. 21ST
AUSTIN, TEXAS 78712

PERIOD FOR THIS NRP
7/73 TO 6/74
FY74 FUNDS $250

SUMMARY OF PROJECT

No summary has been provided to the Smithsonian Science Information Exchange,

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SIE NO.
AP-33

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE YANKEE ATOMIC P OWER CO.

AGENCY'S NUMB ERIS):

TITLE OF PROJECT:
ADDITIONAL STUDIES IN RELATION TO MAINE YANKEE PLANT OPERATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF M MAZURKIEWICZ
BJ MCALICE
D SCHNITKER
D DEAN
H HIDU

RECIPIENTINSTITUTION.
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $130,803

SUMMARY OF PROJECT:

This is a group of projects designed to supplement other longer term investigations on the before and after analysis of the Montsweag Bay in relation to the Maine Yankee nuclear plant using the bay's waters as a coolant. Specifically, these additional studies include: 1) an analysis of recently deposited flocculent sediments (seismic profiling, mechanical analysis, piston coring, H2S content, sediment stability); 2) intensive field studies of sandworms, bloodworms, clams, and infaunal benthos near the outfall; 3) laboratory studies on the physiology of sandworms and bloodworms; 4) the effect of the heated effluent on growth, glycogen content, and radioactive uptake of oysters; and 5) a further analysis of the plankton, vig. macrozooplankton caught at night and primary productivity studies.

New Hampshire

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NSF NO
YME-46-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
MAINE STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
BEDROCK TOPOGRAPHY AND SEDIMENTS OFF THE KENNEBEC, SHEEPSCOT AND DAMARISCOTTA RIVER ESTUARIES, MAINE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF D SCHNITKER
P CLARK

RECIPIENT INSTITUTION:
UNIV. OF MAINE
IRA C. DARLING CTR. FOR RES.
WALPOLE, MAINE 04573

PERIOD FOR THIS NRP
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The surficial deposits that now exist in the Central Maine coastal area are the result of processes that have been active here for not much more than the past 11,000 to 10,000 years, offering a unique opportunity to study a rather uncomplicated geologic model. A combination of seismic profile studies with sediment core and grab samples will allow us to determine the bedrock topography of the area and the amount and nature of the sediments present. The relationship of the existing sediment accumulations to the bedrock configuration will provide information about the sediment dispersal patterns and thus the hydraulic conditions within the area. ISG

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SIE NO.
GUX-896-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ENVIRONMENTAL PROTECT, AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S).

18050 FBW

ENVIRONMENTAL REQUIREMENTS OF SELECTED ESTUARINE CILIATED PROTOZOA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

AC BORROR ZOOLOGY
H GODINO

RECIPIENT INSTITUTION

UNIV. OF NEW HAMPSHIRE
GRADUATE SCHOOL
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP.

7/71 TO 6/72 MULT,SUPPOR
FY72 FUNDS $26,760

SUMMARY OF PROJECT

As a continuation of project 18050 FBW, this study is designed to determine the possible role of ciliated microorganisms {Phylum Protozoa, Class Ciliophora) as water pollution indicators. It will involve investigationof factors affecting species composition and microdistribution of populations of intertidal ciliates of the tidal marshes of the Great Bay - Little Bay Estuary, New Hampshire, where they reach particularly high population densities. The relationship of ciliates to the rest of the decomposer food chain and theirrolein estuarine productivity will be investigated. Measurements of relative and absolute abundance of members of the microbenthos correlated with variations in physical and chemical factors, will be employed in assessing diurnal and seasonal changes in ciliate community structure.

ISG

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SIE NO.
GY-10428-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES. SERVICE
NEW HAMPSHIRE

AGENCY'S NUMBER(S):
0010428
NH00191

THE INFLUENCE OF WETLANDS ON QUANTITY AND QUALITY OF STREAM FLOW

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

FR HALL
GL BYERS

RECIPIENT INSTITUTION:
UNIV. OF NEW HAMPSHIRE
INST. OF NAT. & ENVIRON. RSOU.
PETTEE HALL
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: Study the magnitude of water losses due to evapotranspiration from wetlands. Determine the influence of wetlands on base flow of a stream. Study the effect of vegetation in wetlands on the chemical quality of water.

Approach: Air temperature, dew point precipitation, wind velocity, and short- and long-wave radiation will be measured at a wetland site. Groundwater levels, soil moisture, and stream flow will be measured as needed. Chemical samples will be collected within the wetlands and where possible on inflow and outflow. Major ions, pH, silica, iron, and conductivity will be determined on the samples. A multivariate analysis of evapotranspiration, base flow, pH, and iron will be made to determine the relationships and significance of hydrologic and meteorologic variables that affect quality and quantity of flow.

Progress report: This investigation was undertaken to determine the feasibility of implementing management practices on wetlands to increase their yield of water during the dry months of the year for use in augmenting water supplies. It was found that the water losses during the months of June, July and August, 1969, due to open water, evaporation and transpiration were equal to approximately 20 inches of rainfall. Evapotranspiration from the vegetated areas was 1.7 times as great as the evaporation from the open water surface. An evaporation retardant was applied to the open water surface during the summer of 1970. This proved to be successful by reducing evaporation by approximately 32 percent. Chemical analysis showed that the waters are of a calcium sodium or sodium calcium sulfate bicarbonate or sulfate chloride type with rather low total dissolved solids, moderate pH, and low alkalinity. Iron is relatively high and silica low. The study showed that wetlands are areas from which significant additional quantities of water of adequate quality can be obtained if management practices are initiated.

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SIE NO.
GUN-9670

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)

AFS-4-R-13-4-4

STUDY OF SELECTED PHYSICAL, CHEMICAL, AND BIOLOGICAL FEATURES OF THE CONNECTICUT RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GR MORRISON

STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

7/72 TO 6/73
FY73 FUNDS $1,500

SUMMARY OF PROJECT

Objective: To determine the biological characteristics of selected areas of the Connecticut River System.

procedures: This work will entail the use of gill nets and electrofishing gear, as well as other suitable means of sampling that may prove effective in determining the resident fish population. All fish will be identified and the relative abundance of each species will be recorded.

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SIE NO.
GUN-11223

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

F-36-R-1-2-1

TITLE OF PROJECT:

MAXIMIZING THE SURVIVAL OF MIGRATING JUVENILE COHO

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

LW STOLTE

RECIPIENT INSTITUTION.

STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW H AMP SHIRE 03301

PERIOD FOR THIS NRP:

7/7? TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: The objective of this job is to determine if the survival of coho salmon following hatchery rearing can be increased through the use of release-pens in the tidal portions of the parent streams.

Procedures: A floating pen will be built and positioned in the Lamprey River near the head-of-tide. During April of 1974, 1975 and 1976, 15,000 coho smolts will be put into the pen and fed for two days, after which they will be released. These fish will have been previously marked by excision of the left ventral (Lv) fin. Another group of smolts of the same number and size will be marked by excision of the right ventral (Rv) fin and released into the freshwater portion of the Lamprey River. Survival to the fishermen and the parent stream for each group of fish will be compared using a chi-square analysis. These data will be collected under Study 1 and Job 1.

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SIE NO.
GUN-9039-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGE NCY'S NuMBER(SI

F-30-R-3-1

CONNECTICUT RIVER WATERSHED

PRINC' PAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/ SPECIALTY

GR MO RRISON

RECIPIENT INSTITUTION

STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIODFOR THIS N R p

8/72 TO 7/73
FY73 FUNDS $4,950

SUMMARY OF PROJECT

Objective: To acquire title or easement to lands beside and under the Connecticut River and its tributaries, wherever needed, to gain access to the rivers and streams for fishing or for the protection of the fishery habitat, as well as for other water-bodies in the watershed.

Procedure: The help of the river biologist will be enlisted to determine what portions of the river are criticalspawning,restingor fishing areas for anadromousfish, as well as for resident species. An investigation of what acquisition is necessary to protect these areas will be made by a visual inspection of the watershed

After the n.umber and location of access sites is determined, a study will be made of the amount of land needed at each site for access and parking. This will be determined by the distance between the waterway and. public roads and by the proximity and density of centers of population. The cost and availability of land in the area will also be a Consideration.

A personal inspection of the area will be made to talk with landowners and brokers regarding land for sale or available for purchase.

Department of Resources and Economic Development records will be studied to determine land use, population centers and transportation facilities. A personal inspection will be made of the region to study its geography, regional and local growth and the attitude of the Population toward the installation of State facilities,

In determining the market value of lands a study will be made of past and present land sales at the Registry of Deeds. A visual inspection of land that has been sold in the last two years will be made to determine comparability of the different parcels.

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SIE NO.
GUN-9038-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S. NUMBER(S):
F-30-R-3-2

TITLEOF PROJECT:
MERRIMACK RIVER WATERSHED

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR MORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIoD FOR THIS NRP:
8/72 TO 7/73
FY73 FUNDS $1,800

SUMMARY OF PROJECT:

Objective: To acquire title or easement to lands beside and under the Merrimack River and its tributaries, wherever needed, to gain access to the rivers and streams for fishing or for the protection of the fishery habitat, as well as for other water-bodies in the watershed.

Procedure: The help of the river biologist will be enlisted to determine what portions of the river are critical spawning, resting or fishing areas for anadromous fish, as well as for resident species. An investigation of what acquisition is necessary to protect these areas will be made by a visual inspection of the site.

After the number and location of access sites is determined, a study will be made of the amount of land needed at each site for access and parking. This will be determined by the distance between the waterway and public roads and by the proximity and density of centers of population. The cost and availability of land in the area will also be a consideration.

A personal inspection of the area will be made to talk with landowners and brokers regarding land for sale or available for purchase.

Department of Resources and Economic Development records will be studied to determine land use, population centers and transportation facilities. An inspection of the region will be made to study its geography, regional and local growth and the attitude of the population toward the installation of State facilities.

In determining the market value of lands, a study will be made of past and present land sales at the Registry of Deeds. A visual inspection of land that has been sold in the last two years will be made to determine comparability of the different parcels.

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SIE NO.
GUN-6252-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)
AFS-4-9-2

TITLE OF PROJECT
SALMON STUDIES

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT SPECIALTY
GR MORRISON

RECIPIENT INSTITUTION
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP
8/71 TO 6/72
FY72 FUNDS $600

SUMMARY OF PROJECT

Objectives: To evaluate growth and survival of juvenile Atlantic salmon in tributaries.

Procedures: Atlantic salmon fry will stocked into Ammonoosuc River System.

Sampling for growth and survival rates and distribution will be conducted with the aid of a portable fish shocker.

At times two or more of these jobs will be carried on simultaneously. ISG

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GUN-6251-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
AFS-4-9-1

TITLE OF PROJECT:
SHAD STUDIES

GR MORRISON

RECIPIENT INSTITUTION:
STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $1,800

SUMMARY OF PROJECT.

Objectives: Restoration of the American shad (alosa sapidissima) to the Connecticut River System.

Procedures: Green shad eggs will be obtained and stocked into the Connecticut River in the Bellows Falls-Lebanon area.

Portions of the eggs will be placed in specially constructed shad egg boxes; the remainder to be broadcast. Hatching success and subsequent survival will be checked during the summer and fall period.

It is anticipated that an approximate ten (10) million shad eggs will be made available for stocking. With this magnitude of eggs and subsequent juvenile shad in the river it is anticipated that a maximum concerted effort will be made by the bordering states to evaluate the potential contribution of this area to the fishery should it extend beyond the Bellows Falls area with the advent of suitable fish passage facilities.

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GUN-8055-1

NOTICE IIF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMB ER(SI
AFS-5-4-5

COASTAL WATERSHED SURVEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY.

LW STOLTE

RECIPIENT INSTITUTION

STATF FISH & GAME DEPARTMENT
34 BRIDGE ST.
CO NCORD, NEW HAM PSHIRE 03301

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $900

SUMMARY OF PROJECT

Job Objectives: 1. To assess suitable areas for coho salmon which might lead to expansion of the program. a) To sample resident fish populations with emphasis on number and species composition. b} To monitor physical and chemical parameters of selected streams during the critical summer months: c.) To assess the salmon rearing and spawning habitat,

Procedures: Stream flow gauging stations will be utilized whenever Possible, Water chemistry will primarily deal with dissolved oxygen and pH. The important physical parameter will be temperature. Resident fish populations will be sampled using electro-fishing techniques. Lengths, weights, and scales will be obtained from a representative sample of the fish captured and catalogued according to species. Salmon rearing and spawning habitat will be examined by direct observation. Habitat areas will be calculated in specific area units. ISG

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GUN-6 .254-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

AFS-4-11-5

TITLE OF PROJECT:

FISH POPULATION STUDIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GR MORRISON

RECIPIENT INSTITUTION

STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP.

7/72 TO 6/73
FY73 FUNDS $1,500

SUM MARY OF PROJECT

Objectives: Investigate resident fish population in the Connecticut River between Wilder Dam and the Woodsville area, in the main stem of the Connecticut River and its tributaries.

Procedure: This work will entail the use of gill nets and electro-fishing gear as well as any other suitable means of sampling that may prove effective.

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GUN-5014-4

NOTICE IOF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)

AFS-4-11-3

HABITAT SURVEY

PRINCIPAL INVESTIGATOR, ASSOCIATES ANO DEPARTMENT/SPECIALTY:

GR MORRISON

RECIPIENT INSTITUTION:

STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $5,400

SUMMARY OF PROJECT

Objectives: Physical survey of the Connecticut River system.

Procedures: The two remaining sections of the Connecticut River from (1) Lebanon to wilder and (2) Woodsville to Ryegate will be surveyed to show bottom types, characteristics, depths, water velocities and quality. All pertinent data will be plotted on a map comparable with that of neighboring states, and will be made available upon completion. In addition, this year, the tributary stream will also be surveyed,

The work will be accomplished through the use of an electric fathometer, Peterson dredge, underwater observation, thermograph and any other specialized equipment necessary.

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SIE NO.
GUN-8237-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
BUREAUOF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S),

N.H.AFS-10-3-3

TITLE OF PROJECT:

HABITAT SURVEY

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

PH WIGHTMAN

RECIPIENT INSTITUTION,

STATE FISH & GAME DEPARTMENT
34 BRIDGE ST.
CONCORD, NEW HAMPSHIRE 03301

PERIOD FOR THIS NRP,

7/72 TO 6/73
FY73 FUNDS $8,368

Objectives: Continuation of physical survey of the Merrimack River from the Massachusetts line to the headwaters as well as the major tributaries.

Procedures: The main stem of the Merrimack River and the major tributaries from the Massachusetts-New Hampshire line will continue to be surveyed to show the bottom types, depth characteristics, water velocity, and quality. All pertinent data will be plotted on maps and made available upon completion. Work will be accomplished utilizing an electronic fathometer, Peterson dredge, thermographs, and other equipment as needed. Bioassay and chemical analysis studies will be conducted in headwaters of the Pemigewasset River to determine the toxicity of past paper production. Determination of the fishery composition in the watershed will be accomplished by fyke nets, gill nets and electroshocking equipment, depending on whichever is most feasible.

Data collected will be analyzed and tabulated during the winter months.

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SIE NO
GBP-1059

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

2-35244

TITLE OF PROJECT.

MARICULTURE AND THE LOBSTER FISHERY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

DR BA MILLER

RECIPIENT INSTITUTION

UNIV. OF NEW HAMPSHIRE
GRADUATE SCHOOL
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:

8/72 TO 7/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Objectives: Even though itis generally believed that co m mercial lobster mariculture will be achieved within the next few years, there is little agreement on the viability of the existing lobster fishery in New England, and on the potential effect of mariculture on this important fishery.

In the northern New England region the tradition of the independent lobsterman is extremely strong, and the livelihoods of many coastal families depend on the lobster. Therefore, before lobster culture is commenced on a commercial basis, any maricultural program, especially when supported by government funds, must seriously address itself to the socio-economic problems of the lobstermen. Information on the status of the lobster fishery should be consolidated, the impact of mariculture on the fishery should be evaluated, and approaches to include the lobstermen in any mariculture effort should be studied.

This study is intended to be a cooperative effort among other universities and agencies, and the seed money requested will be used to develop contact with all individuals and organizations presently involved in lobster mariculture and the lobster fishery. After contact is made, efforts will be made to determine the need for and desirability of planning and carrying out such a cooperative study. If deemed appropriate, requests for funding for the study will be made before June, 1973.

Accomplishments during the past twelve months: 1. The study of Cancer magister potential was completed and a report submitted.2. This study generated interest in lobster mariculture and a full literature survey plus field trips to Maine, Martha's Vineyard and New England Aquarium Plus telephone interviews have been conducted. 3. Work has been started on technical problems of a closed circuit system and. feeding system in New England weather.

For additional information pertaining to this project contact Dr. Godfrey H. Savage, Director, Engineering Design & Analysis Laboratory, Univ. of New Hampshire) Durham, New Hampshire 03824.

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SIE NO.
GMA-629

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
18080 FBW

ENVIRONMENTAL REQUIREMENTS OF SELECTED ESTUARINE CILIATED PROTOZOA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

AC BORROR ZOOLOGY

RECIPIENT INSTITUTION,

UNIV. OF NEW HAMPSHIRE
SCHOOL OF LIBERAL ARTS
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS $28,791

SUMMARY OF PROJECT:

Description: As a continuation of project 18050 FBW, this study is designed to determine the possible role of ciliated microorganisms (Phylum Protozoa, Class Ciliophora) as water pollution indicators. It will involve investigation of factors affecting species composition and microdistribution of populations of intertidal ciliates of the tidal marshes of the Great Bay - Little Bay Estuary, New Hampshire, where they reach particularly high population densities. The relationship of ciliates to the rest of the decomposer food chain and their role in estuarine productivity will be investigated. Measurements of relative and absolute abundance of members of the microbenthos correlated with variations in physical and chemical factors, will be employed in assessing diurnal and seasonal changes in ciliate community structure.

This research is being carried out using the facilities at the University of New Hampshire and the Jackson Estuarine Laboratory, University of New Hampshire, on Adams Point, Great Bay, New Hampshire.

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GBP-1057

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

2-35244

IMPROVED SENSING OF SURFACE SLICKS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT, SPECIALTY

GC GERRARD ELECTRICAL ENGINEERING

RECIPIENT INSTITUTION

UNIV. OF NEW HAMPSHIRE
SCHOOL OF TECHNOLOGY
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP

6/72 TO 5/73
FY72 FUNDS $18,900

SUMMARY OF PROJECT

Objectives: 1. Demonstrate feasibility of using infrared spectral emissive signatures of oil films for providing an additional method of classifying ocean surface slicks. 2. Investigate feasibility of using infrared spectral information at several wavelengths to improve oil slick thickness determinations. 3. Evaluate awareness determinations of appropriate agencies concerned with the Gulf of Maine with respect to oil surveillance programs, present and future.

How information will be applied: 1. Technical evaluations will be forwarded directly to user and potential user agencies in report form. 2. Surveillance need and planning information will coordinate with appropriate state and federal agencies.

Accomplishments during the past twelve months: 1. Completed state of the art study of remote sensing of oilslicks. 2. Evaluated scope and costs of current and proposed surveillance programs. 3. Set up cost effectiveness model.

For additional information pertaining to this project contact Dr. Godfrey F. Savage, Director, Engineering Design & Analysis Laboratory, Univ. of New Hampshire, Durham, New Hampshire 03824.

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SIE NO.

GBP-1060

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBERS:

2-35244

TITLE OF PROJECT:

MODELING OF NEW ENGLAND COASTLINE WAVE PROCESSES AND COLLECTION OF REAL WAVE INPUT DATA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

PROF GH SAVAGE — MECHANICAL ENGINEERING
AE WINN

RECIPIENT INSTITUTION:

UNIV. OF NEW HAMPSHIRE
SCHOOL OF TECHNOLOGY
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:

6/72 TO 5/73
FY72 FUNDS $41,000

SUMMARY OF PROJECT:

Objectives: 1. To develop a computer model of the wave refraction, bottom friction effects and wind energy inputs for the 300 mile fetch length from deep water to the N.H. coast. This model is to use methods adaptable to any shelf area and to provide means of studying wave forces at any depth or location, sand transport studies relating to dredging and other environmental changes, and to be available to the offshore survey and construction industry. 2. To build a directional wave spectra data buoy system that is easy to install and can accumulate long term, (2 years), wave data to be used for inputs to computer models for design purposes.

How information will be applied: The information will be applied for offshore pipelines when the Gulf of Maine is drilled for oil in 1976, for placement of transmission cables for offshore power plants, for model studies of effects of bottom changes by proposed offshore sand and gravel dredging to determine whether or not a license should be granted; also, for feasibility of building structures such as oil storage tank farms offshore on the bottom.

Accomplishments during past twelve months: 1. A pure refraction model of a 50 mile length of the N.H.-Maine-Massachusetts coastline has been developed and is working. 2. The directional wave spectra buoy system has been designed and built and will be installed and working in July, 1972, including an instrument building with 140 watt thermal electric power on shore for continuous recording of data.

For additional information pertaining to this project contact Dr. Godfrey H. Savage, Director, Engineering Design & Analysis Laboratory, Univ. of New Hampshire, Durham, New Hampshire 03824.

Massachusetts

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SIE NO.
AR-181

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
PUBLIC SER. CO. NEW HAMPSHIRE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
HAMPTON - SEABROOK ECOLOGY STUDY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GR PIEHLER
WS BOSWORTH

RECIPIENT INSTITUTION:
NORMANDEAU ASSOCIATES INC.
686 MAST RD.
MANCHESTER, NEW HAMPSHIRE 03102

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: These studies are designed to provide information useful in the design of the Seabrook Nuclear Power Plant which will use oceanic water for cooling purposes. The main objective is to minimize the anticipated impact by the incorporation of plant design features which effectively avoid unnecessary adverse effects on the local biota. Major topics of study include spatial and temporal distribution of regional plants and animals, life cycles of which influence the local ecosystem. Considerable information has been gained on the local soft-shell clam (Mya arenaria) population, and area finfish, zooplankton and benthos. In addition, special studies have been directed at bioassay of marsh peat extract, salt marsh recovery and primary productivity of a salt marsh.

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SIE NO.
AR-183

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
PUBLIC SER. CO. NEW HAMPSHIRE

AGENCY'S NUMBER(S)

TITLE OF PROJECT
PISCATAQUA RIVER ECOLOGY STUDY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
GR PIEHLER
JI NELSON

RECIPIENT'S INSTITUTION
NORMANDEAU ASSOCIATES INC.
686 MAST RD.
MANCHESTER, NEW HAMPSHIRE 03102

PERIOD FOR THIS NRP
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT

Description: This study involves the gathering of basic information on plant and animal communities indigenous to the Piscataqua River - Great Bay estuarial complex. The primary objective here is to better understand existing ecological conditions which may possibly be affected by the Newington Generating Station - Unit No. 1, presently under construction. Information is being gathered on physical, chemical and biological characteristics. Physico-chemical parameters studied include temperature, salinity, transparency, turbidity, conductivity, pH and dissolved oxygen. Biological studies involve determination of densities, diversities and natural fluctuations of epibenthic, littoral and finfish. Adjunct studies are being carried out on oyster growth and recruitment, crab movement, striped bass-coho salmon movement (determined by sonic tracking), creel censusing of sportsfish (striped bass and smelt) and productivity. Data acquired may disclose, through application of statistical methods, biotic interrelationships and/or correlation between physico-chemical and biotic characteristics.

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SIE NO.
GBP-712

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
730055
241360

TITLE OF PROJECT:
APPLIED RESEARCH & MARINE EDUCATIONAL DEVELOPMENT TO IMPROVE MANAGEMENT OF THE CONTINENTAL SHELF & ESTUARINE AREAS OF N. NEW ENGLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
G SAVAGE MECHANICAL ENGINEERING

RECIPIENT INSTITUTION:
UNIV. OF NEW HAMPSHIRE
SCHOOL OF ENGINEERING
DURHAM, NEW HAMPSHIRE 03824

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $44,600

SUMMARY OF PROJECT.

No summary has been provided to the Smithsonian Science Information Exchange.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY, S NUMBER(S):

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

RECIPIENT INSTITUTION.

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT

GBP-966 (CO NT INUE D)

INVESTIGATORS (CONT)
WK LEWIS
DP HOULT
SF MOORE

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GBP-966

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-43-72

TITLE OF PROJECT:
OFFSHORE PETROLEUM AND NEW ENGLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF JW DEVANNEY — OCEAN ENGINEERING
JB LASSITER
MA ADELMAN
JA FAY
ER GILLILAND

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
6/72 TO 5/73
FY72 FUNDS $47,280

SUMMARY OF PROJECT:

Objectives: This study seeks to lay out as clearly as possible the economic and environmental consequences to New England of a range of hypothetical petroleum discoveries on the New England continental shelf.

How information will be applied: The study's short-run significance is selfevident. It could have a critical effect on New England's response to the potential offshore petroleum, which response in turn could effect a major swing in both the quality of the region's environment and the level of real regional income. The study is a response to a deeply felt need within the region's body politic which faces what it realizes is an extremely important set of decisions. Beyond this, the study is an opportunity to demonstrate by concrete example the type of aid which objective analysis can offer a public decision-maker facing a decision with both market and non-market consequences and the limitations on this aid. Fiscal support provided by New England Regional Commission and New Regional River Basins Commission.

Accomplishments during the past twelve months: A computer stochastic model simulating the meterological and oceanographical conditions offshore New England has been completed so that the track of a hypothetical oil spill may be calculated and the frequency of landfall predicted based on spill location and ambient weather conditions.

A computer model simulating the production, transportation, refining and distribution of both regional and extra-regional petroleum has been completed which allowed the correlation of different regional and extra-regional sources of petroleum with the changes in real wealth.

A survey of the Corps of Engineers refinery permit applications has been completed which provides the correlation of refinery outputs with the volumes and contents of waste water, solids, and gases.

For additional information pertaining to this project contact Dr. Alfred H. Keil, Director, Sea Grant Project Office, Mass. Institute of Technology, Cambridge, Mass 02139.

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SIE NO.
ZUA-1784-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S)

981550

TITLE OF PROJECT:

EAST COAST CONTINENTAL MARGIN, WOODS HOLE OCEANOGRAPHIC INSTITUTION

JS SCHLEE

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:

7/71 TO 6/72 TERMINATED
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

States to which project pertains: Atlantic Seaboard states.

The principal field measurement phase of the project has been terminated; about 90% of the report phase is completed. The contract with WHOI was ended in September 1971; report obligations have been satisfied by WHOI personnel. Future plans include completion of reports listed in 9a, and minor additional studies in near-shore areas.

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SIE NO.
ZTA-404-6

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
SMITHSONIAN INSTITUTION
MUSEUM OF NATURAL HISTORY

AGENCY'S NUMBER(S):
6800-063

TITLE OF PROJECT
MARINE NEMATODES OF THE CAPE COD AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WD HOPE INVERTEBRATE ZOOLOGY

RECIPIENT INSTITUTION,
SMITHSONIAN INSTITUTION
WASHINGTON, DISTRICT OF COLUMBIA 20560

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Marine nematodes of the Cape Cod Area are virtually unknown except for a few species described, but not illustrated, by Cobb (1933). Research on this group of animals in the Cape Cod area has been prohibitive because of taxonomic difficulties. Yet, they are a very important, if not the most important, constituent of the meiofauna.

For this reason, a survey of the marine nematodes of the Cape Cod Area was conducted during the winter and summer of 1965 which will lead to a series of publications describing and illustrating specimens that were collected. It is intended that keys and habitat data will also be included.

The specimens are presently being sorted and mounted for study and all type specimens of marine nematodes originally collected on mid and Northern shores of the East Coast of the United States have been gathered at the Museum of Natural History for comparative studies. ISG

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NOTICE OF RESEARCH PROJECT

SUPPO R TING AGENCY

AGENCYS NUMB ER(SI

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DE PA RTMENT/SPECIALTY:

RECIPIENT INSTITUTION.

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT

ZUA-2957 {CONTINUED)

analysis later. A report was written describing the com puter model and releasing the program. The program was modified for more sophisticated importation methods and to handle certain water quality parameters (such as BOD).

The model will be improved t (Text Truncated - Exceeds Capacity)

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SIE NO.
ZUA-2957

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):

MA 71-035

TITLE OF PROJECT

MATHEMATICAL MODELING OF IPSWICH RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

IC JAMES WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $33,200

SUMMARY OF PROJECT

Over twenty towns are in competition for the rather limited water supplies of the Ipswich River Basin. The limited and interdependent nature of this supply for these towns, coupled with their tremendous growth potentials as suburban areas on the north side of Boston, precludes any long-term solutions to the water supply on an individual town basis. The state cooperator, recognizing the economies of scale to be achieved in multitown or regional approaches, has requested the development of a mathematical model which can be used for screening the large number of alternatives for in-basin development, import sources, and operating policies.

The objective of this project is to develop a computer simulation model of the Ipswich River Basin to enable the assessment of possible water resource development alternatives including internal development and the impact of potential import of water to the basin.

The plan for the study is to develop a flexible simulation model of the basin hydrology and water demands. By the specification of a few control parameters, a study can be made of a particular set of alternatives for basin development. The first developed model will consider local resources such as wells, local storage, and local stream diversions; regional storages; and several major import sources. This first model will be limited to quantity calculations without considerations of water quality, and is scheduled for completion in July 1971. At this time a major review of needs will be made with the cooperator based on results of the first model. An advanced model will be designed which will include such possible features that the cooperator may deem necessary such as water quality parameters, partial optimization of design features, construction staging strategies, effects of land use planning, and recreational benefit evaluation. In particular, an effort will be made to develop comparisons of alternatives which show the trade-offs between economic efficiency and environmental considerations.

A number of water-supply developments were assessed at various levels of demand using the computer model. These results were discussed with the cooperator and other interested parties to plan a complete

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SIE NO
ZUA-2578

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):

9810 -00932

CONTINENTAL SHELF STRATIGRAPHY

PRINCIPAL INVESTIGATOR, ASSOCIATES ANDDEPARTMENT/SPECIALTY,

JC HATHAWAY

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

This project plans to study the stratigraphy of the sediment underlying the continental margin of the northeastern United States from the area of Cape Hatteras to Georges Bank by shallow core drilling. The initial effort is concentrated on the margins of Georges Bank because here the older underlying Mesozoic and Tertiary beds, although covered by a mantle of Pleistocene deposits, make their closest approach to the sediment water interface. Studies are planned of the paleontology, lithology, mineralogy, and geochemistry of the cores obtained. Similar work is planned on the continental margin south of Georges Bank along the continental shelf break toward Cape Hatteras.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,

I NTERIOR D EPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):

3-9 81 0-00479

TITLE OF PROJECT:

MASSACHUSETTS COOPERATIVE PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

RN OLDALE

RECIPIENT INSTITUTION:

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
222 MAIN ST.
FALMOUTH, MASSACHUSETTS 02540

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT,

States to which project pertains: Massachusetts.

The project has as its main objective to provide maps of the offshore area adjacent to eastern Massachusetts. The maps are to portray sediment distribution and thickness, the distribution of glacial deposits and older sedimentary formations of Tertiary and Cretaceous age, the distribution of Triassic and older sedimentary and meta-sedimentary rocks and the patterns of water movement through the area. The scientific purpose is to reconstruct the geologic history of the area and to tie the offshore geology with that already mapped on the land. The Commonwealth's interest is in providing the basic information on what is there. The project is gathering data mainly in the form of sonic profiles (3.5 kHz, air gun, and uniboom), magnetometer profiles, and cores and grab samples. The means are indirect in the case of the geophysical profiles, but are being coupled with cores. Additional coring is planned at strategic locations for stratigraphic purposes. Core and grab samples have been taken to delineate the different kinds of sediment and are keyed in particular to broad physiographic features (ledges, basins, intricately complex areas of bedrock) because they have shown in previous work to relate most directly to surficial sediment. Water currents have been investigated with situ meters, sea bed drifters, and salinity-temperature probes to see the pattern of water movement offshore and to find out regime of sediment transport (suspended and bottom).

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SIE NO.
ZUA-2350

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCYS NUMB ER(S)

MA-70-032-C

TITLE OF PROJECT:

WATER RESOURCES OF THE COASTAL DRAINAGE BASINS OF SE MASS. - PART 1, HINGHAM TO KINGSTON; PART 2, PLYMOUTH TO WAREHAM (ABBREV)

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

JR WILLIAMS WATER RESOURCES DIVISION

RECIPIENT INSTITUTION

U.S. DEPT, OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWI

SUMMARY OF PROJECT

Purpose: To obtain and present hydrologic data and interpretations of these data for a better understanding of the hydrology to the physical and social environment for use in planning water projects.

Methods: Collect and synthesize ground-water, streamflow, and chemical data and prepare individual atlases and supporting basic-data releases for northern and southern parts of the area. Surface-water evaluations are based on two short-term stations, 29 low-flow sites, ar correlation with long-term gaging stations outside areas with sub-basir geology. Ground-water availability is based on existing and current geologic mapping, subsurface data, pumping test analysis, and estimated transmissivity of the aquifers. Data on salinity of North-South River estuary and its variation with fresh-water inflow will be published in a by-product report (open file).

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SIE NO.
ZUA-2449

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):

9810-00932

TITLE OF PROJECT

CONTINENTAL SHELF STRATIGRAPHY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

JC HATHAWAY

RECIPIENT INSTITUTION,

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIODFOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project plans to study the stratigraphy of the sediments underlying the continental margin of the northeastern United States from the area of Cape Hatteras to Georges Bank by shallow core drilling. The initial effort is concentrated on the margins of Georges Bank because here the older underlying Mesozoic and Tertiary beds, although covered by mantle of Pleistocene deposits, make their closest approach to the sediment water interface. Studies are planned of the paleontology, lithology, mineralogy, and geochemistry of the cores obtained. Similar work is planned on the continental margin south of Georges Bank along the continental shelf break toward Cape Hatteras.

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SIE NO.
ZUA-2111-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S)

981012

MASSACHUSETTS CO-OP

RN OLDALE OFF OF MARINE GEOLOGY

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

States to which project pertains: Massachusetts, New Hampshire, Maine.

The project has as its main objective to provide maps of the offshore area adjacent to eastern Massachusetts. The maps are to Portray sediment distribution and thickness, the distribution of glacial deposits and older sedimentary formations of Teritary and Cretaceous Age, the distribution of Triassic and older sedimentary and meta-sedimentary rocks and the patterns of water movement through the area. The scientific purpose is to reconstruct the geologic history of the area and to tie the offshore geology with that already mapped on the land. The Commonwealth's interest is in providing the basic information on what is there. The project is gathering data mainly in the form of sonic profiles (3.5 kHz, air gun) magnetometer profiles, and cores and grab samples. The means are indirect in the case of the geophysical profiles and should eventually be coupled with core holes drilled at strategic locations for stratigraphic purposes. Core and grab samples are being taken to delineate the different kinds of sediment and are keyed in particular to broad physiographic features (ledges, basins, intricately complex areas of bedrock) because they have shown in previous work to relate most directly to surficial sediment. Water currents are being investigated with in situ meters, seabed drifters, and salirlity-temperature probes to see the pattern of water movement offshore and to find regime of sediment transport (suspended and bottom).

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SIE NO.
ZUA-2351

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S),

MA-73-040-C

TITLE OF PROJECT:

WATER RESOURCES OF COASTAL BASINS OF SE MASSACHUSETTS,WEWEANTICRIVER, WAREHAM TO UPPER NARRANGANSETT BAY WATERSHED AND SEEKONK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,

JR WILLIAMS WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP,

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT,

Purpose: To obtain and present hydrologic data and interpretation of these data to provide understanding of the hydrologic framework to solve the above problem and for use in planning water projects within the area.

Method: Collect and synthesize ground-water, streamflow, and chemical data and prepare individual atlas-type reports and basic data releases for eastern and western parts of the area. Surface-water evaluation will have to be done by establishing temporary gaging stations and a network of low flow partial-record stations for correlation with long- term gaging stations in adjacent basins and for correlating with geology of the individual sub-basins. Groundwater availability is to be based on existing data and a large amount of geologic mapping to be done on the project, subsurface data to be collected, pumping test analysis, and estimated transmissivity of the aquifers.

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SIE NO
ZUA-1186-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR D EPA RTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):

9550-00641

TITLE OF PROJECT.

SEA-CLIFF EROSION STUDIES, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

CA KAYE

RECIPIENT INSTITUTION:

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

States to which project pertains: Massachusetts,

The project hs studied the erosion of sea cliffs on Martha's Vineyard, particularly Gay Head. The many factors controlling the erosion necessitated an understanding of the geology of the cliffs. This work was extended and in consequence the geology of the island was studied in detail. Field studies are essentially completed. Report writing is the next phase. Vertebrate, invertebrate, and plant fossils collected from the cliffs are being studied by specialists, and it is hoped that final report will include chapters on the paleontology and pre-Pleistocene and Pleistocene geology as well as coastal erosion.

In addition, the project has studied erosion of sea cliffs in Boston Harbor and intertidal rock erosioon at Nahant, Massachusetts. Fieldworkis completed except for the making of a detailed plane-table map of the Nahant area.

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SIE NO.
ZUA-1072-4

NOTICE OF RESEARCH. PROJECT

SUPPORTING AGENCY,

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):

MA68-029-C

TITLE OF PROJECT:

HYDROLOGY AND WATER RESOURCES OF CHARLES RIVER BASIN, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,

EH WALKER

RECIPIENT INSTITUTION:

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARYOF PROJECT:

This research is part of the program of water resources investigations conducted by the U. S. Geological Survey in cooperation with the State of Massachusetts.

Purpose: To obtain and evaluate hydrologic data for use in planning current and future water supplies.

Methods: Aspects of urban hydrology will be emphasized in the study of the lower reach of the Charles River because much of it is within the Boston metropolitan area. In the upper reaches emphasis will be placed on evaluation of ground-water reservoirs.

Data from the 4 existing and 1 proposed stream-gaging stations in the basin will be analyzed and additional measurements will be made in order to determine the streamflow characteristics including ground-water runoff and flood flows. Time-of-travel studies will be performed. Aquifer transmissibilities will be computed from existing data and from proposed drilling and surficial geologic mapping where needed. Sediment and water-quality samples will be collected and evaluated. ISG

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SIE NO
ZUA-1478-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY 5 NUMB ER(S1

3-9510-00514

MASSACHUSETTS COOPERATIVE GEOLOGIC PROGRAM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

LR PAGE

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

States to which project pertains: Massachusetts.

The Massachusetts Cooperative project will continue to map and publish the bedrock and surficial geology of the Commonwealth at the 1:24,000 quadrangle scale as funds permit. This mapping will be used to compile bedrock and surficial maps of the Commonwealth at the scale of 1:125,000. Eastern and western Massachusetts is underlain by north-northeast-trending Precambrian and lower Paleozoic metamorphosed sedimentary, volcanic, and igneous rocks which are complexly folded and faulted. There are several small basins in eastern Massachusetts with relatively unmetamorphosed Carboniferous rocks. A low-lying north-trending graben with Triassic sediments and mafic flows and dikes underlies the central part oftheCommonwealth. The upland areas are overlain by till and the major stream valleys and lowlands have a complex succession of fluvial stratified deposits of Pleistocene age. Southeastern Massachusetts and Cape Cod are overlain by outwash and sandy till.

Aeromagnetic maps have now been published on translucent vellum for the entire Commonwealth except for the outer tip of Cape Cod and the offshore islands Of Martha's Vineyard and Nantucket at the scale of 1:24,000 so that they may be superimposed on the bedrock geologic maps. Shallow seismic studies and research are being done along some proposed highway relocations in order to improve seismic methods, interpretations, and predictions. A recently started offshore program is preparing maps of the movement of water masses and the distribution and thickness of sediments on the ocean floor under the territorial waters of the Commonwealth.

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SIE NO.
ZUA-1214-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
9550-00637

TITLE OF PROJECT:
ENGINEERING GEOLOGY OF METROPOLITAN BOSTON, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CA KAYE

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARYOF PROJECT:

States to which project pertains: Massachusetts.

Project objectives are: a. Subsurface maps, scale 1:6,000, of buried bedrock surface and principal Quaternary sedimentary units beneath Boston and parts of adjoining Cambridge and Brookline. Maps aimed primarily at engineers and city planners. b. Standard 1:24,000-scale maps of surficial geology of six greater Boston quadrangles, with emphasis on subsurface and engineering data. c. Map of submarine geology of Boston Harbor, utilizing sonar surveys. d. Professional Paper describing geology of Boston, mainly as revealed in studies of construction excavations and utilizing subsurface information from the project file of over 25,000 foundation borings.

Compilation of 1:6,000-scale subsurface maps should be completed in about 1 year, and the project should be completed in about 3 years.

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SIE NO.
WZ-2071-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
NO FORMAL SUPPORT REPORTED

AGENCY'S NUMBER(S)

TITLE OF PROJECT:
EUTROPHICATION STUDIES IN BOSTON HARBOR

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

JJ COCHRANE — CIVIL ENGINEERING
CJ GREGORY
G ARONSON

RECIPIENT INSTITUTION
NORTHEASTERN UNIVERSITY
SCHOOL OF ENGINEERING
360 HUNTINGTON AVE.
BOSTON, MASSACHUSETTS 02115

PERIOD FOR THIS NRP.
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT

Laboratory studies continue at the Marine Science Institute in Nahant on the growth characteristics of the marine algae, Ulva latissima. In Boston Harbor, specific sites of high Ulva growth have been located, and in the field, changes in water quality and other environmental conditions are being followed to establish a correlation with laboratory results. The information will be used to develop a predictive model for marine algal blooms and their control. ISG

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SIE NO.
ZUA-1067-4

NOTICE OF RESEARCH PROJECT

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

MA66-025-C

TITLE OF PROJECT:

WATER RESOURCES OF THE NEPONSET AND WEYMOUTH RIVER BASINS, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RA BRACKLEY

RECIPIENT INSTITUTION,

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This research is part of the program of water resources investigations conducted by the U.S. Geological Survey in cooperation with the State of Massachusetts.

Purpose: To obtain, interpret and present hydrologic data for a better understanding of the relationship of the hydrology to the physical and social environment for use in planning water projects.

Methods: A well inventory, records of streamflow at four gaging stations, ground-water levels at three continous record and seven monthly observed stations, miscellaneous or partial record discharge measurements on numerous streams, well logs from test holes, well logs and pump test data from well drilling contractors, stream and ground-water chemical quality samples, and municiple water consumption will be used to evaluate surface water - ground water relationships, location and extent of aquifers, aquifer yield, streamflow characteristics, and chemical quality of ground and surface waters.

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SIE NO.
GUX-664-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMB ERIS)

11020 FAT

THE CONSTRUCTION OF THE STORM DETENTION AND CHLORINATION STATION

PRINCIPAL investigator, ASSOCIATES AND DEPARTMENT/SPECIALTY:

H WHITMORE
FW SEW — ENGINEERING
MF CASGRAVE — ENGINEERING
FT BERGIN — SANITARY ENGINEERING

METROP. DISTRICT COMMISSION
20 SOMERSET ST.
BOSTON, MASSACHUSETTS 02108

7/71 T(I 6/72 MULT,SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

The storm detention and chlorination station is being constructed for the treatment of storm water overflows from the combined sewage system of the cities and towns bordering on the Charles River Basin. The proposed installation will be capable of handling a maximumof 230 million gallons per day of excess flow from the new and old sewerage systems. Consisting of screening and pumping facilities, chlorine dosing and detention facilities and skimming and flushing facilities, this installation will be fully automatic and will become an integral component of the overall sewage control program for Metropolitan Boston. A comprehensive sanitary survey of the Basin is now underway and will be followed up by correlation of operation data with rainfall; frequency and extent of overflows; physical, chemical and bacteriological analyses of influent and effluent; regrowth of coliforms; effectiveness of chlorination and solids removal with measurements of solids return to sewer; effectiveness of the double-sided overflow weirs in relief conduits; effectiveness of effluent diffusers into Basin and overall unit cost studies relating to operation, utilization and performance of the installation, Scheduled to be under construction in the Fall of 1967, the facility will he in preliminary operation in the Fall of 1969.

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SIE NO.
GY-30748-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES, SERVICE
MASSACHUSETTS

AGENCY'S NUMBER(S):
0030748
MAS00008

TITLE OF PROJECT:
USE OF AERIAL PHOTOGRAPHS TO EVALUATE THE RECREATIONAL RESOURCES OF A RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WP MACCONNELL MCINTIRE STENNIS PROGRAM

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
AGRICULTURAL EXPERIMENT STA.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

OBJECTIVE: Develop and test the use of aerial photogrammetric techniques as a tool for identifying and classifying river-based recreation sites, examine and map a large river by these methods and make recommendations for its recreational use, and determine the land use changes which have taken place along a portion of the river since it was last photographed in 1952.

APPROACH: The Connecticut River will be studied. Refinement of analytical techniques will be based on a study of the river in Massachusetts; later the entire river will be studied from its source in Northern New Hampshire to its mouth in Connecticut. The entire length of the river will be photographed in a swath at least 500' wide on either side. Photographs will be examined photogrammetrically with frequent ground checks to determine what can be detected with respect to land bordering the river-accessibility, locations for parking, camping and picnic areas, scenic overlooks and other picturesque sites, soil drainage, and characteristics of vegetation, the shoreline--beach sites, dock sites, shorelines fishing and hiking, and the river itself--water depth, flood level, currents, nature of the bottom, physical obstacles, navigational landmarks, aquatic vegetation. A classification system for recreational use of a river will be developed and the entire river will be analyzed, mapped, and classified.

PROGRESS: LOUIS, a map information storage, manipulation, retrieval and display system, was evolved for computer storage of map information on the Connecticut River in Massachusetts. For the past year urban changes on the river have been studied on 1952 and 1965 aerial photographs to measure changes with a time lapse of 13 years. A new aerial photographic classification for cityscapes was developed and extensively tested on the larger cities on the river. 1 graduate student

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SIE NO.
GUW-3757

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY S NUMB ER(S)

CONTRACT
C-4116

TITLE OF PROJECT:

DETERMINATION OF DECISION MAKING PRCESSES IN WATER RESOURCE PLANNING AND DEVELOPMENT - THE CONNECTICUT RIVER BASIN

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

ER KAYNOR
BB BERGER
W LITSKY

POLITICAL SCIENCE

UNIV. OF MASSACHUSETTS
SCHOOL OF ARTS
AMHERST, MASSACHUSETTS 01002

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

The proposed research project will investigate water resource planning and development in the Connecticut River Basin. Focus of the project will be on actual Procedures rather than on Institutional arrangements, laws, authority, and the like. That is, project findings will answer the question: "Who decides" rather than "what agency has authority to decide"? Preliminary research indicates that the answers to these two questions differ extensively. Research will he directed at actual action taken and at patterns of influence, rather than at the formal system as it was designed to work.

Research will center on five water resource areas of concern in the Basin: Water supply, waste water management flood control, electric power generation, and water and related land-based recreational and environmental enhancement programs. These five areas will be described in terms of past and Present planning and development and patterns of decision-making will be ascertained by a combination of extensive interviews and exhaustive analysis of the written record. The final project report in 1975 will provide a detailed empirical base for use in redesigning institutional arrangements and will provide new analytic probes for use elsewhere in research on water resouce planning and development.

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SIE NO.
GUW-3853

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-063-MASS

TITLE OF PROJECT:
DETECTION OF MUTAGENIC POLLUTANTS BY DETERMINATION OF THE FREQUENCY OF RECESSIVE LETHALS IN SELECTED PLANT POPULATIONS (ABBREV)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF EJ KLEKOWSKI BOTANY

RECIPIENT INSTITUTION,
UNIV. OF MASSACHUSETTS
SCHOOL OF ARTS
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
'7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARYOF PROJECT:

Genetic load estimates will be made for populations of the fern Matteuccia struthiopteris growing along the Connecticut River. The mutational load component will also be estimated by measuring the genetic divergence of somatic tissues. Fern populations throughout the length of the river will be investigated with respect to these two genetic parameters and their magnitudes will be compared to the pollutional characteristics of the river to determine possible correlations.

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SIE NO.
GUW-3560-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
OFFICE OF WATER BESOURCES RES.

AGENCY'S NUMB ERIS):
A-062-MASS

TITLE OF PROJECT:
ANALYSIS OF SELECTED EXISTING WATER QUALITY DATA ON THE CONNECTICUT RIVER PHASE II

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
DR AJ GROSS PUBLIC HEALTH
R GALKIEWICZ

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
SCHOOL OF ARTS
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT,SUPPORT
FY74 FUNDS $4,900

A study of available data is proposed to analyze variability in dissolved oxygen levels and coliform levels at selected points in the Connecticut. River, It is further proposed that these variables (dissolved oxygen and coliform) be studied with regard to their relationship with other selected variables of interest, e,g, phosphates, nitrate-nitrogen, and biological oxygen demand.

Emphasis will be placed on the development oftimeseriesmodelsin the analyses of coliform and dissolved oxygen levels in order to assess, at least partially, the quality of the Connecticut River over a period of several years and to forecast future coliform find dissolved oxygen levels.

In the process Of doing the above, procedures for data collection will be reviewed in an effort to outline methodology for improvement. In particular, methods will be explored to integrate data collection and data analyses procedures.

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SIE No.
GUW-3395-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-050-MASS

TITLE OF PROJECT
LEGAL ISSUES ON ECONOMIC UTILIZATION OF THE C ONNECTICUT RIVER FLOOD P LAINS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
D WILKES

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
MAN & HIS ENVIRONMENT INST.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARYOF PROJECT:

Identifies legal issues with an impact on permissible uses of flood plains along the Connecticut River and issues which influence calculations of public costs involved in flood plain management along the River.

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SIE NO.
GUW-3380

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMB ER(SI

A- 039-MASS

OPTIMIZING A UNIVERSITY CONTRIBUTION TO A BASIN-WIDE WATER QUALITY PLANNING PROGRAM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RE MCGARRAH

RECIPIENT INSTITUTION

UNIV. OF [MASSACHUSETTS
SCHOOL OF BUSINESS ADMIN.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP.

7/71 TO 6/72
FY72 FUNDS $4,500

SUMMARY OF PROJECT

project will test and improve methods of transferring knowledge on waterquality management from the [University to planning agencies. It will identify opportunities for such transfer in the comprehensive Nashua River Sub-Basin program of water pollution control. The project will also evaluate alternative methods for transferring information from the University to the planning agencies and seek to evaluate the results of such transfers of information.

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SIE NO.
GUW-3379-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NuMBER(S):
A-038-MASS

TITLE OF PROJECT:
EFFECTS OF WATER DIVERSION ON ESTUARINE FAUNA IN MERRIMACK RIVER, MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF CF COLE FORESTRY & WILDLIFE MANAGEMENT

RECIPIENT INSTITUTION,
UNIV.OF MASSACHUSETTS
SCHOOL OFAGRICULTURE
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN ,

SUMMARYOF PROJECT:

The proposed research plan involves a study of the likely effects of a proposed freshwater diversion from the Merrimack River whose estaurine mouth contains a fauna of considerable commercial and recreational value. Estuarine animals are adapted to a fluctuating though mid-range salinity and to a seasonal change in salinity due to spring freshets and summer dry periods. Changes in the natural salinity patterns could affect the distribution and abundance of these species causing their decline in abundance and vigor.

We intend to conduct field studies on: 1. The current range and distribution of sessile shellfish and the seasonal salinity patterns and other environmental factors affecting their abundance. 2. The seasonal appearance of anadromous species such as the blueback herring and other fishes in this estuary to determine if their arrival is related to changes in salinity due to spring freshets. 3. The seasonal cycle of estuarine ichthyoplankton and young of the year fishes that might be related to seasonal salinity patterns.

Field studies will be correlated with climatological and run-off data during the two and one-half years of field study. Historical records and previous work on the estuary will be integrated and evaluated to provide baseline information on the possible biological effects of the proposed diversion.

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SIE NO.
GUW-3388-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMB ER(S!
B-042 -MASS

TITLE OF PRoJECT:
ECOLOGICAL STUDIES OF MARSH VEGETATION IN DISTURBED STREAM ENVIRONMENTS OF THE CONNECTICUT RIVER WATERSHED IN MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CJ BURK BIOLOGICAL SCIENCES

RECIPIENT INSTITUTION
SMITH COLLEGE
GRADUATE SCHOOL
COLLEGE HALL
NORTHAMPTON, MASSACHUSETTS 01060

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $3,500

SUMMARY OF PROJECT

The proposed research involves an analysis of vegetation of marshes which have developed behind impoundments or elsewherealong selected streams within the Connecticut River watershed in Massachusetts. The structure ofmarshvegetationwillbe correlated with disruptive factors, including improper land use, pollution, and manipulations of the water; and an attempt to establish parameters by which the structure of vascular plant communities or populations may be used as biological Abdicators of disturbance willbe made.

Previous work conducted by the principal investigator on a single stream suggests that diversity and total coverage of vascular plant species decrease in all zones of downstream marshes while the tendency towards large single-species stands increases, The proposed research will attempt to determine whether these observations may be defined as characteristics of all tributary streams within the watershed, Standard ecological procedures will be utilized throughout the study; the data thus obtained will be analyzed and correlated with land use along each stream and with the history of each tributary and its floodplain. ISG

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SIE NO
GUW-3381-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-040-MASS

TITLE OF PROJECT:
THEEFFECTOF LAND USE ON THE CHEMICAL AND PHYSICAL QUALITY OF SURFACE AND GROUND WATERS IN SMALL WATERSHEDS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,
DR ME WEEKS — PLANT & SOIL SCIENCE
JH BAKER
GL STEWART
ME HILL

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
SCHOOL OF AGRICULTURE
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP,
7/72 TO 6/73
FY73 FUNDS $4,000

Water quality in a small river with a reach of about 10 miles is to be studied in relation to runoff from the adjacent watershed. The river originates in this Berkshire Hills section of Massachusetts and empties into the Deerfield River, a branch of the Connecticut River. Vegetation in the watershed is largely hardwood forest but there are 12 to 15 active dairy farms in the area and there are two small towns that use the river for most sewage disposal.

The dairy farms should give a good opportunity to determine the effect of this type of dairy enterprise on water quality as compared with the woodland areas.

Land use patterns on farms, numbers of cattle, fertilizer practice, pesticide use and handling of wastes will be evaluated as to their possible effects on pollution. Water samples are to be collected on a regular schedule from stragetic locations and analyzed for pertinent mineral and biological constituents which include nitrates, phosphates, chlorides, calcium and C.O.D., B O.D., D.O. and possibly at times certain bacterial forms.

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GUW-1845-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S)

CONTRACT
C-2169

TITLE OF PROJECT,

FORMATIONOF PUBLIC POLICY ON OUT-OF-BASIN DIVERSION OF CONNECTICUT RIVER FLOOD WATERS TO BOSTON METROPOLITAN AREA

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

BB BERGER

RECIPIENT INSTITUTION:

UNIV. OF MASSACHUSETTS
WATER RESOURCES RESEARCH CTR.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRp:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

The study will seek to answer two sets of questions (1) How does public policy evolve in respect to this inter-basin transfer of water? Subordinate questions are: (a) How did the various interested public groups form their opinions on this controversial issue? (b) How did the attitudes of these public groups change in time and what factors accounted for these changes? (c) How effective were public hearings in providing an opportunity for expression of public opinion? (d) What factors most strongly influenced the attitudes of the members of the special task force assigned by the General Court to the study of the proposed legislation? (2) What consequences in the Connecticut River Basinmay reasonably be associated with diversions out of the basin? Subordinate questions are: (a) What is the role of flood flows in scouring bottom deposits? (b) What is the role of spring and autumnal flood flows in triggering movements of anadromous fish? (c) What is the role of flood flows in nutrient supply and removal? (d) What is the role of flood flows in the pollution of the river and its amelioration? (e) What is the influence of flood flows on the ecology of tidal and estuarial water? (f) What are the, long-term water supply requirements of the basin region? (g) What is the role of Connecticut River flood flows in recharging regional groundwater aquifers important to the region?

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SIE NO.
GUW-1860-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-018-MASS

TITLE OF PROJECT:
ATTITUDES, VALUES, AND PERCEPTIONS IN WATER RESOURCE DECISION-MAKING WITHIN A METROPOLITAN AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

I HOWARDS GOVERNMENT
LC MAINZER
RA SHANLEY
ER KAYNOR

UNIV. OF MASSACHUSETTS
GRADUATE SCHOOL
AMHERST, MASSACHUSETTS 01002

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARYOF PROJECT:

This project will investigate the values, attitudes, and perceptions of water resource decision-makers and those who affect and are affected by such decisions in the Springfield, Massachusetts area. The principal focus of the project will be on verification or disproof of four hypotheses called respectively the fragmentation hypothesis, the apathy hypothesis, the conflict hypothesis, and the distorted perception hypothesis.

Interview techniques will be supplemented with research designed to specify the criteria and weighting procedures necessary to define a metropolitan area, a careful specification on the area's geophysical and hydrologic characteristics, a summary of federal, state, and local institutional mechanisms to accomplish water resource planning and development, and the assembling of community social, economic, and political profiles within the target metropolitan area as preconditional data necessary to evaluate properly the interview responses. ISG

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SIE NO.
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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCYS NUMBER(S)
B-023-MASS

TITLE OF PROJECT:
A MULTI-VARIATE MODEL FOR PUBLIC MANAGEMENT OF FRESHWATER WETLANDS

PROF JS LARSON — FORESTRY & WILDLIFE MANAGEMENT
WP MACCONNELL
WL CUDNOHUFSKY
J FABOS
WS MOTTS

RECIPIENT INSTITUTION
UNIV. OF MASSACHUSETTS
SCHOOL OF AGRICULTURE
AMHERST, Massachusetts 01002

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

This project proposes to conduct a comprehensive study of Massachusetts wetlands through five coordinated sub-projects involving inventory, classification of wetland geology, classification of wildlife values, a study of aesthetic values, and an analysis of economic values of wetlands.

By aerial photography the wetlands will be mapped and subsequently compared with similar maps now 18 years old. Quantitative and qualitative descriptors will be prepared for computer analysis of the change in wetlands over this time interval and some predictions of future change will evolve.

A geological framework for wetlands will be developed to better understand the causal factors involved and to develop means to assess the involvement of given wetlands in local groundwater regimes.

Indicators of wildlife values will be developed to aid in evaluating probable effects on wild animal populations as the wetlands of the State experience change.

Visual-social values of wetlands will be studied to determine the roles these land types play in aesthetic contributions to the general environment and to establish values useful in economic analyses of wetlands.

Broad economics of wetlands, including costs and benefits, traditional and aesthetic, will be studied to provide a value fact base to aid in management decisions. ISG

INVESTIGATORS (CONT)
JH FOSTER

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SIE NO.
GUW-1846-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-032-MASS

TITLE OF PROJECT
OPTIMIZING STRATEGY FOR STATE WATER POLLUTION CONTROL IN THE POST "PLAN OF IMPLEMENTATION" PERIOD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
BB BERGER

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
WATER RESOURCES RESEARCH CTR.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $12,000

SUMMARY OF PROJECT:

A survey will be made of institutions that have evolved or have been designed to accomplish a regional objective in environment quality control, natural resources allocation and conservation, and in related fields. Efforts at regionalization in Massachusetts will be reviewed. Based on these steps: (1) the essential features of effective institutions for regional or basin-wide water quality management will be detailed and (2) the special problems in evolving such institutions in Massachusetts will be described; a strategy will be proposed for official consideration of alternative institutions that provide the essential requirements for regionalization of water quality control and appear to be fitted to the needs of Massachusetts and New England. ISG

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SIE NO.
GUN-9418

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)

AFS-4-11-8

SHAD SAMPLING BELOW TURNERS FALLS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

PH OATIS

RECIPIENT INSTITUTION

STATE DIV. OF FISHERIES & GAME
100 CAMBRIDGE, STATE OFFICE BLDG.
BOSTON, MASSACHUSETTS 02202

PERIOD FOR THIS NRP:

5/72 TO 6/72
FY72 FUNDS $120

SUMMARY OF PROJECT:

Objective: To determine relative abundance of shad passed over the Holyoke Dam ascending the Connecticut River to the vicinity of the Turners Falls Dam.

Procedures: In 1968, it was reported that shad were present in the Falls River, a tributary to the Connecticut River, which enters the mainstream immediately below the Turners Falls Dam. In 1964 it was reported that 200 shad were observed below the Cabot Station generating plant at Turners Falls. Observations will be continued in 1972. Drift gill nets will be fished at suitable locations downstream of the Cabot Station in an attempt to better determine the relative abundance of shad below Turners Falls. Completion of this job will depend on suitability of flow condtions during June.

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SIE NO.
GUN-9420

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

AFT-4-11-9

TITLE OF PROJECT:

REARING ATLANTIC SALMON SMOLTS FOR STOCKING

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

D FREDENBURGH

RECIPIENT INSTITUTION:

STATE DIV. OF FISHERIES & GAME
100 CAMBRIDGE, STATE OFFICE BLDG,
BOSTON, MASSACHUSETTS 02202

PERIOD FOR THIS NRP:

5/72 TO 6/72
FY72 FUNDS $360

SUMMARY OF PROJECT:

Objectives: To rear Atlantic salmon to smolts for stocking in the Connecticut River.

Procedures: In 1972, 40,000 eyed eggs were received from Canada for rearing at the Palmer State Fish Hatchery. Approximately 25,000 yearlings on hand will be reared to smolt stage. Experimentation with ponded water will be undertaken in an attempt to accelerate growth and possible smolt development.

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SIE NO.
GSV-3138-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL.SC I ENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S)

GA-274(I5

SYSTEMATIC AND DISTRIBUTIONAL STUDIES OF CALANOID COPEPODS

PRINCIPAL investigator, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GD GRICE

RECIPIENT INSTITUTION

WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP.

12/71 TO 12/72
FY72 FUNDS $56,100

SUMMARY OF PROJECT

This grant continues support by the National Science Foundation of studies of zoogeography and speciation in oceanic copepods (Candaciidae) . Zoogeographical investigations include computer analysis to relate recurrent groups of species to particular water masses. Speciation studies involve the use of the methods of numerical taxonomy to elucidate intraspecific variation and interspecific variation. By such means the investigator proposes to identify morphologically similar populations and species with the view to formulating hypotheses on speciation within the Candaciidae. Simultaneously, rearing experiments are being conducted to distinguish between environmental and genetic effects on adult morphology. Additionally, collections of deep water calanoid copepods are to he obtained from the Mediterranean Sea and the adjacent northwest Atlantic Ocean in order to further examine the species composition of the Mediterranean basin, the vertical distribution of the species and the extent to which they have diverged from North Atlantic populations. At the same time, the specific areas, in or near the bottom where planktobenthic copepods typically live is to he studied in detail in order to make possible precise collections of these animals and thus to understand fully the local and geographic distributions of the species in bottom depths between 500 and 2000 meters off the coast of r Massachusetts and Florida. In a broad sense, thisdata will contribute to our interpretation of marine food chains and secondary production in the oceanic environment and will provide, as well, a meaningful background for speculation on the evolution of life in the sea.

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SIE NO.
GSV-3957

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,

NATL.SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):

GA-35617

PATTERNS OF SPECIES DIVERSITY IN ROCKY INTERTIDAL COMMUNITIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

BA MENGE

UNIV. OF MASSACHUSETTS
GRADUATE SCHOOL
BOSTON, MASSACHUSETTS 02116

8/72 TO 8/73
FY73 FUNDS $11,500

SUMMARY OF PROJECT:

There is a distinctly less rich fauna in the rocky intertidal communities of the North Atlantic Ocean than that of the Northeast Pacific Ocean. The investigator will test the hypothesis that the lower diversity of the former community results from the virtual absence of a functionally dominant secondary carnivore which in turn results from a relatively unpredictable environmemt (as compared to that experienced by the latter community). The two main components of this test will be (1) an analysis of a typical North Atlantic rocky intertidal community (in Maine) and (2) a comparison of this community to the already well understood Northeast Pacific community. The research program to be undertaken in the North Atlantic community includes (1) measurements of the predictability of resource availability for primary and secondary consumers, (2) construction of and comparison between energy budgets of the potentially functionally dominant carnivore (Asterias forbesi) in the subtidal habitat (presumed optimal) and the intertidal habitat presumed sub-optimal) and (3) an analysis of the causes of the observed patterns of community structure in Maine. The proposed research program is based on field (and some laboratory) experimentation supplemented by observations and measurements of fundamental natural history phenomena, a powerful approach of proven value.

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GSV-986-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY 5 NUMB ER(SI

GA-28622X2

TITLE OF PROJECT:

DYNAMICS OF SMALL SCALE PROCESSES IN AIR-SEA INTERACTION

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR EL MOLLOCHRISTENSE METEOROLOGY

RECIPIENT INSTITUTION,

MASS. INST. OF TECHNOLOGY
SCHOOL OF SCIENCE
77 MASSACHUSETTS AVE.
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:

4/73 TO 3/74
FY73 FUNDS $92,900

SUMMARYOF PROJECT

The objective of this study is to continue research on the dynamics and statistics of intermittent events and sporadic flux and turbulence production events as pertinent to air-sea interaction. The studies will include observations from the M.I.T. 108 ft. spar buoy placed in Massachusetts Bay and laboratory experiments on naturally occurring and artificially triggered' turbulence production, flux events in Ekman layers, shear flows and convectively driven flows. ISG

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GSV-3336-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-28365

TITLE OF PROJECT:
COLLABORA TIVE RESEARCH IN STRUCTURE, FUNCTION AND EXPORT OF A SALT MARSH ECOSYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JM TEAL
I VALIELA

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
4/72 TO 4/73
FY72 FUNDS $35,850

SUMMARY OF PROJECT:

This grant supports a study of the structure and function of a New England salt marsh-tidal creek ecosystem subjected to nutrient enrichment by the addition of sewage sludge and chemically defined fertilizers. The consequences of enrichment will be followed in the main structural components of the marsh, particularly primary producers and secondary consumers. These two elements are crucial to the energy exchange between the marshes and adjacent creeks. The research will concentrate on gas exchange in marsh grasses, production of benthic diatoms, populations of benthic animals, especially fiddler crabs and mussels, and growth of fish.

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SIE NO.
GQN-823054-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

DEPARTMENT OF DEFENSE
NAVY

AGENCY'S NUMBER(S)

DN823054
CONTRACT
N00014-69-C-380

NAVY ENVIRONMENT - PHYTOPLANKTONIC DETERMINANTS OF SONIC SCATTERING LAYER OCCURRENCE - PHOTIC REQUIREMENTS OF MARINE PHYTOPLANKTON

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY.

GC MCLEOD

RECIPIENT INSTITUTION,

NEW ENGLAND AQUARIUM CORP,
CENTRAL WHARF
BOSTON, MASSACHUSETTS 02110

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $50,546

SUMMARY OF PROJECT

The effective Navy use of underwater acoustics for surveillance, communications and guidance systems is severely impaired by acoustic scattering layers. The occurrence of scattering layers is influenced by a number of environmental factors including light, and the development of a predictive model for the DSL phenomenon will be dependent on a complete understanding of these environmental factors. This study is concerned with spectral measurements of irradiance in the sea as it relates to plankton productivity.

Growth characteristics of selected phytoplankton species exposed to monochromatic light are being studied to determine the precise spectral requirements of phytoplanktonproduction. These results will be applied to the design and development of detectors capable of measuring the photosynthetically active light available in natural waters. The validity of phytoplankton growth potential prediction by this approach will be tested in Massachusetts Bay field studies.

Supporting Agency Address Information Office of Naval Research 484, Arlington, Va, 22217

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

NATL.SCIENCE FOUNDA TION
DIV. OF NATL. & IN TERN AT, PRG.

AGENCY'S NUMBER(S):

GD-32558

TITLE OF PROJECT

SUPPORT OF SUBMERSIBLE OPERATIONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RW MORSE

RECIPIENT INSTITUTION:

WOODSHOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIODFOR THIS NRP:

2/72 TO 2/73
FY72 FUNDS $174,000

SUMMARY OF PROJECT:

This project provides partial support for the WHOI operated Deep Submergence Vehicle ALVIN and her tender LULU which are used as research tools for a broad program of investigations in the marine environment. This submersible and tender will be utilized as a shared facility through the University National Oceanographic Laboratory system for oceanographic investigation by the staff of the WHOI and other institutions. Examples of utilization of this facility are: geological and biological studies of the Hudson Canyon and adjacent slopes; geological and geophysical investigations of the continental margin of Nova Scotia; field testing and evaluation of oceanographic instrument systems in the Tongue of the Ocean, the continental shelf and the New England sea mounts.

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SIE NO.

GQF-274090-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

DEPARTMENT OF DEFENSE
AIR FORCE

AGENCY'S NUMB ERIS)

DF274090
CONTRACT

TITLE OF PROJECT,

LONG PERIOD CRUSTAL TILT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

I SIMON

RECIPIENT INSTITUTION:

ARTHUR D. LITTLE INCORPORATED
15 ACORN PARK
CAMBRIDGE> MASSACHUSETTS 02140

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARYOF PROJECT.

AF FUNCTION - WEAPONS SITING. MISSILE GUIDANCE. DEFICIENCY - MAGNITUDE OF EARTH STRAINS AFFECTING MISSILE GUIDANCE (INERTIAL) SYSTEMS ARE UNKNOWN. RESEARCH - DESIGN AND FABRICATION OF BOREHOLE TILTMETER ARRAY. HOW RESEARCH CONTRIBUTES - QUANTITATIVE MEASUREMENTS OF SMALL EARTH TILTS WILL BE POSSIBLE, MEASUREMENTS WILL BE MADE OF THE LONG-PERIOD AND APERIODIC TILT OF A LIMITEDAND TECTONICALLY INACTIVE REGION OF THE EARTH'S CRUST. INTERPRETATION HILL BE IN TERMS OF THE RESPONSE OF AN ELASTIC, VISCOUS} VISCOELASTIC EARTH MODEL TO TIDAL AND OTHER PERTURBING FORCES, THEUSEOFAN ARRAY OF BOREHOLE TILTMETERS SHOULD PERMIT THE ASSESSMENT OF SHORT SPATIAL FREQUENCIES AND COHERENCE OF LOCAL EFFECTS. BOREHOLE INSTALLATION SHOULD OBVIATE THE USUAL REQUIREMENT FOR ELABORATE UNDERGROUND INSTALLATION ANI) PERMIT OPERATIONAL SENSITIVITIES OF 0.001 ARCSECONDS,

PROGRESS FROM 31 DEC 69 TO 02 SEP 70, THREE HOLES HAVE BEEN DRILLED - 50 FT INTO GRANITE ON THE NORTH SIDE OF L. G. HANSCOM FIELD. ONE OF THESE BIAXIAL TILTMETERS HAS BEEN RECEIVED AT AFCRL AND IS OPERATIONAL SINCE 8 JULY 1970 IN A NEARLY 22 FT. HOLE, TIDAL TILTS OF ABOUT 0.1 ARCSECOND ARE BEING RECORDED, DRIFT APPEARS TO BE LESS THAN 0.1 ARCSECONDS PER MONTH. AN ANALYSIS OF LOADING EFFECTS FROM OBSERVED OCEAN TIDES IN MASSACHUSETTS BAY HAS BEEN COMPLETED,

SUPPORTING AGENCY ADPRESS INFORMATION: AF CANBRIDGE RESEARCH LABORATORIES LW L G HANSCOM FIELD, BEDFORD, MASS. 01730

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SIE NO.
GSB-12027-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF BIOLOGICAL & MED. SCI.

AGENCY'S NUMBER(S):
GB-33217

TITLE OF PROJECT
METABOLISM OF THE FORT RIVER ECOSYSTEM, MASSACHUSETTS

SG FISHER BIOLOGY

RECIPIENT INSTITUTION,
AMHERST COLLEGE
GRADUATE SCHOOL
BOX 65
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIs NRP:
3/73 TO 2/74
FY73 FUNDS $17,500

SUMMARY OF PROJECT.

The Fort River is a medium size stream draining a multiple-use watershed in central Massachusetts. This research is designed to yield an annual organic carbon budget for a 5 km main stem section of the river using the ecosystem compartment model approach. All organic matter inputs and outputs, as well as seasonal changes in organic matter storage, will be monitored for two years. This will require measurements of meteorologic inputs (precipitation and litter fall), geologic inputs and outputs (organic matter in stream water and groundwater), and biologic inputs and outputs (primary production and respiration). The storage and flux data will be assembled in budget form to provide short and long term views of the metabolism of the ecosystem. The approach used is designed to generate a holistic context ohich will be used in further compartmentalization of the system. Detailed studies of intrasystem processes will take place after the system is better understood.

Ultimately the goal is to expand the study to include nutrient budgets as well and to model the system using independent variables such as channel morphometry, substrate type, temperature, discharge and hydrologic regime, turbidity, inorganic nutrients, and land use as predictors of stream metabolism.

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SIE NO.
GMA-1617

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMB ERIS)

800505

72P15903

LAND USE, WATER QUALITY AND ECOSYSTEM METABOLISM OF FORT RIVER SACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES ANDDEPARTMENT/SPECIALTY:

DR SG FISHER BIOLOGY

RECIPIENT INSTITUTION:

AMHERST COLLEGE
SCHOOL OF LIBERAL ARTS
BOX 65
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Proposal seeks support for first year of ecosystem study of Fort River, Massachusetts. Objective of project is to construct ecosystem level energy budgets for two contiguous sections of river. All inputs and outputs will be monitored. Initial data on nutrient fluxes will be collected so major sources of enrichment can be identified. Nutrient budgets will be constructed following Same scheme used to study energy flow. Routine sampling of algae and macroinvertebrates at several stations on main stem will provide qualitative and quantitative description of biotic component of ecosystem. Experimental phase is generated by Amherst East Village development project which calls for construction of 2,000 living units on 630 acres of Fort River watershed adjacent to upstream section, First year of study will be directed toward establishing baseline data on ecosystem metabolism, i.e., before data. Continuation grants will be applied for in *subsequent* years *so* that effects Of development on ecosystem metabolism may be monitored Entire project will document changes in metabolism of lotic ecosystem induced by construction in watershed.

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SIE NO.
GPE-2061-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT
AT(30-1)-4150

TITLE OF PROJECT:
THE DISTRIBUTION OF SOME CHEMICAL ELEMENTS BETWEEN DISSOLVED AND PARTICULATE PHASES IN THE OCEAN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR DW SPENCER CHEMISTRY
PG BREWER
PL SACHS

RECIPIENT INSTITUTION,
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
8/71 TO 7/72
FY72 FUNDS $65,333

SUMMARY OF PROJECT:

The long range objective of the work is to understand the fundamental chemical behavior of the elements in the ocean. Special emphasis is laid upon the uptake of the trace elements by marine organisms and the return of these elements to solution on sinking and decay.

In the coming year we propose to complete our program of instrumental neutron activation analysis of samples from the Gulf of Maine and assess the importance of the seasonal cycle. We propose to participate in a cruise to the Cariaco Trench on R/V ATLANTIS II to continue our work on anoxic basins, and to continue to improve our analytical capability.

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GMA-209-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S)

800656

TITLE OF PROJECT:

QUANTITATIVE ANALYSIS OF THE CAPE COD BAY ECOSYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

AD MICHAEL SYSTEMATICS ECOLOGY PROGRAM
WH PRESTON

RECIPIENT INSTITUTION

MARINEBIOLOG. LABORATORY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

The overall objectives of the Biotic Census of Cape Cod Bay are as follows: A). to study the kinds, abundance, diversity, and groupings of marine benthic animals in relation to particle size and organic content of sediments, depth, temperature, salinity, and B). Data from Part A will be handled by computer analyses. Part B will include (1) preparation of publications on the systematic of specimens collected by the Census, and (2) a study of animal sediment relationships along a transect of established Census stations, When support by ONR terminated, the field work and some synthesis was accomplished. The following remain to be completed, and support is requested of EPA and the Massachusetts Division of Water Pollution Control for 12 months for this: a. sorting of remaining quantitative samples, and identification by participating systematists of a backlog of specimens, b. computer analyses of the major groups of invertebrates relative to environmental factors, c. determination by statistical techniques those indicator speciesswhich are most sensitive to changes in environmental variables d. comparison of data to assess the utility of the various objective techniques which have been proposed for delineating communities, and e. analysis of sampling gear and strategy to determine their effect upon theresultingbiological and physical data.

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GMA-832-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
801001
72P00615

BIOLOGICAL RECOVERY FOLLOWING AN OIL SPILL

HL SANDERS

RECIPIENT INSTITUTION:
WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Biological Recovery Following an Oil Spill. The monthly sampling program including biological samples and sediment samples for oil analysis will continue through September, 1971. Thereafter biological samples will be collected at selected stations at three-month intervals. 2 fuel oil spills occurred September 16, 1969, off West Falmouth, Massachusetts. This one year study will provide the best documentation of effects and subsequent recovery following an oil spill yet available. About 50 samples have been carefully sorted under the microscope and all of the animal groups retained on a 0.297 mm mesh screen have been identified to species. To fully document the sequence of events in the recovery of the area and provide greater statistical validity to the results, the time consuming process of sorting and identification will be completed for a substantial portion of the remaining200samples collected.

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SIE NO.
GBP-1225

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC L ATM, ADMIN.
NATL. MARINE FISH ERIES SERVICE

AGENCY'S NUMB ER(S1

CONTRACT
028520210Q

TITLE OF PROJECT:

WINTER FLOUNDER INVESTIGATIONS

PRINCIPAL INVESTIGATOR. AS SO CIATES AND DE PA RTMENT/SPECIALTY:

AB HOWE

RECIPIENT INSTITUTION

STATE DIV. OF MARINE FISHERIES
100 CAMBRIDGE, STATE OFFICE BLDG,
BOSTON, MASSACHUSETTS 02202

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $21,975

SUMMARY OF PROJECT

Technical objective: To assess the contribution of offshore spawning areas. To measure relative abundance, movement and recruitment of estuarine sub-adult flounder in Waquoit Bay-Fel Pond, To analyze the probable variation in the number of fin rays in dorsal and anal fins in young flounder.

Approach: For the third year surface and bottom plankton samples were obtained bi-monthly, April-June, from eleven Nantucket Sound stations. Flounder eggs and larvae from all samples have been extracted and counted. For the first time reliable quantitative data was made available following the acquistion of a General Oceanics Digital Flowmeter for our benthic plankton sled, Stations were also monitored for young-of-the-year with an experimental beam trawl, July-September. We believe three years' effort and data, particularly that obtained during the past year, are sufficient to fulfill the objective of this study. Segment Five work will he aimed at a, write-up of this data and our conclusions

The winter flounder population in Waquoit Bay-Eel Pond has been intensively studied since 1969. Our work has centered on defining the age structure and population through mark-recapture studies and the tagging of 1,216 recruitable (age II and III) fish.

Final segment efforts will be directed towards an assessment of recruitment of Waquoit Bay-Eel Pond flounder to the offshore fishery attained through two methods. One will involve a comparison of the number of recruitable fish to overall stock recruitment, the latter being derived. from a population estimate using tag return data and the total instantaneous mortality rate, which can be calculated from survival. rate estimated from the release of tagged flounder in two consecutive years. The second method will involve yield equation work sheet methodology, using catch records and tag return data to estimate mortality, combined with other vital statistics and growth Parameters of flounder south of Cape Cod.

In large part the analysis is predicated on official catch statistics in statistical sub-unit areas. We anticipate the inherent

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):

11023 FAT

TITLE OF PROJECT,

THE CONSTRUCTION OF THE STORM DETENTION AND CHLORINATION STATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

UNKNOWN

RECIPIENT INSTITUTION,

METROP. DISTRICT COMMISSION
20 SOMERSET ST.
BOSTON, MASSACHUSETTS 02108

PERIOD FOR THIS NRP:

7/71 TO 6/72 MULT.SUPPOR
FY72 FUNDS $4345,650

SUMMARY OF PROJECT:

Description: A detention basin will be constructed to intercept peak flows and to chlorinate waste water, as a means of reducing combined sewage overflows into the Charles River. The project includes the construction and evaluation of a combined sewer overflow facility, designed to provide a 10-minute minimum sedimentation detention time with an influent of 233 MGD. The chlorinated effluent will flow by gravity from the detention tanks through a 96 inch outfall pipe into the Charles River. Sludge deposits in the detention tanks will be returned to the sewer system to be treated at the sewage treatment plant. All settled materials will by flushed out of the tanks and into the sewer system after the storm subsides.

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GBP-1210

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S)

CONTRACT
78121080

REVIEW OF THE PHYSICAL OCEANOGRAPHY OF MASSACHUSETTS BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DF BUMPUS

RECIPIENT INSTITUTION,

WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP,

7/72 TO 6/73
FY73 FUNDS $13,500

Technical Objective: Assess the present status of knowledge of the hydrography of the study area to aid in establishing priorities for research in fishery ecology and man's impact on the marine environment.

Approach: Review the oceanographic literature from Bigelow's first studies to the present time and provide a generalized view of water currents and seasonal salinity and temperature regimes for Massachusetts Bay waters.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

PRINCIPAL INVESTIGATOR> ASSOCIATES AND DEPARTMENT/sPECIALTY:

RECIPIENT INSTITUTION,

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT.

GBP-1225 (CONTINUED)

delay in obtaining the 1972 statistics but believe that job #2 can be completed and presented as a technical paper during this segment.

From 1969-71 young-of-the-year flounder were collected from twenty-three estuaries, north and south of Cape Cod, in Buzzards Bay and on Martha's Vineyard.

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NOTICE IIF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

RECIPIENT INSTITUTION

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT

GBP-983 (CONTINUED)

"Methods of Observation and Analysis of Harbor and Coastal Pollution," was offered in June, 1972 to 56 participants from government and industry.

Ground truth observations were provided by MIT boats for the tidal current and thermal surveys carried out by NOAA during summer - fall 1971.

For additional information to this project contact Dr. Alfred Keil, Sea Grant Project Office, MIT, Cambridge, Mass. 02139.

INVESTIGATORS (CONT)
DR HARLEMAN
ER MCCAFFREY
SF MOORE
K MOREY

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GBP-983

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-43-72

THE SEA ENVIRONMENT OF MASSACHUSETTS BAY AND ADJACENT WATERS

PRINCIPAL INVESTIGATOR> ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR AT IPPEN — CIVIL ENGINEERING
EL MOLLOCHRISTENSE
RC BEARDSLEY
BR PEARCE
JM EDMONDS

RECIPIENT INSTITUTION:
MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
6/72 TO 5/73
FY72 FUNDS $140,050

SUMMARY OF PROJECT:

Objectives: The comprehensive understanding of the physical environment of the waters of Massachusetts Bay and adjacent waters, with primary emphasis on pollution problems definition and solution, and the development of a predictive hydrodynamic model of the water environment that includes all the dynamic factors, such as wind, tide, currents, seasonal variation, temperature, salinity, etc., on a continuous time scale that will be the datum base for follow-on, related projects.

The methods and techniques developed for data acquisition, analysis and integrated systems response are designed for general application to other large ocean areas and water bodies.

How information will be applied: A predictive model will be developed to forecast the behavior of the Bay and the effects thereon of natural and man-made changes and actions.

The governmental agencies, charged with control and regulation of the ecology and environment of the Bay, will have an accurate tool for decision-making.

The instrumentation and analysis procedures developed will have broad application to environmental studies.

The resultant data base will support a wide range of important related research projects.

Accomplishments during past twelve months: Special instrumentation, with computer compatible outputs, has been developed and extensive S-T-D Surveys of Boston Harbor, conducted February 1 to June 30, 1972.

Mathematical modeling efforts to date include application of the MIT Boston Harbor Water Quality Model and Surface Heated Discharge Model and the initiation of Massachusetts Bay Mathematical Model studies in June, 1972.

A special summer course, including extensive lecture notes,

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SIE NO.
GBP-963

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
NG-43-72

MARICULTURE PROJECT DEVELOPMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR WW SEIFERT CIVIL ENGINEERING

RECIPIENT INSTITUTION.

MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP
6/72 TO 5/73
FY72 FUNDS $7,250

SUMMARY OF PROJECT.

objectives: The objective of this project is to enable a small systems-oriented group at M.I.T. to develop sufficient background knowledge of the range of activities currently underway in the field of mariculture to enable them to design a broad study to appraise the interaction of the economic and legal possibilities for initiating significant mariculture activities in the Massachusetts Bay area.

How information will be applied: We believe that knowledge in the mariculture field has now progressed to the point where a broad study designed to interrelate the various aspects of the mariculture problem as well as the application of engineering technology to specific problems will be important for development Of this field in New England. The proposed effort would permit a group which is experienced in making systems-type studies to develop the background in mariculture necessary to outline a broad study of the field.

For additional information pertaining to this project contact Dr. Alfred H. Keil, Director, Sea Grant Project Office, Mass. Institute of Technology, Cambridge, Mass. 02139.

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SIE NO.
GBP-965

NOTICE OF RESEARCH PROJECT

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

NG-43-72

TITLE OF PROJECT:

ASSAY OF THE MARINE RESOURCES OF MASSACHUSETTS BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

PROF JB LASSITER OCEAN ENGINEERING

RECIPIENT INSTITUTION:

MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:

6/72 TO 5/73
FY72 FUNDS $21,000

Objectives: The objectives of this project are to collect and to aggregate existing data at the Woods Hole Oceanographic Institution and the National Marine Fisheries Service Laboratory at Woods Hole relative to the finfish, sand, and gravel resources of the Massachusetts Bay. This will provide the geological and biological reference base lines, related to the sea environment project and model under Professors Ippen and Mollo-Christensen, to support future work under the "Massachusetts Bay - A Major Resource" - the theme.

How information will be applied: The existing raw data is not having any significant impact on the potential for developing Massachusetts Bay as a major resource. The data has been collected at public expense, yet it is not being fully utilized. The proposed study seeks to make aggregated data available to government agencies and to the public. This project seeks to initiate investment in and reasoned utilization of the main resources of Massachusetts Bay.

For additional information pertaining to this project contact Dr. Alfred H. Keil, Director, Sea Grant Project Office, Mass. Institute of Technology, Cambridge, Mass. 02139.

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SIE NO.
GBP-749

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. oCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

TITLE OF PROJECT.

WATER QUALITY MODEL FOR A NETWORK OF ESTUARINE CHANNELS

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

PROF DR HARLEMAN CIVIL ENGINEERING
AT IPPEN

RECIPIENT INSTITUTION

MASS. INST. OF TECHNO LOGY
SCHOOL OF E NGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:

7/72 TO 6./73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

An estuary consisting of channels and junctions is modeled mathematically by a network of one-dimensional channels. A finite element model is used for solution of the equation of motion and mass transfer with tidal advection and dispersion included for each branch of the network. These equations are solved, subject to interactions among branches and boundary conditions on the network as a whole, to provide time-dependent concentration distributions for non-conservative water quality parameters.

The model is capable of handling interactions among multiple water quality parameters such as temperature, salinity, B.O.D. and D.O. The ocean boundary condition distinguishes between ebb and flood tide transport of pollutants at the ocean entrance. Data from the James Estuary and its tributaries are used for verification of the model. The model has also been used to study water quality on Cork Harbour (Ireland) due to either steady or intermittent injection of wastes.

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GBP-750

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

A PREDICTIVE MODEL FOR UNSTEADY SALINITY INTRUSION IN ESTUARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

PROF DR HARLEMAN CIVIL ENGINEERING
AT IPPEN

RECIPIENT INSTITUTION:

MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

Development of a finite difference model to predict time-dependent longitudinal salinity distributions in an estuary. The model couples the continuity and momentum equations for the tidal motion with the one-dimensional mass transport equation for salinity. The model incorporates the time-dependent boundary conditions of tidal range at the ocean end and variable fresh water inflows at the head of the estuary and from tributaries along the estuary.

The temporal and spatial variation of the longitudinal dispersion coefficient, E sub(x,t) is shown to be given by the functional relation E sub (x,t) equals K (partial differential s/x) plus E sub T where partial differential s/x is dimensionless local salinity gradient, E sub T is the dispersion coefficient in the non-saline region and K is the parameter depending on the degree of stratification. A general correlation for K for estuaries covering a wide range of stratification conditions has been obtained. The model has been verified for steady state and transient salinity distribution data for the Delaware, Potomac and Hudson estuaries. A user's manual for the computer program has been prepared.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

STONE & WEBSTER E NGIN. CORP.

AGE NCY'S NUMBER(S)

TITLE OF PROJECT:

SUBMERGED DIFFUSERS FOR THERMAL DISCHARGES IN COASTAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

PROF DR HARLEMAN CIVIL ENGINEERING

RECIPIENT INSTITUTION:

MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:

7/73 TO 6/74 MU LT,SUPPORT
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT

Description: Design and prediction of the near-field temperature distribution for submerged, multi-port diffusers in shallow coastal waters. Temperature criteria prescribe a maximum temperature rise of 1-1/2F at the water surface. Studies are concerned with two power plant sites on the South shore of Long Island Sound, the proposed Shoreham Nuclear Power Station and the expansion of generating capacity at the Northport Station. Studies for the Shoreham Station havebeen completed. Undistorted models at scales of 1/20 and 1/100 were tested to determine near-field temperature distributions for two and three-dimensional multi-port diffuser configurations in shallow (15-20') water. Vertical temperature profiles indicated that fully mixed conditions were obtained downstream of the diffuser. The diffusers were tested under various steady and unsteady currents in the receiving water tosimulate the effect of thechanging magnitude and direction of the prototype tidal currents. Studies for the Northport Station have been completed . Emphasis is on the development of design criteria for multi-port diffusers in water of intermediate depth (24-40') to define conditions under whicheitheravertical temperature stratification or a fully mixed temperature field will be produced. Initial studies on a two-dimensional slot discharge were used to designthe diffuser for subsequent undistorted model tests on a three-dimensional configuration. A new model basin will be constructed to accommodate this diffuser.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

'AGENCY'S NUMBER(S):

710157

294333000

TITLEoF PROJECT,

OCEAN TRANSPORTATION, SEA FOOD DEVELOPMENT, AND MARINE RESOURCES MANAGEMENT

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY,

DR A KEIL NAVAL ARCH & MARINE ENGIN

RECIPIENT INSTITUTION

MASS. INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FoR THIS NRP:

7/71 TO 6/72
FY72 FUNDS $315,000

Technical Objective: This coherent area project is a continuation of a program initiated last year at MIT. It is composed of a series of sub-projects including work on various programs associated with ocean transportation, estuary modeling, physical oceanography on Massachusetts Bay, use of squid for food development, new underwater welding techniques and studies related to the management of marine resources. Also included in the program are several educational projects.

Approach: The approaches to the various projects, of course, vary with the type of study involved, including the determination of the present knowledge available, then the conducting of the various experiments and data collection necessary. Many of the projects involve other colleges, states, or federal agencies.

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GSV-3985

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S)
GA-35819

BIOLOGICAL CHARACTERISTICS OFTHE MARINE SEDIMENT-WATER INTERFACE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RG JOHNSON GEOPHYSICAL SCIENCES

RECIPIENT INSTITUTION:
UNIV. OF CHICAGO
SCHOOL OF PHYSICAL SCIENCES
5801 S. ELLIS AVE.
CHICAGO, ILLINOIS 60637

PERIOD FOR THIS NRP:
9/72 TO 8/73
FY73 FUNDS $29,100

SUMMARYOF PROJECT

Part of the spatial and temporal variations in the diversity of benthic marine communities can be explained as the consequence of local disturbances of the sediment-water interface. The immediate objective of the proposed study is to determine the biological characteristics of the sediment water interface Special emphasis will be given to determine the amount and distribution of organic matter which is potentially available to the benthos. Theultimate objective is to attempt to relate variations in the character of the sediment-water interface to Variations in the diversity of benthic communities.

Destructive analyses of total carbon, nitrogen or of particular compounds do not measure the amount of organic matter that is biologically utilizable as food for the benthos. It is proposed that a mixture of several enzymes be used as the basis of evaluating potential food resources and their variation in natural sediments, Synoptic studies will be made in shallow and deep water environments in the region of Woods Hole, Massachusetts and Pigeon Key, Florida. In addition, an attempt will be made to correlate the variation in food resources with variation in species composition and diversity within a community in the environs of Woods Hole. The results of this study could have broad ecological implications and be of use in understanding the effects of pollution in the sea.

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SIE NO.
AA-704-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
BATTELLE MEMORIAL INSTITUTE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ECOLOGICAL STUDY OF DUXBURY BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

DR CA WILLINGHAM
RE HILLMAN
J WENNEMER
NW DAVIS
H QUINBY

RECIPIENT INSTITUTION.
WILLIAM F. CLAPP LABORATORIES
DUXBURY, MASSACHUSETTS 02323

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The purpose of this study is to survey the flora and fauna of Duxbury Bay and establish the pattern of interactions between these organisms and the various environmental parameters found in Duxbury Bay. The Bay itself is a relatively high salinity area with a fifteen foot tidal amplitude. Twice each day the bay bottom is left exposed by the out-going tide. Data are collected on the various organisms from twelve stations along transects which cross the Bay.

Included are transects crossing associated wetland areas of the bay region when marsh productivity determinations are made.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):

9810-00937

NEW ENGLAND NEARSHORE GEOLOGY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RN OLDALE OFFICE OF MARINE GEOLOGY

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

States to which project pertains: New England states,

Detailed geologic mapping of complex bedrock structure is planned for the nearshore areas of Mass., New Hampshire, and Maine. The mapping will depend in large part on bottom gravity and underway magnetic measurements and to a lesser extent on reflection and refraction seismic data. Aninitial gravity cruise was undertaken this past fall, but bad weather and instrument problems caused the cruise to abort. A gravity cruise in the New Hampshire and southern Maine is Planned for this spring.

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SIE NO.
GQN-723482-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
NAVY

AGENCY'S NUMBER(S):
DN723482
CONTRACT CODE NA
N00014-67-A-0230-0001

TITLE OF PROJECT:
NAVY ENVIRONMENT - TIDAL CIRCULATION AND SEDIMENT MOVEMENTS IN NAVIGABLE CHANNELS OF SMALL ESTUARIES

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:
MO HAYES GEOLOGY

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
GRADUATE SCHOOL
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $55,321

SUMMARY OF PROJECT:

Improved understanding of the interactions among estuarine environmental forces, and of their time and spatial variations, assists the Navy and Marine corps planning and decision making regarding shallow water and coastal operations. This research contributes to an improved basis for the prediction of estuarine environmental conditions to be encountered, e.g., in amphibious operations, riverine warfare, mine implantation and detection, harbor improvement, and coastal construction.

Research is continuing on the dynamic processes of the beach-estuarine systems of New England, and along the outwash plain shorelines of southeastern Alaska. Field work includes aerial photographic interpretation; systematic measurements of current velocity, temperature, salinity, and suspended sediments through the tidal cycle; periodic measurement of profiles of beaches; and sampling of sediments from outwash plains, rivers, estuaries, beaches, and marshes.

Supporting Agency Address Information: Office of Naval Research 414, Arlington, Va. 22217.

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SIE NO.
ZUA-2451

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMB ER(S):

9810-00973

TITLEOF PROJECT:

ENVIRONMENTAL IMPACT OF PETROLEUM EXPLORATION AND PRODUCTION ON GEORGES BANK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

HJ KNEBEL OFFICE OF MARINE GEOLOGY

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FoR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

States to which project pertains: Actual area of Georges Bank outside jurisdiction of individual states - but of interest to all New England states.

The proposed environment.al program on Georges Bank will outline the spatial and temporal variability of the principal dynamic factors involved in the movement and dispersal of an oil spill and will provide baseline data on key environmental parameters that may be affected subsequently. It provides an interdisciplinary approach to the problem anti encompasses physical, geological, chemical, and Ecological oceanographic studies as well as meteorological studies. Individual studies include: 1) water circulation and distribution of properties, 2) the magnitude, direction, and frequency of winds and storms, 3) the movement and spatial distribution of suspended and bottom Sediments 4) the concentrations of hydrocarbons in the sediments, and 5) the census and hydrocarbon content of benthic organisms.

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ZUA-2453

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY.

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):

9810-00937

TITLE OF PROJECT:

NEW ENGLAND NEARSHORE GEOLOGY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RN OLDALE OFFICE OF MARINE GEOLOGY

RECIPIENT INSTITUTION,

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

States to which project pertains: New England states.

Detailed geologic mapping of complex bedrock structure is planned for the nearshore areas of Massachusetts, New Hampshire, and Maine. The mapping will depend in large part on bottom gravity and magnetic measurements underway and to a lesser extent on reflection and refraction seismic data. An initial gravity cruise was undertaken this past fall, but bad weather and instrument problems caused the cruise to abort. A gravity cruise in the New Hampshire and southern Maine area is planned for this spring.

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S.I. NO.
GSV-5380

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S)
GA-41075

TITLE OF PROJECT
CONTINENTAL SHELF DYNAMICS EXPERIMENT

PRINCIPAL INVESTIGATOR(S) ASSOCIATE INVESTIGATOR(S) DEPARTMENT/SPECIALTY
RC BEARDSLEY METEOROLOGY

PERFORMING INSTITUTION(S)
'MASS, INST. OF TECHNOLOGY
SCHOOL OF SCIENCE
77 MASSACHUSETTS AVE.
CAMBRIDGE, MASSACHUSETTS 02139
NUMBER AND STREET

PERIOD FOR THIS NRP
11/73 TO 10/74
FY74 FUNDS $47,800

A field experiment will be conducted during the late winter/early spring of 1973-1974 so that winter-time hydrographical conditions will exist. The probable duration of the experiment will be one or two months. The focus of the proposed experiment will be on the effective vertical mixing of horizontal momentum during both steady and severe transient meteorological conditions. A linear array of three instrumentation moorings will be set across the New England shelf near the site of a pilot experiment conducted last year. The important horizontal length scales in the parallel and cross-shelf directions are not yet known so the choice of horizontal spacing of the moorings is still unclear, The preliminary design for the array has mooring spacings of 1L and 2L, allowing measurement of horizontal coherence over three spatial increments. A value of 15 km for L is the present best choice.

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SIE NO.
GBP-1249

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
OFFICE OF COASTAL ENVIRONMENT

AGENCY'S NUMBER(S):

NEW ENGLAND FISHERIES MEGABENTHIC INVERTEBRATE INVESTIGATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DRRA COOPER

WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

6/73 TO 6/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

This project will use a submersible and surface ships to: 1. Develop methodology for a rapid, economical inventory of offshore stocks of lobsters, shrimp and crabs. An economical method of obtaining basic quantitative distribution data for several commercially fished invertebrate species (lobsters, shrimb, crabs) is required for annual assessment of these resources to provide a data base upon which state and federal management decisions can be based. A minimum requirement is an annual measure of abundance and geographic distribution. Presently there is no economical way of getting this information. 2. Define the ecology, population structure and trap related behavior of the offshore lobster. Included in this objective is a quantitative assessment of "ghost pots" and their potential effect on the lobster and crab resources.

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GSV-986-5

NOTICE OF RESEARCH PROJECT

NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

GA-28622X2

DYNAMICS OF SMALL SCALE PROCESSES IN AIR-SEA INTERACTION

DR EL MOLLOCHRISTENSE METEOROLOGY

MASS. INST. OF TECHNOLOGY
SCHOOL OF SCIENCE
77 MASSACHUSETTS AVE.
CAMBRIDGE, MASSACHUSETTS 02139

4/73 TO 3/74
FY73 FUNDS $92,900

The objective of this study is to continue research on the dynamics and statistics of intermittent events and sporadic flux anti turbulence production events as pertinent to air-sea interaction. The studies will Include observations from the M.I.T. 108 ft. spar buoy placed in Massachusetts Bay and laboratory experiments on naturally occurring and artificially triggered turbulence production, flux events in Ekman layers, shear flows and connectively driven flows. ISG

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SIE NO.
GSV-3957-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMB ER(S):
GA-35617

TITLE OF PROJECT
PATTERNS OF SPECIES DIVERSITY IN ROCKY INTERTIDAL COMMUNITIES

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:
BA MENGE

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
GRADUATE SCHOOL
BOSTON, MASSACHUSETTS 02116

PERIOD FOR THIS NRP:
9/73 TO 8/74
FY74 FUNDS $11,500

SUMMARY OF PROJECT:

There is a distinctly less rich fauna in the rocky intertidal communities of the North Atlantic Ocean than that of the Northeast Pacific Ocean. The investigator will test the hypothesis that the lower diversity of the former community results from the virtual absence of a functionally dominant secondary carnivore which in turn results from a relatively unpredictable environmemt (as compared to that experienced by the latter community). The two main components of this test will be (1) an analysis of a typical North Atlantic rocky intertidal community (in Maine) and (2) a comparison of this community to the already well understood Northeast Pacific community. The research program to be undertaken in the North Atlantic community includes (1) measurements of the predictability of resource availability for primary and secondary consumers, (2) construction of and comparison between energy budgets of the potentially functionally dominant carnivore (Asterias forbesi) in the subtidal habitat (presumed optimal) and the intertidal habitat (presumed sub-optimal) and (3) an analysis of the causes of the observed patterns of community structure in Maine. The proposed research program is based on field (and some laboratory) experimentation supplemented by observations and measurements of fundamental natural history phenomena, a powerful approach of proven value. ISG

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NO
AQ-607

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

AGENCY - NUMBERS

NEW ENGLAND GAS & ELEC. ASSN.

TITLE OF PROJECT

MARINE LIFE STUDY - CAPE COD CANAL

UNKNOWN

PERFORMING ORGANIZATION

NEW ENGLAND GAS & ELEC. ASSN.
130 AUSTIN ST,
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP

7/73 TO 6/74
FY74 FUNDS UNKNOWN

INVESTIGATOR

Description: Measure the water temperature patterns before and duringplant operation. Determine the effect of abrupt temperature changes in species of fish found in this area.

Address for correspondence: M.P. Griffith, 130 Austin St., Cambridge, MA 02139

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SIE NO.
GSB-13141

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF BIOLOGICAL & MED. SCI.

AGENCY'S NUMBER(S):
GB-40282

TITLE OF PROJECT:
TROPHIC AND COMMUNITY STRUCTURE CHANGES IN A NEW ENGLAND POND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WHITEHEAD BOTANY

RECIPIENT INSTITUTION:
INDIANA UNIVERSITY
SCHOOL OF ARTS
BLOOMINGTON, INDIANA 47401

PERIOD FOR THIS NRP:
9/73 TO 8/74
FY74 FUNDS $16,000

SUMMARY OF PROJECT:

This project involves a careful study of the stratigraphy of diatoms and invertebrates in Berry Pond, Berkshire County, Massachusetts, with a view toward answering the following questions: 1) Do accurate stratigraphic and sedimentation rate data for diatoms support the evidence for apparent trophic changes? 2) Does diatom community structure (diversity and equitability) change in the manner predicted by contemporary ecological theory? 3) Is diatom community structure affected by the pattern of leaf input? 4) Does sedimentation rate data for consumer organisms (Cladocera, etc.) correspond to similar data on primary producers? 5) Are there changes in consumer community structure (both plankton and benthos) which reflect changes in primary production and leaf input? 6) Can we detect changes in planktonic community structure during the latter portion of the postglacial which might reflect an increase in flushing rate? 7) Do niche breadths and overlaps calculated from sedimentation rate data for both diatoms and invertebrates adequately reflect the known ecological tolerances of the species in question? 8) If separate niche breadths and overlaps can be calculated for different sections of the core can we detect changes in niche properties which are related to changes in productivity, community structure, etc.? 9) To what extent are all of the preceding correlated with vegetational events involving the Berry Pond watershed? 10) Are the trophic changes unique to Berry Pond or can they be detected in nearby ponds as well?

Rhode Island

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SIE NO.
GY-59477-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES. SERVICE
MASSACHUSETTS

AGENCY'S NUMBER(S):
0059477
MAS00013

TITLE OF PROJECT:
REMOTE-SENSING TWENTY YEARS OF CHANGE IN THE HUMAN ENVIRONMENT IN MASSACHUSETTS, 1951-1971

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
WP MACCONNELL FORESTRY & WILDLIFE MANAGEMENT
JS LARSON

RECIPIENT INSTITUTION:
UNIV. OF MASSACHUSETTS
AGRICULTURAL EXPERIMENT STA.
AMHERST, MASSACHUSETTS 01002

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Objective: Use remote-sensing techniques to monitor forest and other environmental changes in Massachusetts from 1951-1971. The maps prepared from 1971 aerial photography will provide ground truth for training in interpretation of Earth Resources Technology Satellite (ERTS) imagery.

Approach: Develop and test the use of aerial photogrammetric techniques as a tool for identifying and classifying agricultural, forest and wet lands; mining and waste disposal areas, as well as urban land and outdoor recreation sites. Determine changes in vegetation and land use which have taken place since the state was photographed and mapped in 1951 and 1952 by a similar system. Establish predictions of future rates and patterns of change for major land-use types based on changes over the past 20 years. Population growth and construction of transportation facilities will be used to help predict future change. Provide vegetative cover and land-use maps of the entire state for watershed managers, foresters, wildlife biologists, resource planners and others interested in the environment. Study urban growth and decay, especially the situation in the urban-agriculture or urban- forest interface in Massachusetts.

Progress: Specifications for aerial photography for Massachusetts were prepared, a contract for the flying was let, and aerial photographs were inspected for quality as they came in, and then filed for easy access. The land-use classification used for the Connecticut River (MS-8) was refined and improved. Two photo interpreters, one with Viet Nam experience, began field reconaissance and land-use typing on July 1, 1971. Three more interpreters went into training on September 1, and two technicians began transferring the land-use types from the annotated photographs to USGS maps on the same date. All hands are now working on Plymouth County and it should be completed sometime in February. As soon as Plymouth County is completed, the maps will be reproduced and a publication will be prepared so that Plymouth County can be considered a pilot study for the whole state.

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SIE NO
ZUA-3029

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S)

RI 65-011

FLOOD CHARACTERISTICS OF SMALL DRAINAGE BASINS IN RHODE ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

CG JOHNSON WATER RESOURCES DIVISION

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $10,000

SUMMARY OF PROJECT

To obtain an adequate measure of streamflow characteristics of small drainage areas, and to analyze the streamflow records for particular needs of the highway engineer.

The development of a technique for estimating the magnitude and frequency of floods on small drainage areas in Rhode Island, for the use of the highway engineer,

Installation and maintenance of 5 continuous-recording stream gages with recording rain gages plus about 15 crest-stage gages on drainage basin of less than 10 square miles, all located in carefully selected places so as to sample a wide range of physiographic variables. Probably using a multiple-regression analysis.

Discharge data has been collected at 5 Continuous-recording streamflow stations plus recording rainfall records in addition to annual peaks at the 15 crest-stage gages. A status report has been started.

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SSIE NO
GY-30932-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES. SERVICE
RHODE ISLAND

AGENCY'S NUMBER(S):
0030932
RI00135

TITLE OF PROJECT:
ECONOMIC ANALYSIS ON ENVIRONMENTAL EFFECTS ASSOCIATED WITH SEASONAL HOMES

INVESTIGATOR(S):
D FISCHER RESOURCE ECONOMICS
N RORHOLM

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: Determine environmental situations associated with shoreline seasonal homes, especially in estuarine areas. Locational considerations and impacts will be ascertained. Evaluation of social and private benefits and costs of seasonal homes on environment of the shoreline will be stressed. Future market potential for seasonal homes will be assessed and alternative planning arrangements analyzed,

Approach: Identification, classification, sampling and questionnaires will provide basis for determining relationships between environmental factors and shoreline seasonal homes. Varying environmental products of seashore estuarine areas will be studied for their susceptibility to modification and their reversibility. Benefit-cost analysis will be employed to assess allocation and incidence of public and private benefits and costs associated with seasonal homes. Alternative institutional arrangements will be determined and their impact tested against existing arrangements. Optimal planning considerations will be studied for balancing multiple use of the coast line in Rhode Island.

Progress Report: The low cost housing study is leading to basically negative results in the sense that there does not appear to be any substantial savings in the housing construction industry, except at the expense of quality or choice. A more important problem, is to examine what savings are rather than construction since construction costs are only a part of total ownership costs. This is being done and will be completed by this summer. ISG

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SIE NO
GBP-65-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

BAY WATCH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

B LEVINE OCEAN ENGINEERING

RECIPIENT INSTITUTION

UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP.

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

The Bay Watch Program has a series of multiple but related goals. One is the design of a physical (and eventually a biological) monitoring system for the Rhode Island Coastal Zone. Such a system would have a variety of uses, including pollution control. It is not our present intention to implement fully such a monitoring system, since this appears to be a task better suited for a state or federal agency. However, we do expect to operate a system sufficient to assist in the development and verification of the various physical and biological models previously discussed.

Our plan is to develop a limited operational capability by the summer of 1970 using standard instrumentation and processing techniques where possible, in order to gain operational experience. At the same time we will be undertaking limited development work in instrumentation and data processing; these developments will be fed into the operational system as practicable. The predicted state of the bay from the analytical models will be compared with the available data and new data from the bay instrumentation system.

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SIE NO.
GBP-437-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
208520256

THE GROWTH AND MOVEMENT OF SCUP (STENOTOMUS CHRYSOPS) IN NARRAGANSETT BAY, R.I. AND ALONG THE ATLANTIC COAST

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RT SISSON

RECIPIENT INSTITUTION:

STATE DIV. OF FISH & WILDLIFE
83 PARK ST.
PROVIDENCE, RHODE ISLAND 02903

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $9,675

SUMMARY OF PROJECT:

Objectives: To determine movement of age classes of scup into Narragansett Bay, and to determine age structure of the scup population in Narragansett Bay throughout the seasons that scup occupy its waters.

To determine growth and movement of scup found in Narragansett Bay and after they leave the bay. Determine whether tagged fish are harvested locally or elsewhere.

Use data collected to formulate a management plan for R.I. scup harvests, and to contribute these data to research programs of other Atlantic Coast states.

Procedures: Sample scup population with otter trawl, and fish trap. Samples will be used to obtain weight, length, and scale samples for aging.

Tag and release scup of all year classes caught in Narragansett Bay. Weigh and measure fork length of all fish released. Floy fingerling tags to be used for young of the year fish, and Floy dart tags to be used for older fish.

Use data collected in this segment to aid in decision-making for the scup industry.

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SIE NO.
GBP-47

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY.

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

TITLE OF PROJECT,

ECONOMIC IMPACT OF MARINE RESOURCE USE-RECREATIONAL BOATING

N RORHOLM RESOURCE ECONOMICS

RECIPIENT INSTITUTION

UNIV.OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP.

7/70 TO 6/71
FY71 FUNDS UNKNOWN

SUMMARY OF PROJECT.

The purpose is to determine costs and returns, both internal and external of different uses of coastal areas, to measure the sensitivity of optimal solution to variations in the basic data.The area studied will be in Narragansett Bay, R.I.. Data will be gathered on the physical suitability of the coastline for various uses, such as marinas, housing, beaches, natural areas, etc; based, in part, on available data which will be updated (Ref, NO. 7 and FWPCA) and, in part, on data to be collected. Economic activities and conflicts associated with the various uses will be analyzed from the Point-of-view of different optimization rules in order to discover the use of coastal areas that best serves society's purposes, and of maximum economic gain and environmental benefits? This latter testing of the data will be carried out in conjunction with work being done by the "systems group" under the leadership of H.C. Lampe. The "sensitivity testing" will be carried out either by introducing specifically selected variability in the data and observing the effect on solutions, or by introducing random disturbances. The work will initially concentrate on variables associated with services for recreational boating.

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GBP-49-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

ANALYTICAL PHYSICAL MODEL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

F WHITE OCEAN ENGINEERING

RECIPIENT INSTITUTION:

UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

An analytical physical model of the Bay is being constructed. The long term objective is to produce a mathematical model which can predict hydrodynamic, thermal, salinity and oxygen changes in the Bay as a function of location and time. The analytical model of the Bay must include all types of equations, algebraic or possibly stochastic in nature, which accurately model the turbulent transport. Although there is already considerable work reported in this area, it will be necessary in Narragansett Bay to have supporting equipment to verify these models and, in the case of specific pollutants, data which refine presently proposed models. A pilot study of a three dimensional hydrodynamic model has been successfully completed for the Harbor of Refuge at Gallilee. A similar model is being constructed for Narragansett Bay and Providence River.

To assist in the development and verification of mathematical models, the "Bay Watch" Program is developing a limited capability to measure various physical, chemical and biological parameters. For ease of operation, the majority of the initial experiments are being conducted in West Passage.

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TAPE INPUT 281

SIE NO
GY-57767-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

~~U.S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):

0057767
R100Q05
SUBGROUP S
SAESRI. 0C00000000

TITLE OF PROJECT:

FECAL BACTERIAL AND COLIPHAGE IN RELATIONSHIP TO ENTERIC VIRUS POLLUTION IN SEWAGE AND RIVERS

PRINCIPAL INVESTIGATOR,ASSOCIATES AND DEPARTMENT/SPECIALTY:

YATES V J
CHANG P W

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:

UNIV OF RHODE ISLAND
ANIMAL PATHOLOGY Dept
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

PERIOD FOR THIS NPP

BEG 700701 END 720630
FY 74 FUNDS 00C00000

50513414 Sub

SUMMARY OF PROJECT:

OBJECTIVE: Correlate the concentration of coliform bacteria, fecal streptococci, or coliphage in polluted water to viral pathogens, such as coxsackie and poliovirus. It is hoped that a correlation can be established between the two, so that the measurement of one may provide a quantitative estimate of the other.

APPROACH: Sewage and river water will be collected at, several sampling points in southern and eastern Rhode Island. Gauze pads encased in stockinettes will be used in the collection of the samples. After an exposure period, the pad will be removed and the bacteria and viruses eluted. The eludate will be examined for enteric viruses, coliform bacteria and coliphage. The concentration of the coliform bacteria and/or coliphage will be correlated to the concentration of enteric viruses.

PROGRESS: A total of 181 sewage samples from the sewage plant, University of Rhode Island, was collected. Of these samples only four yielded enteric virus. The data of Coliform bacteria, fecal Streptococci and Coliphage counts were analyzed to determine their correlation. The method used was product moment correlation. These correlations appear to be small and negative. The independent counts do not correlate in any way.

016010
RATER-QUALITY WATER-ANALYSIS FECES POLIOVIRUSES WATER-POLLUTION COLIFORM
016010
S BACTERIA POLLUTION SEWAGE RIVERS MICROBIOLOGY ANIMAL-PATHOGENS VIROLOG
016010 Y STREPTOCOCCUS ENTERO-VIRUSES
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SIE NO.

AO-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):

800981

72P00005

TITLE OF PROJECT:

EFFECT OF THERMAL POLLUTION ON PELAGIC LARVAE OF CRUSTACEA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

AN SASTRY OCEANOGRAPHY

RECIPIENT INSTITUTION:

UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:

7/72 TO 6/ 73
FY73 FUNDS $45,756

SUMMARY OF PROJECT:

$ e,, temperature, salinity, and oxygen, and to determine the affect of acute and gradual changes of temperature on metabolism and survival of larvae of representative brachyuran crabs common to the Narragansett Bay and vicinity. Qualitative and quantitative changes in lipids and proteins for each larval stage of each species reared under optimum conditions and exposed to altered temperatures will be determined. The patterns of lipids and proteins for larvae reared under optimum conditions and exposed to altered temperatures provide a useful reference for bioassay.

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TAPE INPUT 281

SIE NO
GY-57970-2

NOTICE OF RESEARCH PROJECT

FUNDING AGENCY
~~DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0057970
RI00124
SUBGROUP S
SAESRI. 0000000000

TITLE OF PROJECT:
ECONOMIC ASPECTS OF COASTAL USE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
FORHO LM N

KIND A AWARD
DATE SP01 DISTR

UNIV OF RHODE ISLAND
RESOURCE ECONOMICS - Dept
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

BEG 7C07C1 END 73063(
FY 74 FUNDS 00 C00000
50513414 agD

SUMMARY OF PROJECT

OBJECTIVE: Determine costs and returns, both internal and external of different uses of coastal areas. Measure the sensitivity of optimal solutions to variations in the basic data.

APPROACH: The area studied will be in Narragansett Bay, R.I. Data will be gathered on the physical suitability of the coastline for various uses, such as marinas, housing. beaches, natural areas, etc. based, in part, on available data which will be updated (ref. no. 7 and FWPCA) and, in part, on data to be collected. Economic activities and conflicts associated with the various uses will be analyzed from the point-of-view of different optimization rules in order to discover the use of coastal areas the best serves society's purposes, be they maximum economic gain and environmental benefits. The latter testing of the data will be carried out in conjunction with work being done by the "systems group" under the leadership of H. C. Lampe. The "sensitivity testing" will be carried out either by introducing specifically selected variability in the data and observing the effect on solutions, or by introducing random disturbances.

PROGRESS: In response to requests from industry organizations and state planners in New England and New York, an informal regional research proposal for a study of the economic impact of the marina industry has been developed in cooperation with personnel from state universities in New England and New York. The primary questionnaire has been developed, pretested, and refined. Funding sources are presently uncertain in all states but Connecticut and New York.

016010
MANAGEMENT LAND-USE ECONOMICS COASTAL-AREAS RESOURCE-MANAGEMENT HOUSING
016010
RESOURCE- DEVELOPMENT ENVIRONMENT ALTERNATIVES SUITABILITY UTILIZATION LA
016010 RETURNS COSTS VALUES
021001 00000000

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SIE NO.
GY-57851-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
~~U.S. DEPARTMENT~~ OF AGRICULTURE
STATE AGRIC EXPT STATION
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0057851
RI00007
SUBGROUP S
SAESRI. 0000000000

TITLE OF PROJECT:
ORGANIC GEOCHEMISTRY OF SHALLOW AND PRODUCTIVE BENTHIC ENVIRONMENTS

PELBECK GTJR

KIND A AWARD
DATE SP01 DISTR

FOOD RESOURCE CHEMISTRY DEPT.

RECIPIENT INSTITUTION:
I UNIV OF RHODE ISLAND
RESOURCE ECONOMICS
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

PERIOD FOR THIS NRP:
BEG 700701 END 720630
FY 74 FUNDS 00000000
505'1 3414

SUMMARY OF PROJECT:

OBJECTIVE: Extract, fractionate, and characterize the organic matter from both productive and non-productive benthic sediments, and study the biological transformations that these fractions undergo.

APPROACH: A set of 16 sediments and 8 soils will be sequentially extracted, and the fractions obtained will be characterized by physical and chemical properties. Two fractions will be studied by the methods of lithium reduction and sodium hypobromite oxidation. A model system involving an Actinomycetales isolated from a sediment will be studied. This organism produces a water-soluble, yellow-colored exudate that has many properties similar to several fractions of sedimentary organic matter.

PROGRESS: Serial extraction and partial analysis of eight sediment samples (three anaerobic, three aerobic, add two soils) has been completed and the data have been compiled for statistical consideration. Five organic fractions have been obtained from each sample and each has been analyzed for total mass, ash content, and C, H, and N contents. A study of the organic matter-metal chelates of zinc and copper in Narragansett Bay sediments has been initiated in order to characterize the organic moieties those fractions of high molecular weight, require a suitable method of degradation. 'To date', apparently the most satisfactory method developed involves the cleavage of intermonomeric bonds by reduction with metallic lithium in an ethanol-benzene solvent System at temperatures from 125 to 175 C. Yields of the order of 40 to 50% are typically obtained. Four fractions (acidic, neutral, basic, and amphoteric) have been obtained by solvent fractionation, with further fractionation accomplished by thin-layer chromatography.

016010
CHEMICAL-ANALYSIS CHEMICAL-PROPERTIES PHYSICAL-PROPERTIES ACTINOMYCETES
016010
CHARACTERIZATION FRACTIONATION BIOCHEMISTRY ORGANIC-MATTER SEDIMENTS HUM
016010 IC-ACIDS EXTRACTION TRANSFORMATION SOILS BENTHOS
021001 00000000

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SIE NO.
GY-31462-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

~~U. S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXP T STATION
RHODE ISLAND KINGSION

AGENCY'S NUMBER(S):

0031462
RI 00121
SUBGROUP S
SAESRI. 0000000000

TITLE OF PROJECT:

AN EVALUATION OF THE COMPETITIVE POSITION OF THE NEW ENGLAND FISHING INDUSTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

NORTON V
GATES J M

KIND A
DATE SP01

AWARD
DISTR

UNIV OF' RHODE ISLAND
RESOURCE ECONOMICS DEPT.
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

BEG 680701 END 710630
FY 74 FUNDS GO 000000
50513414

SUMMARY OF PROJECT

OBJECTIVE: Obtain data necessary to improve the relative economic efficiency of the New England industry. Improvement in economic efficiency cannot be attained until specific problem areas (ie, capital costs, labor availability, management capabilities, resource depletion, and competition from other U.S. or world fisheries) are identified and " fisheries or activities in which New England may hold absolute and comparative advantage are specified.

APEROACH: When this framework has been established, federal, state, and private investment and aid can be concentrated in those fisheries or activities in which problem areas can be overcome and which represent either the greatest pay-off from public expenditure or the greatest profit frcm private expenditure. Only in this way can research and investment toward the development of the New England Fishing Industry be expected to enhance the long-run return to labor and capital in this industry.

PROGRESS: 1. Completion of a steady-state bio-economic model for a fishery (Gates) . 2. Completicn of a dynamic bic-economic simulator for a fishery (Lampe). 3. Application of (1) and (2) to yellowtail flounder and menhaden fisheries. 4. Seminar defense of (1) at Woods Hole Oceanographic Institute. 5. Demand analysis for yellowtail flounder which inccrporates the effect of fish size.

016010
ECONOMIC-DEVELOPMENT COMPETITION FISHERIES CAPITAL FISHING INDUSTRY FISH
016010
INTERREGIONAL-COMPETITION LABOR MANAGEMENT RESOURCES -INVESTMENTS ECONCM
016010 ICS MARKETING *RL 1
021001 CCCOCOOC

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TAPE INPUT 281
SIE NO
GY-31461-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
~~U. S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0031461
RI00122
SUB GROUP S
SAESRI. 0 0 0 0 0 0 0 0 0 0

TITLE OF PROJECT:
ECONOMICS OF MARINE-LAND INTERFACE

PRINCIPAL INVESTIGATOR(S), ASSOCIATES AND DEPARTMENT/SPECIALTY:

MLOTOK P D
LAMPE H C

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:
UNIV OF RHODE ISLAND
RESOURCE ECONOMICS DEPT.
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881

PERIOD FOR THIS NRP
BEG 680701 END 720630
FY 74 FUNDS 00000000
50513414 SUB

SUMMARY OF PROJECT:

OBJECTIVE: Isolate and accurately define the problem surrounding the resources conflict of tidal marsh.

APPROACH: Future work will, consist of a continuation of the above and the establishment of a close relationship with ecologist for data collection and preparation for later modeling. It is also proposed to write an article outlining the problem and its various aspects for publication to obtain a feedback from interested scholars.

PROGRESS: A model linking the economy of the state to water borne residuals production has been developed. This required an updating of an 'input-output model for the state and the development of residuals (pollution) coefficients for 59 industrial sectors of the state. The residual coefficients were developed largely from data submitted by firms in applications for discharge to the Corps of Engineers. The model permits evaluation of the impact of a changing economy on the discharge of pollutants into Narragansett Bay.

016010
MARSHES TIDELANDS SALT-MARSHES RESOURCES ECOLOGY NATURAL-RESOURCES MARIN
016010 E-RESOURCES MARINE ESTUARIES ECONOMICS #RD-3
021001 0C000000

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SIE NO.
ZON-14506

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
DEPARTMENT OF DEFENSE
NAVY

AGENCY NUMBER(S)
DN014506

TITLE OF PROJECT,
EFFECT OF WATER POLLUTION ON NAVAL OPERATIONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JJ GALLAGHER
DF GIULIANO

RECIPIENT INSTITUTION
U.S. NAVY
UNDERWATER SYSTEMS CENTER
NEWPORT, RHODE ISLAND 02840

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UN KNOWN

SUMMARY OF PROJECT

Investigate the aquatic environmental parameters that are influenced by pollution so as to hinder Navy functions or operations in coastal waters, conduct studies on turbidity, fouling, and inorganic and organic concentrations as they may influence ambient noise, sound propagation, equipment and material performance, transportation, etc. Suggest methods to reduce water pollution and its deleterious effects. Investigate remote sensing techniques for rapid detection, identification, areal distributions, and sources of surface and subsurface water-borne pollutants.

Expand the biological, chemical, geological, and physical environmental aspects of the present NUSC oceanography program to include the investigation of the temporal and spatial distribution of temperature, salinity, dissolved oxygen, nutrients, heavy metals, and petroleum products in an area subjected to thermal discharge, and in local estuaries (Thames River and Narragansett Bay) where Navy facilities are located.

Supporting Agency Address Information: Naval Underwater Systems Center MAT03L4, Newport, R.I. 02840.

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TAPE INPUT 281
SIE NO
GY-32323-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
RHODE ISLAND KINGSTON

AGENCY'S NUMBER(S):
0032323
RI00238
SUBGROUP H
CSRSRI. 0000000000

TITLE OF PROJECT:
SALT MARSH ECOLOGY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
STUCKEY I H

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:
UNIV OF RHODE ISLAND
PLANT & SOIL SCIENCE DEPT -
AGRICULTURAL EXPER. STATION
KINGSTON RHODE ISLAND 02881 50513414 SUB

PERIOD FOR THIS NRP:
BEG 690701 END 72063
FY 74 FUNDS 00000000

SUMMARY OF PROJECT:

OBJECTIVE: Determine the basic ecology of several representative Rhode Island salt marshes: Species of plants and animals found, plants utilized by animals including shell fish, fin fish, and water fowl and animals used by other animal species, plant species as indicators of salinity and stage of marsh development, accumulation of organic matter as a measure of development, how salt marshes can be made and species of plants involved.

APPROACH: Map four or five salt marshes of somewhat different types. Records will be taken of species of plants, areas occupied by them and possible stages of succession. Animals will be recorded with reference to species that breed in Rhode Island and the temporary or migratory species. Take soil samples for determination of soluble salts from marked plots within the different zones of vegetation at least three times during the year. Correlate salt levels with species found. Use marking substance to indicate whether the marshes are being built up by sediment and accumulation of organic matter, or are being washed away. Collect samples of soil and vegetation for determination of total organic matter to help clarify the status of "salt marsh peat". By use of sand boxes on a sand flat area, explore the conditions under which salt marshes can be built.

PROGRESS: Considerable effort was spent taking photographs of salt marsh species and in determining what species are present on specific" salt marshes since we do not have data from a formal biological survey. Spartina alterniflora survived in some of the sandboxes in spite of severe scouring. This work needs repeating with refinements in" the original design.

016010
MARSHES ECOLOGY FLORA FAUNA SOILS VEGETATION SALT ORGANIC-MATTER ECOLOGY
016010 CONSERVATION RECREATION SEDIMENTS #RD-1
021001 00000000

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SIE NO.
GY-30934-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
RHODE ISLAND STATE GOVERNMENT

AGENCY'S NUMB ER(SI
0030934
RI00118

THE sTRUCTURE OF THE NORTHERN LOBSTER 1NDUSTR%

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
A HOLMSEN RESOURCE ECON OMICS

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Object Ives : Determine: Cost and return in the trap and trawl fishery for lobster including returns to labor and capital. Investment in and financing of industry and determine sources of supply of input factors and markets, Fishing effort and characteristics of labor force, its education, skills and supplementary sources of income.

Approach: The study will be based on data collected. by personal interview. Cluster sampling will he used (to prevent excessive travel), probability proportional to size (PPS), hut stratified to reveal differences in geographical location within the region.

Progress Report: A survey was made of offshore lobster firms in order to determine costs and earnings of the vessels and to measure return to labor and capital. The survey also determined same of the major problems facing this industry. The results of the work will be particularly useful to those considering investing in this industry.

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SIE NO.
GY-56076-2

NOTICE OF RESEARCH PROJECT

.5 UP PORTING AGENCY:
RHODE ISLAND STATE GOVERNMENT

AGENCY" S NUMBER(S):
0056076
RI00901

STUDY OF NON-COMMERCIAL SHELLFISHERY OF POINT JUDITH AND POTTER'S POND IN SOUTH KINGSTON, RHODE ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
J KUPA FORESTRY & WILDLIFE MANAGEMENT

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: Map areas in Point Judith and Potter's Pond that are potential shellfishing areas and rate their importance to shellfishery. Determine number of persons engaged in non-commercial shellfishing on area and degree of participation. Determine value of shellfishery to users in site, cost and conflicting uses. Determine quantities of shellfish taken by non-commercial shellfishermen from April through September. Determine age, residence and financial status of persons forming population of shellfishermen. Determine species preferences of shellfishermen and catching techniques. Determine relationship between average catch of shellfish, man-hours required and the numbers of shellfishermen.

Shellfish habitats will be delimited on Coast and Geodetic charts of study areas and appropriate survey units will be established to facilitate data collection, classification and analysis. Enumerate persons engaged in shellfishery by daily counts of each survey unit at predetermined time intervals by land and boat. Amount of time persons spend shellfishing and the numbers and species of shellfish taken will be determined by observation of survey units. Personal interviews to corroborate observational data. Correlations will be sought between average catch of shellfish and several variables: man-hours of effort, tide, weather condition and time of year.

Progress Report: Field work and data analysis for the project have been completed and preliminary reports submitted to the Department of Natural Resources. A MS Thesis is being developed from the data and will be completed in January 1971.

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SIE NO
GY-30932-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES. SERVICE
RHODE ISLAND

AGENCY'S NUMBER(S

003093

RI00135

ECONOMIC ANALYSIS ON ENVIRONMENTAL EFFECTS ASSOCIATED WITH SEASONAL HOMES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

D FISCHER RESOURCE ECONOMICS
N BORHOLM

RECIPIENT INSTITUTION

UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP

7/72 TO 6/73 MULT,SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJEC

objectives: Determine environmental situations associated with shoreline seasonal homes, especially inestuarineareas. Locational considerations and impacts will be ascertained. Evaluation of social and private benefits and casts of seasonal homes on environment of the shoreline will be stressed. Future market potential for seasonal homes will be assessed and alternative planning arrangements analyzed.

Approach: Identification, classification, sampling and questionnaires will provide basis for determining relationships between environmental factors and shoreline seasonal homes. Varying environmental products of seashore estuarine areas will he studied for their susceptibility to modification and their reversibility. Benefit-cost analysis will be employed to assess allocation and incidence of publicand private benefits and costs associated with seasonal homes. Alternative institutional arrangements will be determined and their impact tested against existing arrangements. Optimal planning considerations will be studied for balancing multiple use of the coast line in Rhode Island.

Progress Report: The low cost housing study is leading to basically negative results in the sense that there does not appear to be any substantial savings in the housing construction industry, except at the expense of quality or choice. A more importantproblem,isto examine what savings are rather than construction since Construction costs are only a part of total ownership costs. 'l'his is being done and will be completed by this summer.

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SIE NO
GY-32770-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
RHODE ISLAND STATE GOVERNMENT

AGENCY'S NUMBER(S):
0032770
RI00402-NF

TITLE OF PROJECT:
ISOLATION OF VIRUSES FROM INLAND AND ESTUARINE WATER

PRINCIPAL INVESTIGATOR,ASSOCIATES AND DEPARTMENT;SPECIALTY
UNKNOWN

RECIPIENT INSTITUTION
UNIV. OF RHODE ISLAND
AGRICULTURAL EXPERIMENT STA.
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

No summary has been provided to the Smithsonian Science Information Exchange.

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SIE NO
GUW-4017

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S)
B-052-RI

TITLE OF PROJECT
NUTRIENT EXCHANGE IN WATER-SEDIMENT INTERFACE AND ITS EFFECTS ON WATER QUALITY

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY
CP POON — CIVIL & ENVIRONMENTAL ENGIN

RECIPIENT INSTITUTION
UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT

Two phases of work are proposed in this study. (1) Field sampling and analysis of sediment cores taken from various locations in Narragensett Bay as well as in the Pawtuxet and Seekonk rivers. The nutrient profiles (nitrogen and phosphorus) will be determined. The results will provide information Concerning the present state of nutrient accumulation and the nutrients storage capacities of the Bay and the rivers. (2) Microcosms studyin the laboratory to determine the nutrients exchange in water-sediment interface. The amount and rates of N or P released from or transferred into sediments under aerobic or anaerobic condition, with or without algal growth in the overlying water, will be determined. Excessive amount of N or P may be added into the water to simulate pollution discharge.

The results of this study complement others studying the nutrient budget of the Bay water and organic depositions in sediments. The information is essential for determining the effects of existing nutrients on water qualities the allowable discharge of nutrients without upsetting the equilibrium as well as a proper dredging procedure to obtain a beneficial instead of an ill effect on the water qualities.

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SIE No,

GUX-498-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY, S NUMBER(S):

18050 DXU

TITLE OF PROJECT:

SENSITIVITY OF BENTHIC MICROFLORA TO POLLUTION GRADIENTS

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY.

N MARSHALL

RECIPIENTINSTITUTION:

UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:

7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS $19,602

SUMMARY OF PROJECT:

Description: To evaluate relationships between the productive condition of the sediment environment and pollution effects normally experienced along a densely populated coastline. Specifically the work was designed to: (a) determine the normal rate of productivity of the microflora community of shoal benthic environments, as indicated by the rate of 14C uptake by intact samples of sediments; (b) compare this norm with productivity in an area affected by heavy domestic pollution and an area affected by thermal addition; (c) improve the methodology for measuring the productivity of the benthic microflora community. ISG

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SIE NO
GUW-3318-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCYS NUMB ER(S,

B-039-RI

TITLE OF PROJECT

NEW FLUORESCENT TRACER DETECTION TECHNIQUES FOR USE IN POLLUTED ENVIRONMENTS

PRINCIPALINVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

DR JA NORTHBY PHYSICS
A CHOUDRY

RECIPIENT INSTITUTION

UNIV. OF RHODE IS LAN D
SC HOOL OF ARTS
ADMINISTRATION BLDG.
KIN GSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UN KNOWN

SUMMARY OF PROJECT

The initial phase of this work will be to establish the nature and variability of the background fluorescence of water samples collected from the Providence River and Narragansett Bay. We will pay particular attention to the polarization of the prompt Spectra, and to the existence of any delayed spectrum, In light of this information, we will next examine several fluorescent materials as possible tracers for use in pollution dispersal studies. The selected tracer and corresponding detection technique should optimize absolute detectability in the presence of the expected large, fluctuating background fluorescence, We will consider both polarization dependent and/or delayed fluorescence effects as possible means to achieve this result, The tracer will also be selected with a view to its future detection by a simple in situ fluorometer. The final phase of this study will be the preliminary design work on such an instrument. ISG

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SIE NO.
GUW-3693

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-047-RI

TITLE OF PROJECT:
EFFECT OF OZONATION ON HUMAN ENTERIC VIRUSES IN WATER FROM RHODE ISLAND RIVERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF PW CHANG
LT MILLER
H ETZOLD

RECIPIENT INSTITUTION
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 7/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Ozonation for water purification has several advantages over that of chlorination. Because of cost and problems in control, ozonation has not been used as extensively as chlorination in the past. However, modern technology has eliminated these problems and ozone is now both competitive and desirable as an oxidizing agent in water purification.

Prior to the mass application of ozone in water purification, parameters must be set for its virucidal effect. These guidelines have not been well established and it is our objective to define them.

The proposed project involves testing five different human viruses (polio-, coxsackie-, echo-, adeno-, and reoviruses) against ozone. The main approach is to determine the time required to devitalize a virus when in contact with a fixed concentration of ozone in water at a constant temperature.

To establish a situation as realistic and close to actuality as possible, water from a Rhode Island river will be used to suspend the virus. This will be compared with results using distilled water as a suspending media for viruses. A thorough chemical analysis of the river and distilled water will be performed.

To determine the effectiveness of ozonation, virus assay will be performed in monkey and mouse cell cultures using the plague technique.

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SIE NO
GUW-1910-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTM ENT
OFFICE OF WATER RESOURC ES RES.

AGENCY'S NUMB ER(S):

A -035-RI

SIGNIFICANCE OF THE FECAL STREPTOCOCCI, COLIFORM BACTERIA AND COLIPHAGE IN RELATIONSHIP TO ENTERIC VIRUS POLLUTION IN SEWAGE AND RIVERS

PRINCIPAL INVESTIGATOR,ASSOCIATESANDDEPARTMENT/SPECIALTY

VJ YATES ANIMAL PATHOLOGY
PW CHANG

RECIPIENT INSTITUTION

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WOODWARD
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Due to the ease of measurement, the coliform group of bacteria have for many years been used to indicate the degree of pollution of water with wastes fromhumanor animal sources. The limitation of such a method rests upon the fact that coliform bacteria are normal inhabitants of human or animals body and normally arenot pathogens. So long as the rivers containing largenumbersofcoliformgroup of bacteria are condemned and cleaned, it can be said that such tests do serve their purpose. But the status of todays rivers in Rhode Island clearly indicate that many are heavily polluted with coliform bacteria; some have coliform counts equal to that of the raw sewage. Provided such an nvironment does exist, it is important to find out the concentration of viral contaminants.

The objective of the present Proposal is to correlate the concentration of coliform bacteria, fecal streptococci, or coliphage in polluted water toviral pathogens, such as Coxsackie and poliovirus. It ishoped that a correlation can be established betweenthetwo, so that the measurement of one may provide a quantitative estimate of the other.

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GUW-1926-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMB ERIS)

CONTRACT
C-2034

TITLE OF PROJECT:

THE FEASIBILITY OF OPTIMIZING MULTI-UNIVERSITY REGIONAL WATER RESOURCES RESEARCH

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR AR THOMPSON
RW HARDY

RECIPIENT INSTITUTION:

UNIV. OF RHODE ISLAND
WATER RESOURCES CENTER
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:

7/72 TO 12/72
FY73 FUNDS $57,540

SUMMARY OF PROJECT:

In order to test the value of regional water resources research coordinator, it is proposed that a qualified individual be appointed to such a post under the supervision of the six New England water center directors. The coordinator is to perform the duties of the position as outlined for the purpose of determining whether or not this is a practicable method of handling multi-university regional water resources research. While it is believed that an appointment of this type would be an effective way to plan, coordinate and manage regional research, existing uncertainties require that its feasibility be tested by an actual operation for a period of time. The overall theme of the project is, obviously, how best to plan, organize and conduct coordinated $ regional research. It is believed that results obtained from this experimental position would be useful to all sections of the country which have been and will be contemplating regional water resources research projects as well as to the New England area itself. ISG

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

F26-R-8-1-3

INVENTORY OF MARINE WATER COURSES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/ SPECIALTY

JA STOLGITIS

RECIPIENT INSTITUTION

STATE DIV. OF FISH & WILDLIFE
83 PARK ST.
PROVIDENCE, RHODE ISLAND 02903

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $2,400

SUMMARY OF PROJEC

Objectives: To determine, define and establish the boundary separations of the marine and fresh water environments for the coastal streams, rivers and estuaries of the Rhode Island coastline as a prerequisite for management and regulatory guidelines.

Procedures: The limit of salt water intrusion in each stream, river and estuary will be defined and permanently marked. Upon definition, the areas in question will be established through statute.

Salinity determinations will be made with an electrodeless in-situ electronic salinometer. Where possible, boundaries will be designated using existing structures such as bridges and dams. Otherwise, a geographical location will be defined using concrete structure and sign.

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SIE NO.
GUW-1704-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-022-RI

TITLE OF PROJECT:
POTENTIAL BENEFITS OF INTEGRATING A NEW COMMUNITY AND A POWER REACTOR WITH SPECIAL REFERENCE TO THE WATER ECOLOGY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF D HAMMERSCHLAG COMMUNITY PLANNING
VC ROSE

RECIPIENT INSTITUTION.
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Much progress has been made during the last decade in reducing the cost of nuclear power generation of electric energy. Coupled with a steady increase in energy requirements large power reactors have been considered and built in many instances.

There is a possibility that such a reactor would be built by Narragansett Electric on land owned by them at Rome Point south of Wickford, Rhode Island. The waste heat, which is a by product in the power generation, would be removed by a coolant--in this case the water of Narragansett Bay. Under this arrangement, no benefit is derived from the heat so discharged. In fact, the "thermal pollution" might create undesirable effects on the water ecology of the area. On the other hand, the excess energy could become a major positive determinant in a carefully conceived new community.

This study will investigate residential, commercial, industrial and public benefits of such a plan, with proper attention to water ecology if the development of a power reactor is fully integrated with and made the focal point of a new community at that location. Techniques developed in the study would not be restricted to this site.

Since this is a truly interdisciplinary subject, an advisory panel with expertise in oceanography, industrial engineering, resource economics and government has been asked to provide guidance by the applicants and agreed to provide same. ISG

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL. SCIENCE FOUNDATION
DIV. OF NATL. & IN TERN AT', PRG.

AGENCY S NUMB ER(S,

GX-33777A1

TITLE OF PROJECT

ATMOSPHERIC POLLUTANT TRAN SPORT AND DEPOSITION ON THE SEA SURFACE

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

RA DUCE OCEANOGRAPHY

RECIPIENT INSTITUTION

UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:

3/73 TO 2/74
FY73 FUNDS $15,600

SUMMARY OF PROJECT

The proposed research concerns the measurement of atmospheric transport of pollutants from the North American continentto the sea surfacein an open ocean area near Bermuda and in a region closely adjacent to the northeast coast of the U.S., Block Island Sound. From tower facilities located on the island of Bermuda anti another at Kingston, Rhode Island, atmospheric samples will be collected and analyzed for heavy metals, petroleum hydrocarbon and chlorinated hydrocarbons. In conjunction with the atmospheric studies, the concentrations, dispersal and chemical form of these same pollutants will he measured at the sea surface and in the upper one meter. Corollary laboratory studies will investigate the physical mechanism of pollutant concentrating and stability in the ocean.

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GUN-8864-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-20-R-14-1-3

TITLE OF PROJECT:
PUBLICATION OF RESULTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
CL PHILLIPS
RC GUTHRIE

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
83 PARK ST.
PROVIDENCE, RHODE ISLAND 02903

PERIOD FOR THIS NRP.
4/72 TO 11/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: To Publish 1. Pond Surveys, Job I,1; 2. Fishery Investigations of the Pawcatuck River Drainage, Job I,2.

Procedures: 1. Pond survey maps and charts will be completed and the manuscript prepared for publication. 2. Pawcatuck manuscript completed and in final preparation for publisher.

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SIE NO
GM A-988

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):

16020 EYP
CONTRACT
14-12-836

TITLE OF PROJECT

PLANNING AND DESIGN OF A NARRAGANSETT BAY SYNOPTIC WATER QUALITY MONITORING SYSTEM

PRINCIPAL INVESTIGATOR,ASSOCIATES AND DEPARTMENT/SPECIALTY

RF HILL

RECIPIENT INSTITUTION

NEREUS CORPORATION
WAKEFIELD, RHODE ISLAND

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS $23,805

SUMMARY OF PROJECT

No summary has been provided to the Smithsonian Science Information Exchange.

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GMA-1682

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
72P00005

TITLE OF PROJECT:
EFFECT OF THERMAL POLLUTION ON PELAGIC LARVAE OF CRUSTACEA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
AN SASTRY OCEANOGRAPHY
DK PHELPS

RECIPIENT INSTITUTION,
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $45,756

SUMMARY OF PROJECT

The objectives are to measure temperature, salinity, and oxygen, and to determine the effect of acute and gradual changes of temperature on metabolism and survival of larvae of representative brachyuran crabs common to the Narragansett Bay and vicinity. Qualitative and quantitative changes in lipids and proteins for each larval stage of each species reared under optimum conditions and exposed to altered temperatures will be determined. The patterns of lipids and proteins for larvae reared under optimum conditions and exposed to altered temperatures provide a useful reference for bioassay.

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SIE NO.
GBP-1048

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER (S,

2-35190

BAY WATCH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT SPECIALTY

G BROWN OCEAN ENGINEERING
T KOWALSKI

RECIPIENT INSTITUTION

UNIV.OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Objectives: 1) To conduct experimental programs to obtain necessary data for development and verification of the Analytical Physical Model, the Systems Ecology Model and the Integrated Systems Model, or the Bay Models, of Narragansett Bay. 2) To participate in the application of the Bay Models and data to management decisions for Narragansett Bay. 3) To participate in the development of the Bay Models. 4) To pursue similar objectives for the Coastal Resources Center.

Specific Objectives: 1) To predict the effects of power plants, sewage plants, etc., on the state of Narragansett Bay. 2) To predict the effects of variety of Rhode Island economic growth plans on the state of Narragansett Bay. 3) To develop new tide and current charts for Narragansett Bay for marinas, shipping, etc. 4) To develop an oil spill contingency plan for Narragansett Bay. This includes oil spill spreading details. 5) To provide data from the Narragansett Bay Watch Buoy System and the water quality survey to various users.

How information will be applied: 1) Output from specific objects 1, 2, 4 and 5 will be distributed to the Coastal Resources Management Council, theR.I. Departments of Health and Natural Resources, town governments, the R.I. Petroleum Association, Narragansett Electric, etc., for planning and design purposes. Legislative recommendations will be made whereappropriate. 2) For specific objective 3, output will be supplied to marinas, shipping activities, the general public, and NOAA.

Accomplishments during Past twelve months: 1) Verification work on hydrodynamic, salinity and temperature models was continued 2) Joint water sampling program was started including data on DO, BOD, coliform, phytoplankton, zooplankton, etc. 3) Narragansett Bay Watch Buoy System was launched and one month of data obtained todate. 4} A sediment survey was started to assist in dredging plans in Narragansett 5) A mnemiometer development was started for the Systems Ecology Model Project. 6) Tide gage installed at Whale Rock.

For additional information pertaining to this project contact Dr.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):

18080 HCT
CONTRACT

TITLE OF PROJECT:

DISSOLVEDOXYGEN AND TEMPERATURE MONITORING SYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

AP ALARIE

RECIPIENT INSTITUTION:

OCEAN DATA EQUIPMENT CORP.
PROVIDENCE, RHODE ISLAND

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS $50,522

SUMMARY OF PROJECT.

Description: To design, construct, test, install, and evaluate an automatic system for monitoring and controlling the dissolved oxygen concentration and temperature in a series of 90 and 120 gallon marine aquaria systems located on Water Quality Office Research Houseboat No. 1-8399 located in the vicinity of Narragansett, R. I. on the Pettaquamscutt River.

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SIE NO
GBP-1052

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMM ERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGE NCY'S NUMB ER(S1

2-35190

PETROLEUM IN NEW ENGLAND - INSTITUTIONS AND ECONOMIC IMPACTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY·

TA GRIGALUNES RESOURCE ECONOMICS

RECIPIENT INSTITUTION

UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $26,787

SUMMARY OF PROJEC'

Objectives: Toestimate and evaluate the potential economic-environmental impacts on New England of the exploitation of offshore petroleum deposits.

It is anticipated that detailed quantitative estimates of the regional economy implicationsofoffshore oil recovery will have been calculated before June 1, 1973, It is also expected that an assessment of several environmental issues related to oil activity will have been made by that date.

How information will be applied: The findings of this study will indicate, in a detailed way, the potential economic and environmental implications for New England of the extraction of offshore petroleum. The study results should prove informative to residents of the region as well as to the business community. It is also an important aim of this study to continue to provide objective information to policymakers so that the economic and environmental implications of this issue can be anticipated.

Accomplishments during the twelve months: The investigator is supervising a Ph.D. dissertation examining the regional pricing implications for selected petroleum products of an offshore oil find.

A substantial amount of data and information has been gathered and will be used as an input to generate the quantitative impact estimates discussed above.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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NOTICE OF RESEARCH PROJECT

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AGENCY'S NUMBER(S):

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DE PA RTMENT/SPECIALTY:

RECIPIENT INSTITUTION

PERIOD FoR THIS NRP:

SUMMARY OF PROJECT

GBP-1048 (CONTINUED)

Nies Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881,

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SIE NO.
GBP-1056

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):

2-35190

INTEGRATIVE SYSTEMS MODELING OF NARRAGANSETT BAY

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

H LAMPF — RESOURCE ECONOMICS
SW NIXON

RECIPIENT INSTITUTION

UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Objectives: To develop an integrated mathematical simulation model of the Narragansett Bay system, interfacing submodels of physical circulation, biological population dynamics, and bay related economic activity.

How information will be applied: The eventual development of this model will provide a master tool for the management of the bay system by groups such as the Rhode Island Marine Resources Council. Such a simulation model will, for the first time, provide a predictive power that can guide decision-making involving the bay. For example, much of the controversy surrounding future development, as in the siting of nuclear power generating plants, arises because of uncertainties as to probable effects.

Accomplishments during past twelve months: 1. Difficulties in the most applicable programming approach have been resolved. 2. A model of physical circulation compatible with the needs of the biological model has been developed with Ocean Engineering. 3. Weaknesses in numerical parameters of grazing in the biological model have emerged and are being studied. 4. A conceptual syntnesis of ecological and economic models has been developed involving environmental coefficients and stress-response curves. 5. The study of shore-land use has been completed and is in first draft form.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO.
GBP-1055

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

GEAR DEVELOPMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,
SB SAILA

RECIPIENT INSTITUTION
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP,
7/72 TO 6/73
FY73 FUNDS $45,819

SUMMARY OF PROJECT.

Objectives: The general objectives include gear research, development and related activities which will contribute toward a practical predictive and advisory model designed to optimize fishery operations centered in the Point Judith, Rhode Island area. Obviously, all of the above cannot be completed by the estimated completion data of 1973; however, it is anticipated that this program will be restructured at this time into a new project.

The sub-objectives which it is expected to complete include: 1. Final publications of two papers now in press. 2. Final deep-sea evaluation of electric trawl. 3. Trawl behavior model development and preliminary empirical testing of current speed and direction effects on trawling in local waters.

How information will be applied: The information obtained will be applied toward improving the operating efficiency of the Point Judith, Rhode Island fishing fleet. Mechanisms for the application include pubications, extension activities, and direct demonstrations.

Accomplishmnts during the last twelve months: 1. Development and construction of a self-contained electro-trawl and publication as a Ph.D. Thesis in Ocean Engineering. 2. Critical evaluation of the electro-trawl demonstrating its value in significantly improving lobster and crab yields. 3. Preparation of two publications submitted to Marine Technology Society. 4. First stage development of an otter trawl simulation model. 5. Field testing of electro-trawl in effective areas.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO
GBP-1033

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

2-35190

SYSTEMS ECOLOGY STUDIES OF NARRAGANSETT BAY

PRINCIPAL INVESTIGATOR,ASSOCIATESAND DEPARTMENT SPECIALTY

SW NIXON
C OVIATT

RECIPIENTINSTITUTION

UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND02881

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $68,082

SUMMARY OF PROJECT

Objectives: The major objective of this project is to gather data on the basic biological and ecological dimensions of the Narragansett Bay ecosystem. By June 15, 1973, our specific objectives are: 1. To make experimental measurements of the response of major bay subsystem to pollution stresses. The first measurements will be the comparison of a marina area with a natural harbor area. 2. To develop preliminary work begun this year on the feeding dynamics, role in nutrient cycling, and general ecological impact of Comb-jellies, menhaden, alewife, and sponge beds on the bay system.

How information will be applied: A prediction of the position of natural communities in the bay system on the stress-response curve will indicate the probable effects of increased or decreased pollution stress on the ecology of an area. This information will provide quantitative data necessary for the interface between economics and biology in the simulation model of the bay.

Measurements of grazing pressures and effects on nutrient cycles are necessary for any understanding of the dynamics of the bay ecosystem, as well as the simulation model. The end purpose of the model is to assist decision-makers in determining interrelationships in the bay ecosystem.

Accomplishments during the past twelve months: Data from the Bissel's Cove marsh embayment have been analyzed and the study is in preparation for press. Synoptic surveys of plankton metabolism, benthic respiration, infauna, epifauna and organic content of the sediments of Narragansett Bay and its harbors were made. The influence of grazing plankton consumers including ctenophores and menhaden upon plankton and water chemistry were studied. In addition, the metabolism and extent of sponge beds in the Bay are being investigated.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO.
GBP-1030

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM, ADMIN.
SEA GRANT OFFICE

AGENCY, S NUMBER(S):
2-35190

USE CONFLICTS IN THE COASTAL ZONE

N RORHOLM RESOURCE ECONOMICS

RECIPIENT INSTITUTION,
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PE RIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: 1. To establish the relationship between effluents and economic activities operating at different levels in the Narragansett Bay area. 2. To estimate the conflicts created by the activities, including effluents. 3. To evaluate the applicability of the conflict-matrix approach to conflict measurement and resolution.

How information will be applied: 1. Direct input to Systems Study of Narragansett Bay. 2. Through the Coastal Resources Center to the R.I. Coastal Resources Management Council as input to their decision-making processes. 3. The conflict-matrix will also be used as an educational tool with students and community groups to help them discover the problems of multiple use and some possible ways of solving these problems.

Accomplishments during the past twelve months: Analyzed data and published "Rhode Island Marinas and Boatyards 1970," Resource Economics Occasional Paper 71-001, URI, January 1971.

An average R.I. marina (126 boats) uses 473 feet of shore and 3.6 acres of land and, from gross business of approximtely $120,000, generates an additional $91,773 spending. Of this total of $211,773 of spending, $101,445 accrues to people of the area in the form of personal income.

An input-output model for part of R.I. is being generated to show relationships between economic activities and water pollution loads.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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AGENCY'S NUMBER(S):

TITLE OF PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND C) EPARTMENT/SPECIALTY

RECIPIENT INSTITUTION

PERIOD FOR THIS NRP.

SUMMARY OF PROJECT

GBP-1035 (CONTINUED)

Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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GBP-1035

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
ANALYTICAL PHYSICAL MODEL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DE PA RTMENT/ SPECIALTY:
FM WHITE OCEAN ENGINEERING

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $21,935

SUMMARY OF PROJECT:

Objectives: The objective of this project is to develop and verify a mathematical computer model which has the capability of predicting the spatial and temporal variations of the physical characteristics of Narragansett Bay. When completed, this model should be able to compute, at any time in the past or future and at any point in the Bay, the tidal heights, current salinity, temperature, and certain chemical species concentrations, notably dissolved oxygen. The model will also be able to take account of proposed changes in the dynamics of the Bay, such as hurricane barriers, thermal discharges, sewage outfalls, and channel dredging, with a view toward its use in decision-making and management of Narragansett Bay. The experimental verification of the model is being provided by the Bay Watch program.

How information will be applied: the information derived from this model has three primary uses: 1) to aid in Bay management by providing design studies of proposed physical changes; 2) to provide detailed predictions of the physical state of the Bay, in the past or in the future, for use in coordinating experimentation in the Bay; and 3) to provide physical parameters for use with the associated biological and socio-economic models being prepared under other projects associated with the Systems Model Studies.

Accomplishments during past twelve months: 1. The depth-averaged tidal model has been used in the following important applications: a) revised current charts for the Bay; b) hurricane surges; c) drifting trajectories and flushing times for the Bay; d) motion of oil spills in the Bay; and e) net flow rates at various key points in the Bay. 2. The depth-averaged salinity model is now being applied to dye study problems. 3. The temperature model is now being applied to the proposed Rome Point power plant. 4. The laterally-averaged, water-quality model has been completed and successfully compared to dissolved oxygen and biochemical oxygen demand data from the Bay. 5. A finite-element model for rapid calculations of physical and biological parameters in the Bay is now being developed, in cooperation with the Systems Ecology Project.

For additional information pertaining to this project contact Dr.

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WASHINGTON, D.C. 20036

SIE NO
GBP-1037

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

2-35190

TITLE OF PROJECT

ORGANIC GEOCHEMISTRY OF SHALLOW AND PRODUCTIVE BENTHIC ENVIRONMENTS

PRINCIPAL INVESTIGATOR, Associates AND DEPARTMENT/SPECIALTY

GT PELBECK FOOD L RESOURCE CHEM IS TRY

RECIPIENT INSTITUTION

UNIV. OF RHODE IS LA ND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $19s954

SUMMARY OF PROJECT

Objectives: General: 1) To determine the role of sedimentary organic matter in the absorption, migration and degradation of :.stj.tides carried into the marine environment. 2) To study the effect of various fractions of sedimentary organic matter on the geochemistry of heavy metals, particularly zinc and copper, that are deposited in the Narragansett Bay as a result of industrial pollution

specific: 1) To complete a comparison study of several methods of xtracting organic matter from soils and marine sediments, 2) To complete, as far as technically possible, an analysis of the "bound" lipid portion of sedimentary organic matter, 3) To determine the role of these bound lipids in the absorption of DDT by sediments of the Narragansett Bay. 4. To determine the distribution of Cu and Zn in the Narragansett Bay as affected by the various fractions of soluble and sedimentary organic matter.

How information will be applied: Among the most important pollutants of the Bay are various pesticides and heavy metals. It is not now known whether the levels of these pollutants are increasing or decreasing, and even more important it is not known whether these pollutants have reached a level where they may adversely affect the finfish and shellfish industries. The results of the present studies, in combination with other systems studies of the Bay, will be coordinated in order to provide answers to these questions.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 03881.

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SIE NO.
GBP-1036

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
ESTUARINE BIOGEOCHEMISTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JG QUINN

RECIPIENT INSTITUTION:
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $29,866

SUMMARY OF PROJECT:

Objectives: To measure the source, nature, effect and fate of organic nutrients and pollutants in Narragansett Bay.

Specific: To study the sorption of the lipid class compounds in sea water by clay minerals in order to determine the mechanism of incorporation, transport and release of these organic compounds by sediments. 2. To explore the relationship between lipid class pollutants in sediments and the lipid metabolism of benthic animals. 3. To investigate the formulation, transport, and nutritional value of plant detritus from tidal marshes by measuring changes in the lipid composition of Spartina alterniflora as it passes through various stages in its decomposition. 4. To measure the qualitative and quantitative distribution of lipid class compounds in particulate matter in order to establish the role of this material in the estuarine food chain.

How information will be applied: The results of this project provide information on the source, nature, effect and fate of selected organic compounds (nutrients and/or pollutants) found in the waters, sediments, and benthic organisms of Narragansett Bay. This information is applied to systems ecology studies and pollution control of the Bay.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO
GBP-1027

NOTICE OF RESEARCH PROJECT

UP? OR TINGAGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'SNUMBERIS

2-35190

IMPACT OF INTERNATIONAL TRADE LEGISLATION ON THE COMMERCIAL FISHERY INDUSTRY

PRINCIPAL INVESTIGATOR ASSOCIATE< ANDDEPARTMENT/SPECI ALTY

V NORTON RESOURCE ECONOMICS

RECIPIENT INSTITUTION

UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Objectives: 1. To identify and evaluate the long-term effects of the Kennedy-round. GATT negotiations on the U.S. fishstick and portion industry. 2. To determine the economic implications of possible changesin the New England fishstick and portion industry on other segments of the New England fishing industry. 3. 'I'C determine the effects of the current trend of increasing fresh fish imports on the New England fishing industry.

How information will be applied: 1. The analysis is intended to illustrate to trade negotiators, the implications of tariff changes in the commercial fishing industry. 2. The fishstick and portion industry will have information as to their competitive position versus foreign nations.

Accomplishments during the past twelve months: Objectives have been accomplished. In addition, information has been provided foe? 1) data and testimony for hearings on the constructive nature of -this industry; 2) data and information to the National Marine Fisheries Service and the fishing industry on the potential of fish block production in Alaska; and 3) general information for a presidential subpanel on fishery productivity and background information for study on nomenclature problems in fisheries.

This information will also be useful in evaluating the effects of 'cry recent activity of tne Japanese fishing industry and the related Japanese increased. catch of pollock off the Alaska Coast.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator,Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO.
GBP-1039

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
B IOCHEMICAL STUDIES IN E CO SYSTEMS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/ SPECIALTY
HP JEFFRIES

RECIPIENT INSTITUTION
UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $12,140

SUMMARY OF PROJECT:

Objectives: Feeding relationships. To determine the proportions of living and dead detrital materials eaten by commercially important shellfish (hard clam, ocean quahog, smooth mussel) and juvenile menhaden. Fatty-acid patterns in the material removed from the digestive tracts of these species will be determined, and dietary mixture determined using a recently developed model of fatty-acid flow from producer to consumer.

Long-term fisheries survey: To compile and make available a survey on the distribution and abundance of benthic fishes in Narragansett Bay. To evaluate long-term variations as function of climatic change and environmental alteration.

How information will be applied: 1. Less than half of the total particulate organic matter suspended in estuarine water is phytoplankton; detritus, the major fraction, must be evaluated as an energetic input to filter feeders, an essential compartment in the ecosystem model. 2. Records of fisheries abundances, species contributions and water temperatures have been applied in studies on the environmental impact of a proposed power plant in Narragansett Bay. These records are also being used as background information on the life history and ecology of sport fishes.

Accomplishments during past twelve months: 1. The marsh fishes Fundulus majalis and F. heteroclitus have a diet that is composed of five parts detritus to one part live, invertebrate tissue (Palaemonetes pugio). 2. Juvenile menhaden appear to ingest more detritus the further they move into an estuary. 3. There is a 6-year cycle of abundance in the winter flounder population of Narragansett Bay; the cycle is related to small changes in mean water temperature. 4. Abundances of the winter flounder and lobster in Narragansett Bay are positively correlated.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SI NO
GBP-49-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY | AGENCY NUMBER(S)

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

2-35190

TITLE OF PROJECT

ANALYTICAL PHYSICAL MODEL

PRINCIPAL INVESTIGATOR(S) | INVESTIGATOR'S AGENCY

FM WHITE OCEAN ENGINEERING

PERFORMING AGENCY | PERIOD FOR THIS NRP

UNIV. OF RHODE ISLAND
SCHOOL OF ENGINEERING
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

7/72 TO 6/73
FY73 FUNDS $21,935

SUMMARY OF WORK

Objectives: The objective of this project is to develop and verify a mathematical computer model which has the capability of predicting the spatial and temporal variations of the physical characteristics of Narragansett Bay. When completed, this model should be able to compute, at any time in the past or future and at any point in the Bay, the tidal heights, current salinity, temperature, and certain chemical species concentrations, notably dissolved oxygen. The model will also be able to take account of proposed changes in the dynamics of the Bay, such as hurricane barriers, thermal discharges, sewage outfalls, and channel dredging, with a view toward its use in decision-making and management of Narragansett Bay. The experimental verification of the model is being provided by the Bay Watch program.

How information will be applied: the information derived from this model has three primary uses: 1) to aid in Bay management by providing design studies of proposed physical changes; 2) to provide detailed predictions of the physical state of the Bay, in the past or in the future, for use in coordinating experimentation in the Bay; and 3) to provide physical parameters for use with the associated biological and socio-economic models being prepared under other projects associated with the Systems Model Studies.

Accomplishments during past twelve months: 1. The depth-averaged tidal model has been used in the following important applications: a) revised current charts for the Bay; b) hurricane surges; c) drifting trajectories and flushing times for the Bay; d) motion of oil spills in the Bay; and e) net flow rates at various key points in the Bay. 2. The depth-averaged salinity model is now being applied to dye study problems. 3. The temperature model is now being applied to the proposed Rome Point power plant. 4. The laterally-averaged, water-quality model has been completed and successfully compared to dissolved oxygen and biochemical oxygen demand data from the Bay. 5. A finite-element model for rapid calculations of physical and biological parameters in the Bay is now being developed, in cooperation with the Systems Ecology Project.

For additional information pertaining to this project contact Dr.

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SIE NO.
GBP-1026

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35190

TITLE OF PROJECT:
ECONOMIC ASPECTS OF MULTIPLE USE COASTAL ZONE PLANNING

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
P MLOTOK RESOURCE ECONOMICS

RECIPIENT INSTITUTION
UNIV. OF RHODE ISLAND
GRADUATE SCHOOL
GREEN HALL
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP,
7/72 TO 6/73
FY73 FUNDS $20,075

SUMMARY OF PROJECT

Objectives: To evaluate the economic costs and benefits arising from the various uses of the coastal zone, to determine the manner in which these uses conflict, and to develop an economic framework for analyzing how these conflicts should be resolved. Specifically, for the next two years, the work will concentrate jointly with other studies on the institutional aspects of waste disposal in Narragansett Bay.

How information will be applied: The information and analytical framework developed in this study will be of direct use to planning bodies (such as the new Rhode Island Marine Resources Council), which have to make regular working decisions to resolve multiple conflicting demands upon scarce coastal zone resources.

Accomplishments during the past twelve months: A study of the economic impact which a proposed nuclear power plant would have on N. Kingston, R.I., and on users of adjacent coastal waters is nearing completion. Plans for a study of the institutional aspects of waste disposal in Narragansett Bay have been formulated and the study will be commenced upon completion of the power plant study.

For additional information pertaining to this project contact Dr. Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

Connecticut

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

AGENCY'S NUMBER(S):

TITLE OF PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT

GBP-49-2 (CONTINUED)

Niels Rorholm, Coordinator, Sea Grant Programs, University of Rhode Island, Kingston, Rhode Island 02881.

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SIE NO
GY-59386-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
CONNECTICUT STORRS

AGENCY'S NUMBER(S)
0059386
CONS00424
SUBGROUP H
CSRSCONS0000000000

TITLE OF PROJECT
COMMUNITY SERVICES FOR NONMETROPOLITAN PEOPLE IN THE NORTHEAST

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
DEWEY A W

KIND A AWARD
DATE SP01 DISTR

RECIPIENT'S INSTITUTION
UNIV OF CONNECTICUT
AGRI ECONOMICS DEPT.
AGRICULTURAL EXPER. STATION
STORRS CONNECTICUT 06268

PERIOD FOR THIS NRP
BEG 71 0401 END 750731
FY 74 FUNDS 00000000
50511417

SUMMARY OF PROJECT

OBJECTIVE: Identify alternative institutional arrangements for the delivery of community services and to estimate the political, social, and economic consequences of these alternatives.

APPROACH: Using uniform regional procedures, collect secondary data on services of central importance to rural development throughout the region. Select localities of variable population change patterns in the region and describe selected services within these in terms of organization, quality, financing, accessibility and mix of services. Use appropriatestatistical and othertechniques for comparative macro- and micro-analysis of quantitative and qualitative data to isolate factors that could be manipulated to improve services. On thebasis of theory, literature and available data, identity existing and potential institutional arrangements in the region for delivery of selected services. Analyze each alternative arrangement in terms of benefits/costs, efficiency of production and representation of various groups of citizens and efficiency in reconciling conflicting views and values.

PROGRESS: In attacking the regional concerns on the nature and availability of personal health services, 1967 and 1970 county data for Connecticut wereupdated to 1971 and reanalyzed by comprehensive health planning districts. Physical facilities of non-metropolitan general hospitals and nursing homes are increasing significantly. Numbers of nursing homes, however, are declining. To an increasing extent, new and larger nursing homes are being owned and managed in groups rather than singlely such that the health care organizational structure for nursing homes is becoming more oligarchical. For the housing component of the regional project, 1960 and 1970 tabulated census data by counties in Connecticut were checked prior to publication in the forthcoming regional report orr housing.

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U RAL-COMMUNITIES COMMUNITY-SERVICES RURAL-DEVELOPMENT DELIVERY SOCIOLOGY "
016010 INSTITUTIONS COSTS-BENEFITS RURAL-AREAS FINANCE

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SIE NO

Z UA-2119-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):

3-9510-00521

TITLE OF PROJECT:

CONNECTICUT VALLEY URBAN AREA PROJECT

PRINCIPALINVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

LR PAGE

RECIPIENT INSTITUTION:

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
BOSTON, MASSACHUSETTS 02203

PERIOD FOR THIS NRP.

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

States to which project pertains: Conn., Mass., Vt., & N.H.

The Connecticut Valley Urban Area Project is one of several U.S.G.S. projects undertaken to demonstrate the importance and usefulness of natural resource information in planning for the development and management of land and water resources. The project area is more than 5000 square miles and extends from latitude 43 degrees in southern Vermont and New Hampshire southward to Long Island Sound, between longitude 72 degrees 7 1/2' and 73 degrees. The boundaries coincide with those of 7 1/2-minute topographic quadrangle maps because most of the geologic and hydrologic data are compiled on this base. Also, this base permits various combinations of natural-resources maps to be used as overlays at a common scale.

The project is designed to meet a variety of needs for earth-resource information in planning and resource management, but should not be considered a substitute for detailed site investigations. Natural-resource data will be presented at two scales: 1:24,000 (one inch equals 2000 feet) and 1:125,000 (one inch equals approximately two miles), for local and regional use, respectively. The 1:24,000-scale maps are available on paper and also on transparent, scale-stable base to accommodate use of the maps as overlays. The 1:125,000-scale maps will be compiled as final products of the project and will be accompanied by an orthophoto mosaic map of the entire project area at 1:125,000 scale.

Because the earth-resource maps will be used for planners and educators (predominantly by non-technically oriented users), simplified earth-resource maps are being prepared. For the non-geologist, standard geologic and hydrologic maps are commonly too complex and too technical because of the scientific vocabulary, the detailed symbolism, and the fact that several levels of spatial and conceptual information are presented on a single sheet of paper. CVUAP maps separate these levels of information, presenting them as simplified, single-subject resource maps, consistent with the scientific integrity of the original product, but more readily useable by the general public.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(s)

133-007B

TITLE OF PROJECT

ECOLOGICAL FACTORS AFFECTING REPRODUCTION OF SHELLFISH (PHYSIO-ECOLOGY OF SHELLFISH PROGRAM)

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT·SPECIALTY

HC DAVIS BIOLOGICAL LABORATORY
A CALABRESE

RECIPIENT INSTITUTION

U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
MILFORD, CONNECTICUT 06460

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

This project has developed largely in an attempt to discover the origin and distribution pattern of the oyster larvae that set in Long Island Sound. Studies of the intensity of setting in the Bridgeport-Milford-New Haven area have shown that, while certain sections are more likely to get a heavier set than others, setting is usually very spotty, i.e., some sections may get a heavy set while nearby sections receive almost none at all. Plankton samples have shown that, even during the spawning season, oyster larvae are not numerous and that the earlier stages, 75-250 microns in length, are rarely encountered, The 250-325 micron larvae appear suddenly in the plankton samples and setting starts immediately.

At present we are attempting to locate the "nursery areas" where these larvae develop to the 250-325 micron stage before they appear in Long Island Sound. Once these "nursery areas" have been discovered, we shall attempt to determine the attributes that enable the larvae to develop there and to increase recruitment by replenishing the spawning stock in these areas. ISG

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GY-56027-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
~~U. S. DEPARTMENT OF AGRICULTURE~~
STATE AGRIC EXPT STATION
CONNECTICUT NEW HAVEN

AGENCY'S NUMBER(S):
0056027
CONN00732
SUBGROUP S
SAESCONN0000000000

TITLE OF PROJECT
NUTRIENT EXCHANGE IN RIVERS AND LAKES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

FRINK C R

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION
CONNECTICUT AG EXP STATION
SOIL & WATER SCIENCE

PERIOD FOR THIS NRP:
BEG 691024 END 721023
FY 74 FUNDS 00000000

NEW HAVEN CONNECTICUT 06504 00006160 SUB

SUMMARY OF PROJECT

OBJECTIVE: Determine the contribution of nutrient ions to waterways from woodlands, farms, homes, and cities, and its division water, sediments plants and outflow from a lake.

APPROACH: Monitor water volume and concentration of nutrients entering and leaving impoundments on the Housatonic River.

PROGRESS: A computer model has been develcped to predict water flow in a 33-mile stretch of the Housatonic River. Allowance is made for varying retention times in the two impoundments and the pump-storage reservoir located within this section of the river. Estimates of run off from the ungaged portion of the watershed have also been derived. On an annual basis, the predicted flow agrees closely with the gaged flow at the downstream end of the stretch under study. On a daily or even weekly basis, however, large and unexplainable discrepancies occur between predicted and observed flew. Bank storage is not large enough to account for this discrepancy, and ether possible sources of error are under investigation.

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)21001 00000000

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

720403
CONTRACT
028520430

A STUDY OF THE MIGRATORY BEHAVIOR OF AMERICAN SHAD

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

RA JONES

RECIPIENTINSTITUTION

STATE BOARD OF FISH. & GAME
STATE OFFICE BLDG.
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS $11,000

SUMMARY OF PROJECT

Technical Objective: To investigate the orientation and migratory behavior of shad in Long Island Sound and at the mouth ofthe Connecticut River. To learn the role of olfaction and vision in orientation and horning. To investigate behavior patterns in the lower Connecticut River in relation to osmoregulation.

Approach: Shad will be marked with either dart tags or sonic tags. Some individual fish will have sonic tags inserted in their stomachs and their movementsmonitoredwith heat-mounted receivers In an effort to determine the migration rattern of schools, many fish will be marked with the simpler, more easily applied, dart tags.

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SIE NO.
ZUA-2931

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):

CT 62-012

TITLE OF PROJECT:

SMALL STREAM FLOOD CHARACTERISTICS

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

MD THOMAS WATER RESOURCES DIVISION

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
HARTFORD, CONNECTICUT

PERIOD FOR THIS NRP:

7 / 7 2 TO 6/73
FY73 FUNDS $8,000

SUMMARY OF PROJECT

Records of streamflow are relatively plentiful on medium sized and larger streams in Connecticut. However, records on small streams especially those below 10 square miles, are extremely limited. There is an immediate need for information on the magnitude and frequency of flood stages and discharges on these areas. Project should contunue until at least 10 years of record have been completed.

To provide flood flow information at many new sites in Connecticut on streams with small drainage areas. Use this information to supplement similar information at other long-term continuous records to improve or develop a new "flood-flow formula for Connecticut" based on basin characteristics.

Establish and maintain a crest-stage gage network throughout Connecticut and prepare a stage-discharge rating for each station. Analyze records of annual peak discharges with respect to frequecy, regional characteristics, drainage areas, slopes and other drainage basin characteristics. Information on low flow will also be collected systematicaly at each site.

Partial duration series of food peaks were compiled for 45 CSI stations. Flood frequency curves were plotted for all stations through 1971. Flood- frequency analysis was made based on drainage basin characteristics.

Continue compilation of partial duration series of flood peaks for 45 CSI stations; plotting of flood frequency curves for all stations through 1972; flood-frequency analysis based on drainage basin characteristics.

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SIE NO
GBP-1193

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S).
CONTRACT
028520479

A STUDY OF WEIGHT LOSS IN AMERICAN SHAD DURING THE FRESHWATER MIGRATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT SPECIALTY
WC IEGGETT

RECIPIENT INSTITUTION
ESSEX MARINE LABORATORY INC.
ESSEX, CONNECTICUT 06426

PERIOD FOR THIS NRP
7/72 TO 6/73
FY73 FUNDS $45,000

Objectives - To examine the weight loss in adult American shad during the freshwater spawning migration in the Connecticut River, from the time of their entry into the river, to their return to Long Island Sound following spawning. To determine the source and extent of this weight loss from various body parts, and to classify this loss as to percent fat, carbohydrate, protein, etc. To assess the significance of this weight loss in terms of total available reserves at the time of entry into the Connecticut River. To relate the potential energy available from utilization of these stored reserves to the work done during migration in an effort to estimate the efficiency of the spawning migration.

Procedures - Weight loss will be determined by comparing fish of like sex, length and age caught at various stages of the freshwater migration. Individual variation in weight per given sex, length and age will be determined by comparing specimens collected in Long Island Sound prior to their entry into the river. Classification of the components of the weight loss will be accomplished by standard chemical techniques. Enemy equivalents of the consumed reserves will be calculated, and these values will be related to estimates of work required for the spawning migration in an attempt to determine the efficiency of migration and the maximum migration possible under existing environmental conditions.

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SIE NO.
GQN-525215-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
NAVY

AGENCY'S NUMBER(S):
DN525215
CONTRACT
NONR-4750(00)

TITLE OF PROJECT:
NAVY ENVIRONMENT - LOAN OF EQUIPMENT TO UNIVERSITY OF CONNECTICUT FOR PHYSICAL, CHEMICAL AND GEOLOGICAL OCEANOGRAPHIC RESEARCH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
P DEHLINGER GEOLOGY & GEOGRAPHY
W LUND

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF LIBERAL ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $44,989

SUMMARY OF PROJECT:

A knowledge of the dispersal of sediments and pollutants in estuarine environments is important to the proper design of harbor installations and to the bottom placement of man-made objects. Knowledge of this kind is being acquired under this research task in the Long Island Sound area.

The University of Connecticut has for some years operated a small marine research laboratory at Noank, Connecticut and has provided instruction in marine biology. They have now formed a marine sciences institute to provide graduate student training and to conduct research in all fields of marine science. Already they have acquired two buildings at Avery Point (Groton, Connecticut), acquired several small boats, and begun expansion of staff and faculty. Plans over the next five to seven years are to add about 20 faculty members plus associated supporting staff. Copies of reports or publications by institute members who use any of the Navy equipment loaned them will be submitted to ONR.

Supporting Agency Address Information: Office of Naval Research 480D, Arlington, Va. 22217.

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SIE NO
GSQ-427

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL. SCIENCE FOUNDATION
DIV. OF ENV. SYSTEMS & RESOU.

AGENCY S NUMB ER(S)

GI-36580

TITLE OF PROJECT:

THE IMPACT OF ECONOMIC DEVELOPMENT AND LAND UTILIZATION POLICIES ON THE QUALITY OF THE ENVIRONMENT WITH INITIAL APPLICATION TO NEW ENGLAND

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY:

GD ROBINSON

RECIPIENT INSTITUTION

CENTER FOR ENVIRON. & MAN INC.
HARTFORD, CONNECTICUT 06120

PERIOD FOR THIS NRP

12/72 TO 1/74
FY73 FUNDS $248,700

SUMMARY OF PROJECT

A methodology for assessing the environmental consequences of alternative plans and policies that affect regional economic development, Population growth, and the quality of the environment will be developed and tested in a two-phased program. Only the first phase is to be conducted in this study.

The research proposed for phase I involves the development of: (1) a regional industrial interaction model, (2) residuals coefficients for those industrial, household, and governmental activities which generate significant amounts of pollutants, (3) a mathematical model of the lower Connecticut River, and (4) adaptations of CEM's existing air quality model by coupling it with outputs or the existing land-air interaction model and by adding the capability to accommodate intrusions of pollutants from boundary regions. Some work will also be done on detailed planning of the Phase II part of the program.

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SIE NO
GSV-3703-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S),
GA-32067

TITLE OF PROJECT:
COMMUNITY TROPHIC STRUCTURE OF ESTUARINE FORAMINIFERA

PRINCIPAL INVESTIGATOR, ASSOCIATESANDDEPARTMENT/SPECIALTY:
L FRANKEL GEOLOGY & GEOGRAPHY

RECIPIENT INSTITUTION
UNIV. OF CONNECTICUT
SCHOOL OF ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP
12/72 TO 11/73
FY73 FUNDS $7,700

SUMMARY OF PROJECT:

The object of this investigation is to determine the structure and trophic relations of foraminifera-containing communities in the nearshore sandy sediments of the marine Poquonock River estuary of southeastern Connecticut.

The "backbone" of the study is a new method of epoxy resin impregnation of sediments which preserves in situ the sedimentation features, interstitial organism distribution, and the protoplasmic materials of micro- and macroorganisms (both plant and animal) without the contractions common in these types of preservations.

The upper six centimeters of thin-sections cut from impregnated sediments collected seasonally from different environmental settings in the Poquonock River estuary will be studied by light microscopy to determine the similarities and differences among foraminifera-rich and foraminifera-poor communities, and try to ascertain why there is an unequal distribution of foraminifera in similar contiguous materials and what constitutes the foraminifera's food supply.

The question of whether shallow water foraminifera are epifaunal or infaunal organisms will also be investigated. The writer's study of thin sections cut from one impregnated Poquonock River core collected in 1969 shows subsurface reproduction in foraminifera; joined foraminifera undergoing gamogony are found from 3 to 34 millimeters below the sediment-water interface.

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SIE NO.
GUN-5243-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)

AFS-5-5-3-R

INTRODUCTION OF COHO SALMON

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,

DRWR WHITWORTH
ALSO WITH UNIV. OF CONNECTICUT (325)

RECIPIENT INSTITUTION.

STATE BOARD OF FISH, & GAME
STATE OFFICE BLDG.
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP,

9/71 TO 6/72
FY72 FUNDS $0

objective: To determine the success of the introduction of coho salmon.

Procedures: Gill nets, trap nets, electro-fishing, fishermen checks and visual observations will be used to capture returning coho salmon. Any coho's taken will be checked for fin clips, weighed, measured and checked for sex and. maturity.

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SIE NO
GUN-8875-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)
AFS-5-6-5

TITLE OF PROJECT
REMOTE TEMPERATURE PROFILES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT SPECIALTY
DR WR WHITWORTH
ALSO WITH UNIV. OF CONNECTICUT

RECIPIENT INSTITUTION
STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP
7/72 TO 6/73
FY73 FUNDS $600

SUMMARY OF PROJECT

Objective: To obtain surface water temperature profiles of the Thames, Quinebaug, Shetucket, Yantic Rivers, their important tributaries, and parts of Long Island and Fishers Island Sounds.

Procedures: A helicopter-mounted Barnes Model PRT-5 plus an A.R.A. 0-1000 millivolt recorder will be used to obtain temperatures on the river system. Eight flights will be scheduled annually, two each in September and October, none in the period December to March, one in the period June to August and one in April, May, and November. This schedule may be modified depending on water conditions and availability of aircraft.

All temperature profiles will be hand drawn rather than using a computer to make the profiles.

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SIE NO.
GUN-5245-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMB ERIS)

AFS-5-6-1

LIMNOLOGICAL AND FISHERIES SURVEY

DR WR WHITWORTH
ALSO WITH UNIV. OF CONNECTICUT

RECIPIENT INSTITUTION

STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $4,500

Objective: To continue the limnological and fisheries survey of the Thames River System.

Procedures: Selected present limnological stations on the Thames, Quinebaug and Shetucket Rivers will be monitored for temperature, oxygen, pH, specific conductance and other parameters including some fish and bottom samples. Special [illegible] will be continued in the upper Thames River where a serious oxygen depression occurs during low water flow conditions. This study will also be expanded to include the Yantic River.

All tributaries and [illegible] will be surveyed to evaluate and measure [illegible]. Potential shad spawning areas on [illegible] will also be measured.

The owners of each [illegible] have been licensed by the Federal Power Commission will be contacted and the following materials and information obtained. 1. Plans showing the dam, gates, power houses, canals, etc. 2. Schedules of normal water usage. 3. Map of lands owned by the owner showing areas to be open for recreational use.

Using this information and the calculated size of the shad and seatrout run, preliminary engineering and hydraulic parameters for fish passage facilities will be calculated.

[illegible]

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SIE NO.
GUN-5244-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

AFS-5-6-2

REXNT'ROI)UCTION OF SHAD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR WR WHITWORTH
ALSO WITH UNIV. OF CONNECTICUT

RECIPIENT INSTITUTION:

STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP,

7/72 TO 6/73
FY73 FUNDS $1,500

SUMMARY OF PROJECT:

Objective: To determine the success of the reintroduction of shad.

Location: Quinebaug River and Thames River.

Prodecures: Shad eggs will be available from the Board and will be placed in special hatching boxes or broadcast in the river. Estimates of mortality will be made and the young will be recaptured using plankton nets, mid-water trawls and small mesh gill nets to determine downstream movements, growth, mortalities associated with passage through power turbines.

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SIE NO
GUN-9706

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBERS:

AFS-4-R-13-4-1

STUDY OF SELECTED PHYSICAL, CHEMICAL, AND BIOLOGICAL FEATURES OF THE CONNECTICUT RIVER BASIN

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

P PINTA

RECIPIENT INSTITUTION

STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $4,800

Objective: Determine periodically the surface water temperatures of the main stem and selected tributaries of the Connecticut River from Old Saybrook, Connecticut, to Wilder, Vermont.

Procedures: Temperature determinations will be obtained with a Barnes Model PRT-5 infrared radiation thermometer and recording equipment mounted on S-46 helicopter owned and operated by the State of Connecticut Dept. of Aeronautics.

Over-flights will be made at altitudes of 100 feet or less on a monthly basis from April through November. One day each month, upriver flights will be made from Saybrook, Connecticut, to the vicinity of Wilder, Vermont. During these flights, the river to Hartford will be crisscrossed using marine navigation aids and man-made structures as reference points. Above Hartford, the flight will be essential midriver using man-made objects and tomographic features as reference points.

After a review of the average temperature Profile at the completion of the upriver flight, a detailed survey will be made at points of temperature rise and depression--such as heat effluents, impoundments and tributaries during the return flight, Certain major tributaries will be surveyed to provide data to correlate with main stem temperature patterns.

Data will be plotted as an average temperature profile along the length of the study area against river miles and man-made features. Detail survey data will be plotted as isotherms in the areas of "interest. Completed temperature information will be utilized as base data for future analysis as regards recommendations to regulatory agencies on location and allowances for heat-producing industries. Data will be used also to provide information on the cause and magnitude of thermal loading from various sources such as steam electric plants, manufacturing operations and solar energy in areas of impoundments and shallows related to hydroelectric operations.

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SIE NO.
GUN-9678

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

AFS-4-R-13-2-1

TITLE OF PROJECT:

EFFECTS OF BARRIERS ON SHAD MIGRATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

P MINTA
ALSO WITH STATE DIV. OF FISHERIES & GAME

RECIPIENT INSTITUTION

STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP,

7/72 TO 6/73
FY73 FUNDS $5,400

SUMMARY OF PROJECT:

Objective: To determine the number of shad passed upstream over Holyoke and the relative abundance reaching Turners Falls Dam versus the number entering the mouth of the river.

Procedures: In 1968, it was reported that shad were present in the Falls River, a tributary to the Connecticut River that enters the main stream immediately below the Turners Falls Dam. In 1964, it was reported that 200 shad were observed below the Cabot Station generating plant at Turners Falls. Observations were made in 1969, 1970, 1971, 1972, and will be continued in 1973. Drift gill nets will be fished at suitable locations downstream of the Cabot Station, in an attempt to better determine the relative abundance of shad below Turners Falls. Completion of this job will depend on suitability of flow conditions during June.

The number of shad lifted over Holyoke Dam will be counted as they are released into the river above the dam. Population estimates, at the mouth of the river, will be made by the Peterson method of capture, mark, and release; and recapture.

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SIE NO
GUW-3188-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S)

A-04 0-CONN

SHELLFISH CULTURE USING THE HEATED EFFLUENT FROM ELECTRIC POWER PLANTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR SY FENG BIOLOGY
GS CAMPBELL

RECIPIENT INSTITUTION

UNIV. OF CONNECTICUT
MARINE SCIENCES INSTITUTE
GROTON, CONNECTICUT 06340

PERIOD FOR THIS NRP

7/72 TO 6/73 MULT. SUPPORT
FY73 FUNDS $4,460

A joint study to be conducted by the Marine Research Laboratory at Noank and the School of Engineering has as its primary objective determination of feasibility of using the heated water discharge by electric power stations to increase the efficiency of shellfish production. If it turns out that the proposed use of the heated water discharged from power plants is not feasible, research will be carried out in order to establish criteria for preventing harmful ecological effects.

This research has an important bearing upon multiple use of water resources because of the large quantities of water committed to nuclear power plant usage. Enchanting the Production of shellfish is, of course, an important consideration for the coastal regions of New England.

Research at the Marine Research Laboratory at Noank, Connecticut will consist of laboratory and field studies of the effect of thermal effluent on oysters. By comparing the metabolic activity and the rate of growth of oysters in heated and unheated waters of the Long Island Sound, the practicality of using the heated effluent can be assessed. The proposed source of the heated seawater is the effluent from the Norwalk fossil-fuel power plant of Northeast Utilities, ISG

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SIE NO
GUG-568-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY.

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBERS:

AFC-6-1

TITLE OF PROJECT:

BEHAVIOR PATTERN OF SHAD IN THE VICINITY OF A HEATED EFFLUENT DURING A NO-HEAT PERIOD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

WC LEGGETT
ALSO WITH STATE BOARD OF FISH. & GAME

RECIPIENT INSTITUTION.

ESSEX MARINE LABORATORY INC.
ESSEX, CONNECTICUT 06426

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Objectives: To use sonic tags to ascertain the migration behavior, especially migration rate, through an area of the Connecticut River with a significant heated effluent during a no-heat period.

Location: Study site will be in the vicinity of the Connecticut Yankee Atomic Power Company (CYAP) outfall at Haddam Neck on the Connecticut River.

Procedures: Shad tagged during Job 1 of this segment will be expected to pass the CYAP outfall area within 5 - 10 days of entering the river. Shore based automatic monitors (described in AFC-1) will be installed at, above and below the outfall area to determine migration rates in this area. After the major tracking effort of Job 1 is accomplished, attempts will be made to track individual fish in the outfall area in order to obtain additional patterns of migration. Data will be processed as in Job 1.

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SIE NO.
GUW-3191-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S).
A-044 -CONN

TITLE OF PROJECT
THE ANALYSIS OF TRITIUM OXIDE FROM SELECTED AREAS OF THE CONNECTICUT RIVER

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY
DM SKAUEN PHARMACEUTICAL SCIENCES

RECIPIENT INSTITUTION
UNIV. OF CONNECTICUT
SCHOOL OF PHARMACY
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP
7/72 TO 6/73 MULT,SUPPORT
FY73 FUNDS $1,100

SUMMARY OF PROJECT

The proposed research plan involves mainly laboratory investigation with a limited amount of field activity with the intent of evaluating and adapting analytical methods for estimation of low-level concentrations of tritium oxide in the Connecticut River.

Laboratory research will be conducted using electrolytic enrichment methods and liquid scintillation counting. Data accumulated from environmental samples will beused as a basis for additional studies in acute and chronic toxicities. It will also be correlated with related hydrologic data.

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GUW-3189-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-041-CONN

TITLE OF PROJECT,
AN IN VESTIGATION OF TURBIDITY IN ESTUARINE WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF WF BOHLEN

RECIPIENT INSTITUTION,
UNIV. OF CONNECTICUT
MARINE SCIENCES INSTITUTE
GROTON, CONNECTICUT 06340

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPOR
FY73 FUNDS $5,275

SUMMARY OF PROJECT:

The clarity of river and estuarine waters or, conversely, their turbidity can serve as an index of the rate and degree of fine sediment transport and biological productivity. To date, the utility of such data within water quality studies has been limited by an imperfect understanding of the relationship between total turbidity and its component parts (i.e., primarily its organic and inorganic constituents) and a lack of instrumentation that would permit in situ detailing of the suspensoid. A program is proposed to examine the relationship between total turbidity and its constituents and to develop the methods and instrumentation capable of providing long-term in situ data in rivers and estuaries.

Drawn samples from selected sites in the Connecticut River will be analyzed in the laboratory to determine the volume concentration and major constituents of the suspended load. These data will be used to establish the design requirements of a nephelometer. The feasibility of combining the principles of light scattering and selective absorption to permit in situ detailing of suspended load characteristics will be studied. Measured light properties obtained in the field will be correlated with the suspended load characteristics obtained in the laboratory to calibrate the instruments and to derive a governing equation. After development, the instrument will be used to map the spatial variations in turbidity near the mouth of the Connecticut River and to monitor the temporal variations on a seasonal scale. ISG

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SIE NO.
YCN-213

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

CONNECTICUT STATE GO VERNMENT

AGENCY'S NUMBER(S):

HOUSATONIC RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR JJ POLUHOWICH BIOLOGY

RECIPIENT INSTITUTION

UNIV. OF BRIDGEPORT
GRA DUATE SCHOOL
285 PARK AVE.
BRIDGE PORT, CONNECTICUT 06602

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS $15,000

SUMMARY OF PROJECT

h survey was conducted in the Summer and Fall of 1970 to determine the characteristics of the water in the Housatonic River Estuary, for a distance of 12 miles between the Derby Dam and Long Island Sound. Water samples taken at weekly intervals at seven stations were analyzed for heavy materials and several anions. Indicators of pollution, such as BOD and bacterial count, were also determined. These data were intended to furnish a base line for a more extensive ecological study, but funds for it were not available.

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SIE NO.
GUW-3394

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
A-052-CONN

TITLE OF PROJECT:
BIOTIC CHANGES IN THE WILLIMANTIC/SHETUCKET RIVER ASSOCIATED WITH IMPROVEMENTS IN SEWAGE TREATMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF WJ WIDMER — CIVIL ENGINEERING
JD BUCK
FR TRAINOR
WR WHITWORTH

UNIV. OF CONNECTICUT
SCHOOL OF ENGINEERING
BOX U-37
STORRS, CONNECTICUT 06268

2/72 TO 1/73
FY72 FUNDS $24,876

SUMMARY OF PROJECT:

The Shetucket River at Willimantic, Conn, has been receiving discharges from the Willimantic sewage treatment plant since 1959, prior to which raw sewage was discharged. This represents the only significant pollution input along the river from Mansfield to Occum, Conn. The city is currently converting its waste treatment method from a plain sedimentation process (primary treatment) to an activated sludge process. The research proposed herein would establish biotic conditions in the river over the coming eighteen months prior to operation on the new plant, and would determine whether desirable improvements in the biotic environment would be realized during the following two years. The information derived from this investigation should be useful not only for its local scientific interest, but also it could serve as a base-line guide for State regulatory agencies and others engaged in stream pollution control. The study would provide a local evaluation of the tentative Provisional Algal Assay Procedure recently proposed by a Joint Industry/ Government Task Force on Eutrophication.

Field collections/observations on benthic and pelagic organisms would be made periodically evaluation. The biota studied would include along the study reach for subsequent laboratory processing, examination, preservation, and evaluation. The biota studied would include bacteria, algae and other micro-forms, various invertebrates, and fish. Related chemical and physical parameters would be measured for correlation with the biological observations. The team for this work will be an interdisciplinary one comprising students and faculty from the Departments/Divisions of Biological Sciences, Civil Engineering, Fisheries Management, and Microbiology at the University of Connecticut.

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SIE NO.
GUW-3790

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMB ERIS):
A-053-CONN

TITLE OF PROJECT
IDENTIFICATION OF STABLE ORGANIC COMPOUNDS IN WASTE EFFLUENTS

PRINCIPAL INVESTIGATOR. ASSOCIATES ANO DEPARTMENT/SPECIALTY
RP COLLINS BIOLOGY

RECIPIENT INSTITUTION
UNIV.OF CONNECTICUT
SCHOOL OF LIBERAL ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
7/72 TO 6./73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

The proposed research plan involves laboratory and field investigations directed at the identification and fate of refractory organic chemicals released in the effluents from waste treatment plants. The effect of chlorine treatment on organic molecules will also be determined,

Laboratory investigations would employ the following methods: 1. Model experiments to test the effect of chlorine on various classes of organic compounds. 2, In vitro testing of these chlorinated compounds to determine their possible toxicity. 3, The development of analytical methods for isolation and Identification of trace amounts of organic materials.

Field investigations would include: 1. The identification of trace organic materials present in the Willimantic River. 2. An attempt to assess the effects of these chemicals on water quality and on the biota of the river.

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SIE NO.
YCN-214

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
CONNECTICUT STATE GOVERNMENT "

AGENCY'S NUMBER(S):

TITLE OF PROJECT
DISEASES OF FISH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WR WHITWORTH ANIMAL DISEASES
RE WOLKE

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF AGRICULTURE
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $42,430

SUMMARY OF PROJECT:

A survey was made of the number of types of diseases and parasites present in fish in the Quinnebaug and Thames rivers between Danielson and New London to evaluate the potential hazards to any non-native fish that might be introduced into these rivers. Initial results indicate that diseases and parasites have minimal effect on the fish in this area, except when environmental conditions are very poor, for example when flow is low and pollutants increase. The numerous slides of normal and disease tissue that were prepared will be available to other investigators.

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SIE NO.
YCN-201=1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

CONNECTICUTSTATE GOVERNMENT

AGENCY'S NUMBER(SI

TITLE OF PROJECT

ANALYTIC STUDY OF COASTAL UPWELLING

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

DR RW GARVINE

RECIPIENT INSTITUTION

UNIV. OF CONNECTICUT
MARINE SCIENCES INSTITUTE
GROTON, CONNECTICUT 06340

PERIOD FOR THIS NRP:

12/71 TO 5/72 TERMINATED
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Support is requested for one year to develop a quantitative theoretical treatment of steady state coastal upwelling. The work will proceed in phases of increasing sophistication. First, the simplest case of the upwelling of homogeneous water of constant depth will be studied. These results will form the basis for the next phase which will be to study the important effects of bottom topography typical of areas on continental shelves, such as that south of New England. Finally, the problem of upwelling of inhomogeneous water (water of variable density) will be initiated. Completion of the third phase will be a major task, and will probably entail work beyond the first year.

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SIE NO.
YCN-211

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
CONNECT I CUT STATE GOVERNMENT

AGENCY'S NUMB ER(S):

TITLE OF PROJECT:
REPRODUCTIVE POTENTIAL OF SHAD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR WC LEGGETT

RECIPIENT INSTITUTION:
ESSEX MARINE LABORATORY INC.
ESSEX, CONNECTICUT 06426

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $6,158

SUMMARY OF PROJECT:

The characteristics of the spawning populations of the American shad in four Atlantic Coast rivers in latitudes from Florida to New Brunswick were studied. The findings support a theory advanced three decades ago, that the characteristics of the spawning populations reflect adaptation to the environment in which they spawn.

The investigator concluded that repeat spawning by Connecticut River shad is important in maintaining the reproductive potential of this stock, and in offsetting short term environmental fluctuations which could otherwise initiate large scale oscillations in reproductive potential. He therefore warns against any significant alteration of the environment that would affect the present reproductive characteristics of the Connecticut River shad.

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SIE NO.
ZBP-184

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY | AGENCY'S NUMB ERIS)

COMMERCE DEPARTMENT — 720159
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE — 0281802

LABORATORY FOR EXPERIMENTAL BIOLOGY, MILFORD, CONNECTICUT

DR JE HANKS
W LANDERS
R UKELES
A LONGWELL
C MACKENZIE

RECIPIENT INSTITUTION | PERIOD FOR THIS NRP.

U.S. DEPT. OF COMMERCE — 7/71 TO 6/72
LAB. FOR EXPERTMENTAL RIOLOGY — FY72 FUNDS $450,000
ROGERS AVE.
MILFORD, CONNECTICUT 06460

SUMMARY OF PROJECT

Objective: To determine the effects of environmental factors, as heavy metals and pesticides, on the marine resources of New England waters, particularly Long Island Sound. This is a part of the cooperative study of marine contaminants coordinated by the North Atlantic Coastal Fisheries Research Center, Sandy Hook, New Jersey.

Approach: a. Experimental studies are conducted to include bioassay of heavy metals and pesticides with egg and larval stages of marine invertebrates; genetic heritability studies for the selective breeding of commercial mollusks; bacteriological and physiological studies with egg,larvae, and juvenile invertebrates related to mortalities, growth and environmental stresses; development of standard rearing methods for coastal invertebrate organisms; and physiological studies with marine phytoplankton, including the development of mass-culture techniques) b. Field studies at a dump site and control area in Long Island Sound to determine pollutants present in the environment and in fish and shellfish tissues and the relationship to fluctuations of abundance and species composition in the Long Island Sound ecosystem.

Progress: a. Experimental results of this recently redirected Program have provided lethal levels for eggs and larvae of the American oyster, C. virginica, for 10 heavy metals. Work in progress will provide similar information for the hard clam, M. mercenaria. b. Samples of several target species have been collected and prepared over the past four months, June-September, 1971, and turned over to other NMFS research groups for chemical and histopathological analysis.

INVESTIGATORS (CONT)
A CALABRESE
W BLOGOSLAWSKI
F THURBERG

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SIE NO.
ZUA-2368

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):

CT-66-016-C

TITLE OF PROJECT:

WATER RESOURCES OF CONNECTICUT - PART 5, LOWER HOUSATONIC RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

UNKNOWN WATER RESOURCES DIVISION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
HARTFORD, CONNECTICUT

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose: This is one part of an overall investigation of water resources of Connecticut authorized by Public Law 594, passed by the legislature in 1959. Funds are provided biennially for the program which is carried out in cooperation with the State Water Resources Commission. This project is the fifth of a series using the river basin approach which will provide the required inventory of the State's water resources. It is geared to the solution of the water problems described in the Council's long-range plan.

Methods: The project will expand the present program of collecting data on surface waters, ground water and water quality to supplement that already available. Data on streamflow and on yield of lakes and ponds will be related to long-term records now on hand. Additional information on ground water will be obtained from wells, test borings, and shallow test holes, geologic mapping, and a study of low-flow characteristics of streams. Water from many of the surface- and ground-water sources will be tested for chemical and physical qualities, and a reconnaissance of sediment in streams during several storm periods will be made.

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SIE NO.
WZ-2288

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NO FORMAL SUPPORT REPORTED

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
Ecological SURVEYS OF ATLANTIC COAST ESTUARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR RJ BENOIT

RECIPIENT INSTITUTION
ECOSCIENCE LABORATORY
NORWICH, CONNECTICUT 06360

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

A variety of brief survey projects including temperature salinity, DO, transparency, suspended sediment, benthos, sediment analyses and in situ bioassays are being carried out in estuaries in Connecticut and New Jersey to assess ecological effects of proposed and on-going public works such as bridge building, and dredging. Data and information records are for the most part proprietary, but could be available on a case-by-case basis.

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SIE NO.
GBP-479-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
028520491

TITLE OF PROJECT:

ESTIMATING THE NUMBER OF RIVER HERRING IN THE CONNECTICUT RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR W LUND

RECIPIENT INSTITUTION:

STATE DEPT. OF ENV, PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $8,000

Technical Objective: To estimate the numbers of herring utilizing the Connecticut River, to obtain additional information on the time and duration when the two species of herring are present in the river, and to determine the possibility of a regulated commercial harvest of these two species.

Approach: During the first year of this new project, a pound net was purchased and set at the mouth of the Connecticut River. The net did fish very well and large numbers of river herring were easily captured. The techniques were developed for removing fish from the net and for mass marking the fish with a visible pigment. It was established that a tag and recapture study on river herring in the Connecticut River is possible.

The proposed plan is to conduct a mark and recapture study on river herring in the Connecticut River to estimate the total numbers utlizing the river as a spawning area and to gather some insight into the movements of herring within the river. Fish will be marked at the pound net and recaptured up river by means of trap nets and seins. It will then be possible to estimate the numbers of fish in the river and gain an insight into the movements within the river by recapturing marked individuals. Trap nets and seines will be fished at the stations established during the previous study on the life histories of the alewife and blueback herring. An exact sampling plan cannot be presented as it is not known how the two species move in the river.

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SIE NO.
GSV-3703-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S)
GA-32067A1

TITLE OF PROJECT:
COMMUNITY TROPHIC STRUCTURE OF ESTUARINE FORAMINIFERA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
L FRANKEL GEOLOGY & GEOGRAPHY

RECIPIENT INSTITUTION
UNIV. OF CONNECTICUT
SCHOOL OF ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
12/73 TO 11/74
FY74 FUNDS $8,000

SUMMARY OF PROJECT

The object of this investigation is determining the structure and trophic relations of foraminifera - containing communities within the nearshore sandy sediments of estuaries in south-eastern Connecticut. Problems of foraminiferal habitat, habit, spacing, and potential food in interstitial spaces will be approached through the method of epoxy resin impregnation of sediment cores. This technique preserves in situ the sediment features, interstitial organism distribution, and the protoplasmic materials of micro- and macroorganisms.

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SIE NO.
GMA-182

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
16010 ELC

TITLE OF PROJECT:
UTILIZATION OF ORGANIC COMPOUNDS BY ALGAE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF FR TRAINOR BIOLOGICAL SCIENCES
H ROWLAND

RECIPIENT INSTITUTION:
UNIV. OF CONNECTICUT
SCHOOL OF LIBERAL ARTS
STORRS, CONNECTICUT 06268

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS $23,828

SUMMARY OF PROJECT

We will determine the role of organic matter in the growth of algae isolated from Connecticut waters. When algae are studied in culture, usually organic compounds are not supplied in the medium, unless there is an absolute requirement. Thus, considerable information on growth in inorganic media has developed, but we know little about the range and effects of organic compounds utilized by some common algae. Do organics have a role in heterotrophic growth, development of form, serve as buffers, chelators?

We have isolated into culture and have initiated studies of a variety of algae from the Connecticut and Willimantic Rivers and know of groups of compounds found in natural waters or liberated by algae. Under a variety of conditions we are determining whether these compounds (some of which were directly secreted by algae) can be important sources of energy for the organisms, especially when substrate concentrations are low, as in nature. By frequent transfer of cultures, we can work at low levels, avoid drastic changes in cell number, shading, inorganic mineral deficiency, etc.

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SIE NO
AQ-811

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
NORTHEAST UTILITIES SERV. CO.

AGENCY'S NUMBER(S)

TITLE OF PROJECT
FACTORS NECESSARY FOR RE-ESTABLISHMENT OF FISH RUNS IN THE CONNECTICUT RIVER

PRINCIPAL INVESTIGATOR(S) AND DEPARTMENT SPECIALTY
UNKNOWN

PERFORMING ORGANIZATION
NORTHEAST UTILITIES SERV. CO.
176 CUMBERLAND AVE.
HARTFORD, CONNECTICUT 06101

PERIOD FOR THIS RPP
?/73 TO 6/74
FY74 FUNDS UNKNOWN

START DATE

Description: Determine factors necessary for reestablishment of anadromous fish runs in the Connecticut River.

Address for correspondence W.A. Greten, 176 Cumberland Avenue, Wetherlands, CT 06101.

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SIE NO.
GPE-5014-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
BER-74-116
CONTRACT
AT(11-1)-3573

TITLE OF PROJECT:
TRACE ELEMENTS IN NATURAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROFKK TUREKIAN GEOLOGY & GEOPHYSICS
J THOMSON

RECIPIENT INSTITUTION:
YALE UNIVERSITY
SCHOOL OF ARTS
206 ELM
NEW HAVEN, CONNECTICUT 06520

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS $35,000

SUMMARY OF PROJECT:

We will concentrate all our efforts in this grant during the next few years on the problems of metal transport by streams and their fate in estuaries. The importance of this information to problems of metal pollution and the fate of reactor generated radionuclides is self-evident. We have four areas of research that are now being pursued under AEC aegis and we plan to bring them to successful conclusions in the next few years: 1. The fates of iron and manganese in an estuary, Long Island Sound, and the consequences for the trace metal regimes in estuaries. 2. The natural and man-induced controls on the chemistry of a major river system, the Susquehanna, and the supply of metals to the coastal ocean. 3. Pb210 dating of salt marsh deposits. 4. The horizontal and vertical distribution of pu239 in Long Island Sound sediments.

Results: Logistic preparations for the sampling activities in estuaries and streams were made and preliminary analytical techniques for Fe and Mn determinations in natural waters were tried. The detailed chronologic study of estuarine deposits such as bottom sediments and salt marsh deposits were continued using Pb210 and other natural radionuclides. The papers on mercury in New Haven harbor sediments and the mechanism of molybdenum deposition announced in press in the last progress report have been published and similarly the papers on trace elements in pteropods and plankton, and molybdenum in marine deposits are due to appear in journals before July 1, 1973.

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SIE NO
GH-10924

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL. AERONAUTICS & SPACE ADM.
OTH ER UNKNOWN OFFICE
MISCELLANEOUS UNITS

AGE NCY'S NUMB ERIS)

CONTRACT
NAS 5-21792

TITLE OF PROJECT

AN INTERDISCIPLINARY STUDY OF THE ESTUARINE AND COASTAL 0CEAN0GRAPH% OF BLOCK ISLAND SOUND AND ADJACENT NEW YORK COASTAL WATERS

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

DR R HOLLMAN
ALSO WITH LONG ISLAND 1JNXVERSIT%

RECIPIENT INSTITUTION

NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 1.1954

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

An interdisciplinary study of the physical, chemical, and biological relationships of Block Island Sound and coastal waters is currently being conducted using shipboard sampling techniques. Preliminary studies to date have indicated tne presence of unexpected large color differences which are believed to be related to circulation and water mass characteristics,nutrients, tracemetal, and the organic content of the water as well as to the quantity cf phytoplankton present.

Itis proposed to use the ERTS-A RBV and MSS imagery and to perform a Skylab EREP experiment using the S190 multispectralcamera, S191 IR spectrometer, and the S192 multispectral scanner to support and extend this shipboard study. The imagery obtained from these experiments will be analyzed using additive color viewingequipment,density slicing-masking techniques,and computer Classification programs. These data will be correlated with the results of shipboard sampling and in situ spectra using multiple regression techniques.

It is expected that the ERIS and Skylab space-acquired data will significantly contribute to this state-supported program by providing synoptic repetitive coverage of the Block Island Sound and adjacent coastal waters. Particularly the tidal and seasonal affects on dynamic variation in the interaction between, as well as changes within, water masses will he invaluable in understanding tne coastal environment sufficiently to manage this irreplaceable resource which is being rapidly depleted.

New York

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GBP-1292

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEAN IC & ATM, AD MIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S)

PRODUCTION OF A PRELIMINARY NEW YORK BIGHT ENVIRONMENTAL ATLAS - PHASE . OMPILATION AND EDITORIAL REVIEW

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

DF SQUIRES
JM HOPKINS

RECIPIENT INSTITUTION

STATE UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
1400 WASHINGTON AVE.
ALBANY, NEW YORK 12203

PERIOD FOR THIS NRP.

5/73 TO 6/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

The objectives of the proposed work are to provide the MESA program, its New York Bight Project Office, and the community of decision-makers and concerned citizens in the New York Bight region with interim information on the environment of that region, pending the completion of the New York Bight project. These objectives are to be met in the production of a summary statement of current knowledge, based upon existing data, of environmental factors in the New York Bight presented in the format of an atlas consisting of graphics necessary for explication of data and accompanying text. The text and graphics are to be prepared by a panel of experienced authorities in various subject areas under the guidance of and according to standards set by the grantee in consultation with the MESA Program Office.

Specifically, the objectives of the task described herein are: 1) To provide the MESA Program's New York Bight Project Office with background statements of status of knowledge and of existence of data by experienced authorities as a basis for Project planning by the Office. 2) To develop syntheses of the state of knowledge and interpretation of existing data as text for a "Preliminary New York Bight Environmental Atlas". 3) To develop appropriate graphics to explicate the text and to clarify for nontechnical users of the atlas the significance and the interpretation of existing data. 4) To provide the MESA Program Office with guidance for Phase II of the project (not covered by the present proposal) which is to be the publication of both graphics and text, and their distribution. The overall goal of the atlas will be to provide an inventory of biophysical resources, indicate sensitive environmental area, provide an overview of the complicated interrelationships within and between the marine and coastal ecosystems, and indicate planning priorities.

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SIE NO.
GBP-1296

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
03-3-043-50

TITLE OF PROJECT:
PHYSICAL-CHEMICAL ANALYSES OF SEDIMENTS FROM THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR AE COK EARTH SCIENCES'

RECIPIENT INSTITUTION
ADELPHI UNIVERSITY
SCHOOL OF ARTS
SOUTH AVE.
GARDEN CITY, NEW YORK 11530

PERIOD FOR THIS NRP:
6/73 TO 5/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The results of this study will provide information and insight necessary for sediment size and characteristics interpretation and correlation with other ongoing in-house and outside contractual research projects. With this information, we will be able to develop an environmental monitoring prediction system based on what organisms exist in these waters at the present and what changes are noted in any subsequent analysis of the area. It will give us factual information to use in our analysis of the effects of man-induced changes in the marine environment.

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SIE NO.
GBP-1207

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S),

CONTRACT
028520494

TITLE OF PROJECT

A STUDY OF STRIPED BASS IN THE MARINE DISTRICT OF NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

UNKNOWN ENVIRONMENTAL CONSERVATION

RECIPIENT INSTITUTION

STATE UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
STONY BROOK, NEW YORK 11790

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $21,500

SUMMARY OF PROJECT

Technical Objective: To hire the Conservation Biologist, marine resources technicians, stenographer, graduate assistants and statistical advisor. To purchase the equipment and supplies necessary to carry out the studies which will get underway in the field on 4/1/73. To survey the location where the studies will be undertaken so that field operations will be run efficiently.

Approach: Recruitment of qualified personnel will be performed in accordance with the regulations set forth by the New York State Department of Civil Service. Until such time as project personnel are actually employed, the ordering of necessary supplies, materials and equipment will be carried out by supervisory personnel of the Bureau of Marine Research. The project personnel will travel to various areas of the Hudson River to locate suitable seining sites for the collection of young striped bass. Also, the personnel will travel to eastern Long Island to make arrangements with commercial haul seiners so that adult striped bass may be obtained for tagging purposes. The area in which the creel census will be conducted will be determined by project personnel after they have visited eastern Long Island and have noted the marinas, boat launching sites and beach locations from which sport fishermen attempt to catch striped bass. Statistical advice will be obtained from a professional bio-statistician who has had experience in creel census studies. Although not collected through direct effort of this project, all information relative to the commercial landings of striped bass will be reviewed by project personnel.

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SIE NO.
GBP-1286

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
281803

TITLE OF PROJECT:
MESA/ECOSYSTEMS INVESTIGATIONS - PHYSICAL-CHEMICAL ANALYSES OF SEDIMENTS FROM THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY!
DR A COK EARTH SCIENCES

RECIPIENT INSTITUTION:
ADELPHI UNIVERSITY
SCHOOL OF ARTS
SOUTH AVE.
GARDEN CITY, NEW YORK 11530

PERIOD FOR THIS NRP,
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: Provide (1) chemical and physical analyses of up to 1000 samples of bottom sediments taken from the apex of the New York Bight, and (2) information and insight necessary for sediment size and characteristics interpretations and for correlations with complementary in-house research findings.

Approach: Coordinate work with macrobenthic studies (MESA) underway at Sandy Hook Laboratory, MACFC, and NOAA/AOML. Samples to be obtained by grab or gravity corer by Sandy Hook Laboratory and supplied to contractor.

Progress: Detailed planning developed by TDP (NMFS) and MESA.

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SIE NO.
GBP-1058

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35281

STUDY OF EXCHANGE OF NUTRIENTS AND SALINITY BETWEEN EAST RIVER AND LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

JD LONGOBARDI
D EPSTEIN
J PESCATORE

RECIPIENT INSTITUTION

STATE UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
1400 WASHINGTON AVE.
ALBANY, NEW YORK 12203

PERIOD FOR THIS NRP.
10/72 TO 9/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

Objectives: The objective of this project is to determine the exchange of salt and nutrients between the East River and Long Island Sound through the line extending from Throggs Neck to Willets Point. The program will run for a year and thus the results will represent the exchange of salt and nutrients on an annual basis.

How information will be applied: Information derived from this project will be utilized by related Sea Grant Projects. The City of New York and the interstate Sanitation Commission are interested in the research results for utilization in planning sewage outfalls projected for the East River region.

Accomplishments during past twelve months: Preliminary analyses suggestthatdetermination of the exchange between western Long Island Sound and the East River can be achieved by the methods of this research.

For additional information pertaining to this project contact Dr. Donald F. Squires, Director, New York State Sea Grant Program, State University of New York, Albany, New York I,2210.

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SIE NO.
GBP-1195

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
028520578

STUDY OF SETTING, ATTACHMENT AND GROWTH OF CODIUM FRAGILE ON SHELLFISH IN LONG ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RE FOX

RECIPIENT INSTITUTION:

STATE DEPT. OF ENV. CONSERV.
4175 VETERANS MEMORIAL HWY.
RONKONKOMA, NEW YORK 11779

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $10,150

Objectives - Determination of necessary conditions for successful attachment of Codium macrospores to shellfish. Laboratory culture experiments with germling stages. Determine depth survival limits for three different age groups of Codium plants for use as a possible control measure. Preparation of final report.

Procedures - Determine yearly cycle of macrospore viability. Viability will be determined by inoculating enriched culture media with spores obtained by inducement from field collected adult thalli.

Place suitable substrates along gradients of an established population to determine probable range of successful macrospore germination.

Correlate ecological conditions including micronutrients, physical and chemical factors and meteorological conditions to observed population dynamics. Water quality measurements, undertaken for the past several years, will be continued in this phase.

Employ variations of temperature, salinity, light intensity and nutrient concentrations of culture media. Corresponding primary production rates would be determined using radio-isotope tracer techniques. Corresponding chlorophyll types and amounts would be determined using spectrophotometric methods.

Each station would consist of two year plants, one year plants and germling stages all attached to natural substrates.

At two week intervals the following data would be collected for each station: increase in length, light intensity, turbidity and extensive chemical and physical water analysis.

Thorough analysis of data collected for duration of project, preparation of some segments of project for publication.

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SIE NO.
GBP-489-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCYS NUMBER(S)

CONTRACT
028520250

POND CULTURE OF OYSTER SEED IN A CONTROLLED NATURAL ENVIRONMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES ANDDEPARTMENT/SPECIALTY:

AR BRAND

RECIPIENT INSTITUTION

STATE DIV. OF MARINE RESOURCES
RONKONKOMA, NEW YORK 11779

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $30,000

SUMMARY OF PROJECT

Objectives! To determine the potential of Oyster Pond as a nursery area for juvenile oysters, both natural and introduced set, by providing a relatively Predator-free environment for seed oyster growth.

To determine the potential of Oyster Pond, a natural salt pond located in the Town of East Hampton on the fork of eastern Long Island, for development as a Sustained source of oyster seed. Oyster Pond is owned and controlled by the Long Island State Park Commission and irregularly experiences a. natural set of oysters.

Procedures: Natural shell cultch will be prepared and suspended from rafts in the pond in accordance with the timing of natural and/or conditioned spawning of the oyster stocks involved. A spawning stock of Long Island Sound oysters will be purchased and introduced into the pond to supplement and strengthen native oyster spawning. Conditions favorably effecting spawning and larval success will be previded insofar as possible. Biological, physical and chemical characteristics of Oyster Pond will be regularly sampled and analysed for comparison with accumulated data, for determination of spawning intensity and for timing of cultch exposure. Oyster seed obtained during Prior project segments will be monitored for growth and development.

Natural and introduced oyster set will be suspended from rafts and placed on hard bottom in Oyster Pond during the warm-water months.

The oyster set will be observed periodically during the growing season for growth and survival data which will be recorded.

Prior to the next growing season, the juvenile oysters will be removed from Oyster Pond and placed on natural bottom in East Hampton Town waters to contribute to the reestablishment of once-productive oyster habitat and to make these oysters available for public harvesting.

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GBP-771

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
03-3-043-35

SUBLITTORAL MEIOBENTHOS OF THE NEW YORK METROPOLITAN REGION - LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JH TIETJEN BIOLOGY
CM REDMAN

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
SCHOOL OF LIBERAL ARTS
139TH ST. & CONVENT AVE.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP
3/73 TO 2/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The ecology and distribution of the sublittoral meiobenthos occurring in the sediments occurring in Long Island Sound will be studied. During the period of this project emphasis will be placed on ascertaining the quantitative distribution of the meiofauna population densities and biomass in the region. The relationships between the spatial distribution of the meiofauna and sediments will be examined. Seasonal fluctuations in meiofauna population densities will also be examined. These studies will be integrated with concurrent benthic macrofaunal studies underway at the Sandy Hook Marine Laboratory, and will attempt to evaluate the effects of major environmental stresses upon benthic macro- and meiofauna. Detailed investigation of the dominant meiofaunal taxon, the free-living nematodes, will commence during the period of investigation.

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SIE NO.
AP-565

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY.
LONG ISLAND LIGHTING COMPANY

AGENCY'S NUMBER(S):

TITLE OF PROJECT
PRE-OPERATIONAL AQUATIC STUDIES - SHOREHAM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
UN KNOWN

RECIPIENT INSTITUTION
LONG ISLAND LIGHTING COM PANY
175 E. OLD COUNTRY RD.
HI CKSVILLE, NEW YORK 11801

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT.

Description: These studies are directed at investigating the many unknown factors associated with aquatic organisms in the eastern portion of the L.I. Sound to enable predictions to be made relative to the impact of a nuclear plant located adjacent to a shoal of the eastern Sound,

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SIE NO.
AP-582

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

LONG ISLAND LIGHTING COMPANY

AGENCY'S NUMBER(S):

TITLE OF PROJECT

MONITORING THERMAL DISCHARGE FROM NORTHPORT POWER STATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

UNKNOWN

RECIPIENT INSTITUTION,

LONG ISLAND LIGHTING COMPANY
175 E. OLD COUNTRY RD.
HICKSVILLE, NEW YORK 11801

PERIODFOR THIS NRP:

7/73 TO 6/74
FY74 FUNDS UNKNOWN

Description: Study is to determine whether the circulating water temperature from Units 3&4 will exceed 96 degree F at any time. These discharges will impinge on the oyster seedling rack on the L.I. Oyster Farms located in the discharge lagoon. Data from the study will be used to determine the amount of dilution water that will be required to assure that the optimum temperature range for maximum oyster seedling growth is not exceeded.

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SIE NO.
AO-20993

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):

802240

72P20993

TITLE OF PROJECT,

SANITARY CRITERIA SALT WATER BATHING BEACHES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

P HABERMAN

RECIPIENT INSTITUTION

CENTER FOR POLICY RES, INC.
475 RIVERSIDE DR., SUITE 7221
NEW YORK, NEW YORK 10027

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $87,299

SUMMARY OF PROJECT

This project is to determine whether test beaches selected are, in fact, suitable as regards the demographic characteristics and bathing activities of the populations at the beaches on weekends; to pretest the "Illness Inquiry System" as a means of obtaining accurate and unbiased data on the incidence of illness among populations swimming at the test beaches, and to define the relevant methods of data collection and analysis. Interviews and follow-up required inquiries by mail, phone, and personal interviews will be conducted to determine if the required quality and quantity of information can be obtained from populations usingthe New York City Beaches on summer weekends. An inquiry system has been developed and will be tested on weekends during the summer of 1973. This project is to determine whether test beaches selected are, in fact, suitable as regards the demographic characteristics and bathing activities of the populations at the beaches on weekends; to pretest the "Illness Inquiry System" as a means of obtaining accurate and unbiased data on the incidence of illness among populations swimming at thetest beaches, and to define the relevant methods of data Collection and analysis. Interviews and follow-up required inquiries by mail, phone, and personal interviews will be conducted to determine if the required quality and quantity of information can be obtained from populations using the New York City Beaches on summer weekends.An inquiry system has been developed and will be tested on weekends during the summer of 1973.

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SIE No.
AO-21133

1"

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,

ENVIRONMENTAL PROTECT, AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):

16110 HUR

72P21133

THE ROLE OF PRIVATE FINANCING IN ENVIRONMENTAL PROTECTION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RH ALDRICH
ALSO WITH CONN. BANK

RECIPIENT INSTITUTION,

CHASE MANHATTAN BANK
NEW YORK, NEW YORK

PERIOD FOR THIS NRP,

7/72 TO 6/73
FY73 FUNDS UNKNOWN

The feasibility of applying an integrated ecologic/econometric model to the Connecticut River Basin to aid in developing implementable schemes for maintaining environmental quality will be investigated. Airborne, waterborne, and solid wastes will be considered, and the project will emphasize development of a financing plan based primarily on regional private financial institutions. Also, a regional planning and coordinating authority emphasizing economic planning, user charge assessment and collection, etc., will be proposed. Other factors to be considered are total cost for meeting environmental standards, effect of these costs on the regional economy, and increased benefits due to improved environmental quality.

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SIE NO.
XNE-86-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NEWYORK CITY GOVT. - N.Y.

AGE NCYS NUMB ER(S1

TITLE OF PROJECT:

AN ENVIRONMENTAL CONTROLPLAN FOR THE KENNEDY, LAGUARDIA AND NEWARK AIRPORTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

RJ PILIE ENVIRONMENTAL SYSTEMS

RECIPIENT INSTITUTION

CALSPAN CORPORATION
P.O. BOX 235
BUFFALO, NEW YORK 14221

PERIOO FOR THiS NRP.

5/73 TO 5/74
FY73 FUNDS $390,000

SUMMARY OF PROJECT

There is concern that potentially detrimental wastes possibly could work their way into the airport drainage systems and be discharged with rainwater into adjacent bays. The Port Authority has retained CAL to evaluate this potential problem and to develop preventative measures, In a comprehensive two-year program that will cost $400,000, CAL will: -Collectdata, including an inventory of all chemicals and other substances in use on the airports; -Analyze samples collected and their relationship to environmental quality; -Determine immediate preventive and corrective measures; -Determine long-term control systems, including control alternatives> new treatment processes and construction of facilities that may be required.

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SIE NO.
AL-986

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEWYORK OCEAN SCIENCE LAB.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
GROIN STUDY ON THE NORTH SHORE OF SUFFOLK COUNTY, LONG ISLAND, NEW YORK, BETWEEN ORIENT POINT AND PORT JEFFERSON HARBOR

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR T OMHOLT

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Approximatelyfiftysmallgroins located on the north shore of Suffolk County will be evaluated for their effectiveness in trapping sand and their effects on adjacent beaches. Changes in the shoreline will he investigated by the use of existing maps, charts and aerial photographs, beach surveying and wave refraction techniques.

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QT. -6198-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
ROCKEFELLER F OUNDATION

AGENCYS NUMB ER(S1

TITLE OF PROJECT
HUDSON RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
UN KNOWN

RECIPIENT INSTITUTION
BOYCE THOMPSON INS T, PLANT RES
YON KERS, NEW YORK 10701

PERIOD FOR THIS NRP.
1/72 TO 12/72
FY72 FUNDS $386,000

SUMMARY OF PROJECT

The Boyce Thompson Institute, in consultation and cooperation with other institutions, has initiated research into the ecosystem Of the lower part of the Hudson River to help establish a scientific basis for a cooperative ecological zoning plan for that part of the river. The Institute plans to make a study of the plant life in the marshes and shallows south of Poughkeepsie and its role in the river's capacity to recycle, detoxify, oxidize, and export to the sea the increasing nutrient load being poured into it. The members of the Institute will meet continually with officials of the communities involved; local high-school students and teachers will assist Its professionals in obtaining field data.

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SIE NO.
PW-2162-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,
SOCIETY OF THE SIGMA XI

AGENCY, S NUMBER(S):

TITLE OF PROJECT:
THE ESTUARINE AND MARINE CYANOPHYTA OF THE NEW ENGLAND COAST

PRINCIPAL INVESTIGATOR, ASSOCIATES ANDDEPARTMENT/SPECIALTY:
EE WEBBER

RECIPIENT INSTITUTION:
KEUKA COLLEGE
UNDERGRADUATE SCHOOL
KEUKA PARK, NEW YORK 14478

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

No summary has been provided to the Smithsonian Science Information Exchange.
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SIE NO.
GUW-3620

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S)

A-043-NY

WATER RESOURCES DEVELOPMENT AND WILDERNESS VALUES - A STUDY OF THE UPPER HUDSON

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

PROF B WILKINS NATURAL RESOURCES
G REETZ

RECIPIENT INSTITUTION..

CORNELL UNIVERSITY
GRADUATE SCHOOL
101 SAGE GRADUATE CENTER
ITHACA, NEW YORK 14850

PERIOD FOR THIS NRP.

7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS $5,000

SUMMARY OF PROJECT

The research will investigate values involved in conflict between water resources development and wilderness preservation. The Upper Hudson River represents an excellent case study for this research,

The investigation will include the following: 1. A thorough examination of the various proposals for the Upper Hudson. Emphasis will be placed on the proposed Gooley Reservoir and on the recommendation that a portion of the Upper Hudson be designated as a Wild River with the surrounding area established as a Primitive Area. 2. Discussion of the alternatives with the appropriate public agencies. 3. An environmental analysis of the area of conflict. This will include quantifying various aesthetic factors and determining the uniqueness of the area. 4. A survey of the present. users of the area with emphasis on determining their evaluation of the region and their perception of the environment, 5. An analysis of past public referendums relative to wilderness preservation and/or water resources development in the Adirondacks.

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SIE NO.
GUX-921-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S),
16050 DDK

TITLE OF PROJECT,
DYNAMIC WATER QUALITY FORECASTING AND MANAGEMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,
PROF DJ OCONNOR CIVIL ENGINEERING

MANHATTAN COLLEGE
SCHOOL OF ENGINEERING
4513 MANHATTAN COLLEGE PKWY.
BRONX, NEW YORK 10471

7/71 TO 6/72 MULT,SUPPOR'
FY72 FUNDS $41,659

SUMMARY OF PROJECT,

Description: The primary objective of this project is to apply the water quality models developed under last year's grant to several important nitrification, nutrient, and algal growth problem contests. The models will be applied to (a) a lake situation subjected to direct waste water inputs and land runoff with resulting poor water quality and algal proliferation, (b) an estuary receiving nitrogenous waste discharge with substantial present and possible future algal growths, resulting in poor water quality, and (c) a river. ISG

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SIE NO.
GUW-1402-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMB ER(SI

CONTRACT
C-1196

A STUDY OF POTENTIAL INSTITUTIONAL ARRANGEMENTS FOR WATER POLLUTION CONTROL IN THE HUDSON-MOHAWK RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

PROF LB DWORSKY WATER RESOURCES ENGINEERING

RECIPIENT INSTITUTION

CORNELL UNIVERSITY
SCHOOL OF ENGINEERING
242 CARPENTER HALI
ITHACA, NEW YORK 14850

PERIOD FOR THIS NRP

9/71 TO 8/72 MULT.SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Basin or sub-basin wide solutions to water pollution problems are technology.cal.ly feasible considering existing technology and are possible conceptually using new and developing technology. Such solutions are expected to result in economies of scale, operational efficiency and the establishment of an improved priority basis for scheoulingandpollutional control efforts.

Amajor obstacle to the development of basin or sub-basin-wide solutions-has been the lack of modernization of governmental institutional arrangementsto stimulate and encourage the early and efficient utilization of existing and newly developing technology for the public benefit,

The research proposes to develop alternative institutional arrangements for the Hudson-Mohawk River Basin, or appropriate sub-basin units, to achieve a substantially improved water pollution control program for the study basin.

Theplan of research will consider basin history, geography and culture; current water pollution control programs of state, federal, compact and local agencies; government organization affecting water pollution control; water pollution control plans; preliminary type engineering-economic studies of alternative pollution control measures; formulation of criteria to consider in the development of regional institutional arrangements for pollution control; the relation of alternative institutional arrangements for water pollution control to local water and waste water utility services, and to multi-basin and multi-purpose water and related land resources development programs in the northeastern United States. The research will conclude with a synthesis, recommendations and supporting references ISG

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SIE NO.
GUW-1748-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):

CONTRACT
C-1629

COORDINATED MANAGEMENT AND DESIGN OF METROPOLITAN AREA WATER SUPPLY AND WASTE WATER DISPOSAL NETWORKS - A LINKED SYSTEMS ANALYSIS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR L ZOBLER GEOGRAPHY

RECIPIENT INSTITUTION

COLUMBIA UNIVERSITY
UNDERGRADUATE SCHOOL
BROADWAY & W. 116TH
NEW YORK, N YOR 10027

PERIOD FOR THIS NRP:

7/71 TO 6/72 MULT.SUPPOR'
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

A linked systems analysis is to be made of the water supply system and the waste water disposal system of metropolitan areas. The nature of the connectivity entities will be specified. System parameters will be identified and manipulated. A computer simulation model will be constructed and the water resource of the total will be maximized by an optimizing method. The model will be tested with data for the New York Metropolitan Region.

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SIE NO.
GSV-3724

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY NUMBER(S)

GA-32421

TITLE OF PROJECT:

GENETIC-ADAPTIVE STRATEGIES OF MARINE BIVALVIA IN GRADIENTS OF ENVIRONMENTAL VARIABILITY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

JS LEVINTON

RECIPIENT INSTITUTION

STATE UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
STONY BROOK, NEW YORK 11790

PERIOD FOR THIS NRP

2/72 TO 2/73
FY72 FUNDS $24,000

SUMMARY OF PROJECT

The proposed study seeks to relate the degree of isoenzyme polymorphism to the amount of environmental variability in natural populations of marine Bivalvia(Mollusca). Theworking hypothesis to test this relationship is that polymorphism and variability of allellic frequencies are more pronounced as an historical consequence of variable environments, Such evolutionary flexibility may result from the genetic variability necessary to survive sudden environmental change, and also from the heterozygote advantage in variable regimes. The role of genetic variability in ecological specialization, evolutionary flexibility, and propensitytomass extinctions in organisms is currently a controversial topic in both paleontological and evolutionary science. The establishment of a firm data base for theoretical. discussion in this field would be most important.

Environmental variability decreases with increasing water depth, due to the damping of temperature, salinity and environmental variation caused by surface effects. Therefore, populations of a given species, or a group of species, will be sampled from this gradient. Intertidal and shallow subtidal populations will be compared with deeper water (100-300 m), continental shelf, and slope populations. Environmental variability may also be studied by comparing shallow water species from the Atlantic and Pacific coasts of the U.S. Due to its maritime climate, waters of the Pacific coasts are much less variable than those of the Atlantic coast. Since several Atlantic coast species have been introduced to the other coast, it will be possible to make comparisons of the degree of genetic polymorphism in a single species from both coasts.

Genetic variability will be evaluated using horizontal starch gel and. vertical acrylamide gel electrophoresis of isoenzymes. This technique will be used to mea.sure: gene frequencies, per cent of polymorphic loci, zygotic proportions, degree of heterozygosity, and the variance of the above Parameters (where appropriate, Areas of study will include the Long Island Sound and Cape Code regions, Puget Sound (Washington), and the Western Atlantic continental shelf.

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SIE NO.
GUE-1126

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF SALINE WATER

AGENCY'S NUMBER(S):
14-30-3166

TITLE OF PROJECT:
POROUS CARBON TUBE PERMEATORS FOR ULTRAFILTRATION /R EVERSE OSMOSIS OF SEA WATER & OTHER CHEMICALLY CHARGED WATERS (ABBREV)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
LM LITZ
B HARGITAY
HW MCROBBIE

RECIPIENT INSTITUTION
UNION CARBIDE CORPORATION
P.O. BOX 278
TARRYTOWN, NEW YORK 10591

PERIOD FOR THIS NRP:
11/72 TO 11/73
FY73 FUNDS $97,385

SUMMARY OF PROJECT:

Objectives: To develop an improved process for 1) pretreatment of sea water to facilitate its subsequent desalination to potable water by state-of-the-art reverse osmosis systems, and 2) reclamation of potable water from sewage water.

Approach: The general approach is centered on the use of porous carbon tube permeators developed in Union Carbide but so modified via dynamically formed membranes (or "precoat" agents) to enable the attainment of the above objectives.

Current Plans and/or Progress: Initial studies will be made on the type of coatings and tubes which will best satisfy the objectives utilizing sea water obtained off the Atlantic Coast near New York City. Initial test equipment is being designed and fabricated. Successful membrane systems will be tested in a multi-tube pilot plant at Wrightsville Beach, North Carolina. A similar program will be followed utilizing primary and secondary sewage effluent from the municipal treatment plant of Greenwich, Conn.

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SIE NO.
XAR-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

SUFFOLK COUNTY GO VT. - N.Y.

AGENCY'S NUMBER(S)

CONTRACT
377

TITLE OF PROJECT

INVESTIGATION OF SURFACE AND SUBSURFACE SEDIMENTS IN OFFSHORE ENVIRONMENTS OF SOUTHERN LONG ISLAND

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

DR AE COK EARTH SCIENCES

ADELPHI UNIVERSITY
SCHOOL OF ARTS
SOUTH AVE.
GARDEN CITY, NEW YORK 11530

6/72 TO 3/73
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Research on the geomorphology, sedimentology, and stratigraphy of surface and subsurface sediments in the offshore region of southern Long Island, primarily within an area of 6 square miles, 1 mile off Sailor's Haven, Central Fire Island. Seismic profiles ranging from Reynolds Channel to Moriches Inlet at 1 and 1 1/2 nautical miles offshore were also taken. Six cores at 86 bottom grab stations were taken in Ridge and Swale areas off Sailor's Haven.

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SIE NO.
GMA-297

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
11023 FAQ

TITLE OF PROJECT,
EVALUATION OF SPRING CREEK AUXILIARY POLLUTION CONTROL PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
NEW YORK CITY DEPT. PUB. WORKS
NEW YORK, NEW YORK

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPOR
FY72 FUNDS $1126,000

SUMMARY OF PROJECT:

Description: Overflows from combined sewers contribute significantly to the pollution of Jamaica Bay, New York City. In constructing a major combined sewage treatment facility, Spring Creek Auxiliary Pollution Control Project was specifically designed to provide sedimentation and chlorination treatment to combined sewage. The demonstration project will establish pre-construction water quality conditions in Jamaica Bay, Spring Creek Bay. Characterization of parameters that measure the effects of combined sewers will be a part of the investigations. Following construction, the effectiveness of the combined sewage treatment facilities will be evaluated. It is anticipated that the Spring Creek facility will serve as a prototype for additional projects leading to an upgrading of the quality of Jamaica Bay waters.

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SIE NO.
GBP-1045

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S)

2-35281

TITLE OF PROJECT

DEVELOPMENT OF A MANAGEMENT MODEL FOR THE WEST END OF LONG ISLAND SOUND

MJ BOWMAN

RECIPIENT INSTITUTION

STATE UNIVERSITY OF NEW YORK
MARINE SCIENCES RES. CENTER
STONY BROOK, NEW YORK 11790

PERIOD FOR THIS NRP:

10/72 TO 9/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Objective: The objective of this project is to develop a management model for the western end of Long Island Sound to predict the oxygen level in the water, and how that level would be modified by changes in the inputs of pollutants and by modification of the physical configuration. During the first year we propose to initiate the development of a mathematical model and techniques to measure the kinetics of oxygen uptake and evolution in the sound.

How information will be applied: The mathematical model developed during the first year will permit us to plan on observational program during the second year. The instrumentation to measure the kinetics of oxygen developed during the first year will be used to provide the data needed for the management model.

Accomplishments during the past twelve months: 1. Completion of a manuscript for a book on Long Island Sound summarizing its oceanographic and hydrologic features. 2. Familiarization with electrode techniques for measuring in situ dissolved oxygen and their limitations. 3. Preliminary development of techniques for determination of the advection of water from the East River into Long Island Sound.

For additional information pertaining to this project contact Dr. Donald F. Squires, Director, New York State Sea Grant Program, State University of New York, Albany, New York 12210.

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SIE NO.
GBP-1200

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCY'S NUMBER(S):
2-35281

ENVIRONMENTAL GEOMORPHIC STUDY OF THE COASTAL REGIMES ALONG THE SOUTH SHORE OF LONG ISLAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR COATES GEOLOGY
M MORISAWA

RECIPIENT INSTITUTION
STATE UNIVERSITY OF NEW YORK
SCHOOL OF ARTS
VESTAL PKWY.
BINGHAMTON, NEW YORK 13901

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objectives: The objectives of this project are to evaluate and measure those geomorphic processes that affect the erosional and depositional sedimentation regimes of the beach environment on the South Shore of Long Island.

How information will be applied: Despite enormous expenditures by Federal and State agencies on erosion of the south shore of Long Island, there has been little attention given to providing information of use to local management entities and to the development of alternative procedures other than those of Federal orthodoxy. Among the agencies actively seeking information from this project are: Fire Island Natonal Seashore Commission, Nassau-Suffolk Regional Planning Board, the New York State Park Commission and Town governments. Citizens conservation and environmental groups also seek the information. Through close liaison with these groups and through the Sea Grant Advisory Services Program an educational program will be established in the above agencies and among the citizens as a group.

Accomplishments during the past twelve months: Analyzed the dune stabilization problem on Fire Island. 2. Determined the nature of man-made alterations on bay side of Fire Island such as boat slips, marinas, dredging. 3. Evaluated those causes that contribute to abnormal accelerated erosion of certain parts of Fire Island. 4. Studied factors that are controlling limits for utilization of Fire Island region as a human resource. 5. Measured quantitative shoreline changes of Fire Island for the period 1962-1972. 6. Initiated a program for wave hindcasting of the south shore. 7. Identified areas of potential washovers or breakthroughs on Fire Island. 8. Initiated a study of the relationship of dune height and profile to shore recession.

For additional information pertaining to this project contact Dr. Donald F. Squires, Director, New York State Sea Grant Program, State University of New York, Albany, New York 12210.

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SIE NO.
AP-569

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

LONG ISLAND LIGHTING COMPANY

AGENCY'S NuMBER(S).

PRE-O PER AT IONAL AQUATIC STUDIES - SHOREHAM

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY.

JC BAIARDI

RECIPIENT INSTITUTION

NEW YORK OCEAN SC IENCE LAB.
BOX 867
MONTAUK, NEW YOR K 11954

PERIOD FOR THIS NRP

7/73 TO 6/74
FY74 FUNDS UN KNOWN

SUMMARY OF PROJECT

DESCRIPTION : These studies are directed at in vesti gating themany unknown factors associated with aquat ic organ isms in the eastern portion of the L.I. Sound to enable predictions to be made relative to the impact of a nuclear plant located adjacent to a shoal Of the eastern Sound.

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SIE NO.
GBP-284-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

720332
CONTRACT
028520221

TITLE OF PROJECT:

A STUDY OF BAY SCALLOP GROWTH DURING FALL, WINTER AND SPRING IN HEATED SEA WATER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RC BATSON

RECIPIENT INSTITUTION

STATE DEPT. OF ENV. CONSERV.
4175 VETERANS MEMORIAL HWY.
RONKONKOMA, NEW YORK 11779

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 , FUNDS $12,750

SUMMARY OF PROJECT,

Technical Objective: To determine effects of heated water on bay scallop growth.

Approach:. A sample of bug bay scallops collected in early fall will be divided into four equal subsamples. The scallops will be measured, and a statistical analysis will be made to determine whether or not these subsamples are derived from the same population. If they are not from the same population, random divisions of a sample into four subsamples will be made until it is established that they are from the same population. One subsample will be placed in an aquarium receiving 34 gallons per hour of salt water at ambient temperature. The three remaining subsamples will be placed in aquaria each receiving 34 gallons per hour of salt water at 50 degrees F., 60 degrees F., and 70 degrees F. Each week from early fall to spring, the scallops will be measured and returned to the aquaria. These measurements will be treated by analysis of variance and a test of critical differences to determine the effect of temperature on scallop growth.

At the same time that the study is going on in the laboratory aquaria, a field study will be made. Bug bay scallops will be collected in early fall. Procedures described above will be used to make certain that the two subsamples of scallops come from the same population. These subsamples will be suspended from anchored floats. One will be placed near the heated salt water discharge at a power plant; the other will be placed nearby and in water not affected by the heated effluent. Each week the scallops will be measured and returned to the floats. The measurements will be treated statistically as previously described to determine the effect of power plant heated effluent upon scallop growth.

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SIE NO.
AN-829

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
AFFILIATED COLL. & UNIV. INC.

AGENCY'S NUMB ER(SI
SR 71-22B

BENTHOS OF THE DUNWOODIE-GLENWOOD INTERCONNECTION, NORTHPORT, SHOREHAM, AND MATTITUCK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

A DAGOSTINO
J ALEXANDER
H AUSTIN
P NUZZI

RECIPIENT INSTITUTION

NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP

7/72 TO 6/73 MULT. SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

The marine biology laboratory of the New York Ocean Science Laboratory is compiling censuses of the benthic invertebrates of the near shore water of Lena Island Sound.

The temporal and spatial distribution of the communities of invertebrates is related to sediment composition.

Sediments were taken: on a transet extending from Dunwoodie to Glenwood, across western Long Island Sound; at Northport and Shoreham. Additional sites are scheduled for intense study commencing July, 1973.

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SIE NO.
AP-282

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
LONG ISLAND LIGHTING COMPANY

AGENCY'S NUMBER(S):
SR 72-32

TITLE OF PROJECT:
MARINE ECOLOGICAL STUDY AT SHOREHAM, LONG ISLAND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR HM AUSTIN
JE ALEXANDER
A DAGOSTINO
R HOLLMAN
R NUZZI

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
1/73 TO 6/74
FY73 FUNDS $1,500

SUMMARY OF PROJECT:

Interdisciplinary Study:

Monitoring of currents with implanted current meter assay. Weekly sampling for ichthyoplankton, bi-weekly sampling for phytoplankton, zooplankton, and fish populations. Monthly sampling of water chemistry and benthos. Quarterly tidal studies (24 hour station occupation) measurements every two hours of Temperature, Salinity, O2, nutrients, heavy metals, phytoplankton and zooplankton. Area of Long Island Sound studies approximately 30 square miles.

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SIE NO
AJ-120-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

UNION COLLEGE & UNIVERSITY

AGENCY'S NUMBER(S)

TITLE OF PROJECT

ECOSYSTEMATIC MUNICIPAL WATER-USE STRATEGIES - A MODEL STUDY OF THE NORMAN'S KILL DRAINAGE BASIN, EASTERN NEW YORK STATE

PRINCIPAL INVESTIGATORS AND DEPARTMENT/SPECIALTY

PJ BUTTNER SPECIAL PROGRAMS DIV
C WACHMANN

RECIPIENT INSTITUTION

ECOSYSTEMATICS
52 HANES ST.
ALBANY, NEW YORK 12203

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

In 1970 a five-year study was begun to assemble empirical data for the development of resources management strategies for small quasi-urban river basins, such as that of the Norman's Kill of eastern New York. This 25Cl square mile basin, located just south of the confluence of the Mohawk and Hudson systems, contains six sub-basins which demonstrate a wide geomorphological diversity. The total contribution to the lower Hudsonbasin of these sub-basins (the Hunger Kill, Duanesburg, Bozen Kill, Black Creek, Vly and Kalkout) amounts to a yearly average of about 150 cfs. Of special interest to this study are: suh-basins geometry, organization and Patterning; ecostructure and environmental setting; flow dynamics, substrate structure and sedimentology; water and land use management; and climatology,

A network of first order quadrilateral monitoring stations has been located in each of the sub-basins. The Hunger Kill network ties into U.S.G.S. Station No. 1-3595.13 as part of a cooperative study. Data from this network includes information on: water properties (physical, chemical and biological); sedimentology and hydrodynamics; channel style and development; and local ecosystematics. While such a network is of fundamental importance to this study, it has proven also to be a versatile teaching and research adjunct for our graduate and undergraduate students.

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SIE NO.
AL-984

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW YORK OCEAN SCIENCE LAB.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
WATER QUALITY STUDY OF MONTAUK HARBOR, LONG ISLAND, NEW YORK, USING A HYDRAULIC MODEL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JP HUNT
T OMHOLT

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

A distorted model (scales 1/290 horizontal - 1/15 vertical) of Montauk Harbor has been constructed. The purpose of this model is to study velocity patterns in a small bay, dispersion and diffusion of petroleum products and domestic wastes and changes in water quality as a result of future increases in boating activities and shoreline developments. The study should be helpful in understanding tide generated flow patterns in similar semi-enclosed bodies of water.

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SIE NO.
GUN-11096

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY.
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)
W-129-R-162-B2-8

TITLE OF PROJECT
CATALOGUE AND DESCRIBE VARIABLES OF DEVELOPED LANDS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
HF DOIG

RECIPIENT INSTITUTION
STATE DIV. OF FISH & WILDLIFE
ALBANY, NEW YORK 12226

PERIOD FOR THIS NRP
4/73 TO 3/74
FY73 FUNDS $4,050

SUMMARY OF PROJECT

Objective: To establish the necessary criteria for inclusion of variables in the catalogue, and then to catalogue and describe the variables of developed lands in sufficient detail to permit review for the setting wildlife planning, inventory and management priorities. Where sufficient detail is not available, to indicate areas where information is lacking so as to permit review of research priorities.

Procedure: (A) Criteria for defining what constitutes a variable for inclusion in this job will be established. These criteria will include known or potential significance for wildlife, and the fact that variation does or can occur. (B) The catalogue will be based on information existing in the literature and, where available, on consultation with specialists on the various aspects of wetland ecology and management. (C) Each description of the variables will include: 1. A summary description of the variable and nature of the variation. 2. Causes of the variation. 3. Method of measuring the variation. 4. The effects or significance of the variation for wildlife. 5. Interactions related to the variable. 6. References. (D) Classes of variables that will be investigated include: economic, social, wildlife (as an environmental factor), substrate air and climatic, vegetative, land uses, water location, educational value. (E) The catalogue will be open-ended and kept in a looseleaf format so that additions and corrections can be made as better information becomes available

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SIE NO.
GUN-11095

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
W-129-R-162-B2-7

TITLE OF PROJECT:
CATALOGUE AND DESCRIBE CULTIVATED AND OPEN LAND VARIABLES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HE DOIG

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
ALBANY, NEW YORK 12226

PERIOD FOR THIS NRP:
4/73 TO 3/74
FY73 FUNDS $9,600

SUMMARY OF PROJECT:

Objective: To establish the necessary criteria for inclusion of variables in the catalogue, and then to catalogue and describe the variables of cultivated and open lands in sufficient detail to permit review for setting wildlife planning, inventory and management priorities. Where sufficient detail is not available, to indicate areas where information is lacking so as to permit review of research priorities.

Procedure: (A) Criteria for defining what constitutes a variable for inclusion in this job will be established. These criteria will include known or potential significance for wildlife, and the fact that variation does or can occur. (B) The catalogue wll be based on information existing in the literature and, where available, on consultation with specialists on the various aspects of cultivated and open land ecology and management. (C) Each description of the variables will include: 1. A summary description of the variable and nature of the variation. 2. Causes of the variation. 3. Method of measuring the variation. 4. The effects or significance of the variation for wildlife. 5. Interactions related to the variable. 6. References. (D) Classes of variables that will be investigated include: economic, social, wildlife (as an environmental factor), substrate, air and climatic, vegetative, land uses, water, location, shape and size. (E) The catalogue will be open-ended and kept in a looseleaf format so that additions and corrections can be made as better information becomes available.

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SIE NO:
GSV-3794

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-33076

TITLE OF PROJECT
DOCTORAL DISSERTATION RESEARCH - A STUDY OF THE DISTRIBUTION OF HEAVY METALS IN THE SEDIMENTS OF LOWER NEW YORK HARBOR

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT SPECIALTY
WE YASSO SCIENCE EDUCATION

RECIPIENT INSTITUTION:
COLUMBIA UNIVERSITY
SCHOOL OF ARTS
BROADWAY & W. 116TH
NEW YORK, NEW YORK 10027

PERIOD FOR THIS NRP
3/72 TO 3/73
FY72 FUNDS $2,000

SUMMARY OF PROJECT:

The objective of this research is to devise and apply a suitable procedure for analyzing heavy metal concentrations in sediment samples obtained from the sewage sludge and dredge spoil dumping areas of New York Harbor. The samples will be obtained monthly for a Period of a year from sampling stations located within and adjacent to the dumping areas. The geochemical data together with Information concerning seasonal circulation patterns, bottom topography, benthic biota, and dumping schedules will provide insight into the patterns and mechanisms of dispersal and the effects of this sort of waste disposal on a continental shelf benthonic environment.

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SIE NO.
GTR-185-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

DEPARTMENT OF DEFENSE
ARMY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

INSTITUTIONAL REQUIREMENTS FOR REGIONAL WATER SUPPLY OF SOUTHEAST NEW ENGLAND, NEW JERSEY, NEW YORK CITY AND WESTERN CONNECTICUT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

MW CANNON
RP MACK
M GORDON
R MINNEHAN
J VANDEWATER

RECIPIENT INSTITUTION:

INST. OF PUBLIC ADMINISTRATION
NEW YORK, NEW YORK

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The purpose of this study is to develop feasible alternatives for the legal, economic and organizational framework necessary to create, maintain, and operate a regional water supply system to serve the metropolitan area of New York City - Northern New Jersey - Western Connecticut, and another regional system to serve the Southeastern New England area. Both systems will be designed to meet the needs of their respective areas through the year 2020.

Financing Regional Water Supply: A. Cost sharing principles; B. Economic analysis of regional water supply schemes; C. Economic worth of investment in water supply installations.

Legal Framework: A. Existing legislation, statutes and policies; 1. Modifications necessary to implement regionalization.

Issues and Choices in Selection of a Regional Organization: A. Government framework; B. Organizational form; C. Legal basis; D. Internal structure.

Allocation of functions Among Institutions and Institutional Relationships.

This study is being coordinated with two ongoing feasibility studies concerned only with the engineering aspects of potential alternative regional solutions of water supply problems for this area.

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SIE NO.
GSQ-456

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL. SCIENCE FOUNDATION
RESEARCH APPLICATIONS DIRECT.

AGENCY'S NUMBER(S)

GI-37312

TITLE OF PROJECT:

CADMIUM IN AN AQUATIC ECOSYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

TJ KNEIP ENVIRONMENTAL MEDICINE
HI HIRSHFIELD

RECIPIENT INSTITUTION

NEW YORK UNIVERSITY
SCHOOL OF MEDICINE
550 1ST AVE.
NEW YORK, NEW YORK 10016

PERIOD FOR THIS NRP:

2/73 TO 1/74
FY73 FUNDS $50,000

SUMMARY OF PROJECT

Discharge of dissolved and precipitated cadmium from a nickel-cadmium battery plant into a cove on the Hudson River for the past 15 years provides an unusual opportunity to study the rates, routes, reservoirs and biological effects of this toxic heavy metal. Food web relationships will be established by both field sampling and by controlled laboratory uptake and loss studies with selected organisms under varying conditions of temperature, salinity, biological growth cycle, etc. Specific objectives will be to: 1. Determine the extent of Cd interchange between sediments and water. 2. Determine the mechanism of spread of Cd away from the outfall and the degree and rate of transfer to the mainstream of the river. 3. Determine the major source of cadmium to the food web and if biomagnification occurs. 4. Determine the toxicity to representative organisms and identify the effects on aquatic populations, 5. Define mechanisms for the transfer of Cd through ecosystem compartments.

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SIE NO.
GSV-3030-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):

TITLE OF PROJECT
CHARACTERISTICS AND STRATIGRAPHIC SUCCESSON OF SANDS DEPOSITED BY AN ACTIVELY MIGRATING TIDAL INLET, FIRE ISLAND

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:
JE SANDERS

RECIPIENT INSTITUTION:
COLUMBIA UNIVERSITY
UNDERGRADUATE SCHOOL
BROADWAY & W. 116TH
NEW YORK, NEW YORK 10027

PERIOD FOR THIS NRP:
10/71 TO 9/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The principal objective of this research is to investigate the effects of a migrating tidal inlet as an agent of lateral sedimentation and to determine if there are distinctive "inlet successions" of strata that would 1) provide a basis for new insights into the interpretation of relict sands on continental shelves and 2) permit improved paleographic analysis of ancient basal trangressive sandstones. The study, basically one of modern environments and processes as a means for understanding the ancient geologic record, is centered on Fire Island Inlet, Long Island, New York.

In order to determine if a distinctive inlet sequence of sediments does exist it is necessary to study the hydrodynamic conditions in the active inlet, to sample the bottom sediments systematically in all parts of the channel, and to examine bore-hole samples from the Fire Island barrier in places where historically dated maps show tidal inlets to have existed in the past. The study thus involves an investigation of speed and direction of water currents, nature of transported sediment, characteristics of deposited materials, sedimentary structures, and related geologic parameters.

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SIE NO
GMA-840

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT, AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S):
15080 FVP

COMPREHENSIVE OIL SPILL CONTROL PROGRAM FOR NEW YORK HARBOR AND IMMEDIATE WATERS

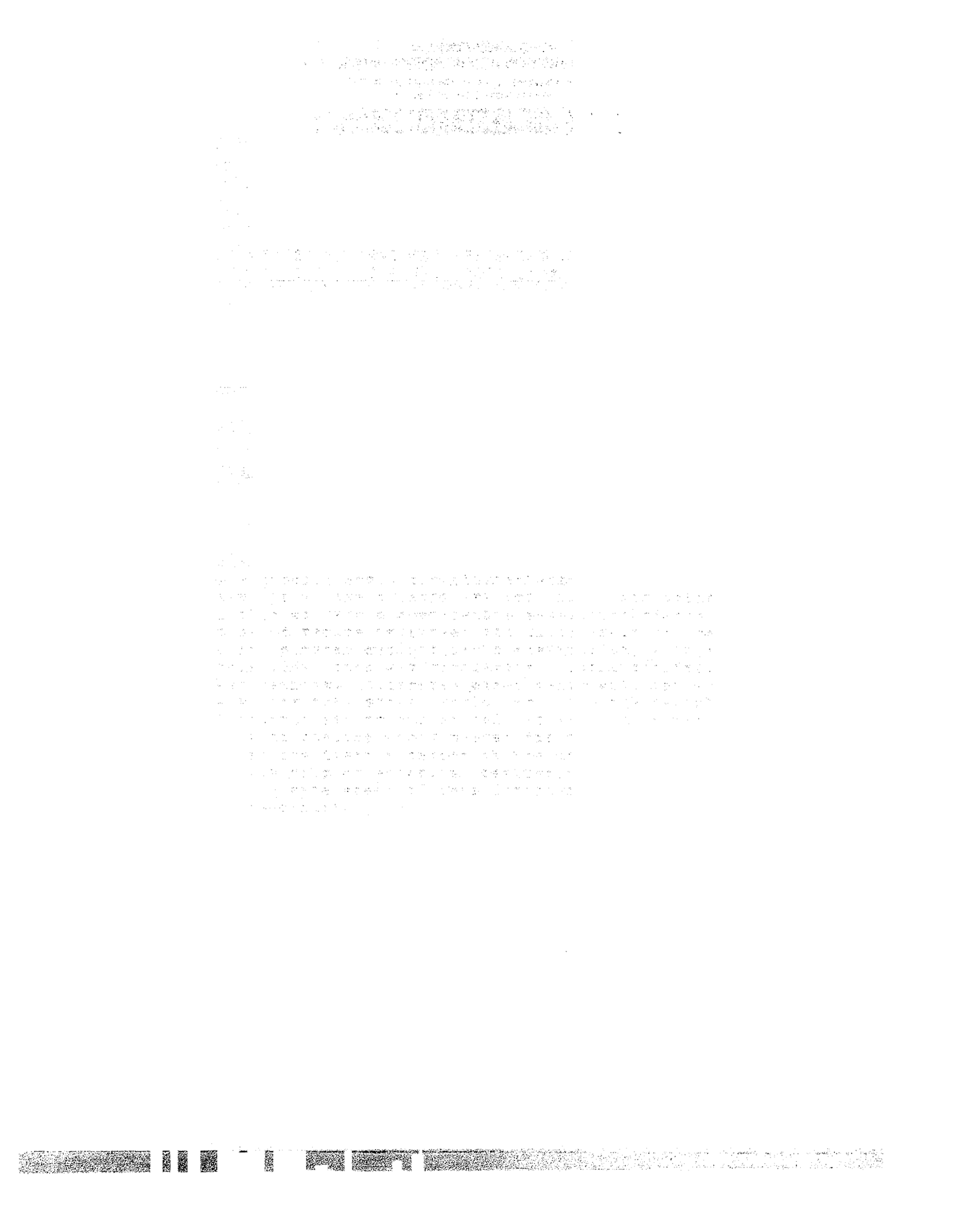
PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY.
JF CONNOR MARINE DIVISION

RECIPIENT INSTITUTION
NEW YORK CITY FIRE DEPARTMENT
NEW YORK, NEW YORK 1007

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS $518,415

SUMMARY OF PROJECT

Description: The project will demonstrate a comprehensive full scale program for coping with oil spills. The project will involve: 1. A thorough inventory and determination of the sources, fate and movement of oil spills in and near a major sea port - the New York Harbor. 2. Design analysis and evaluation of state-of-the-art devices and techniques for oil spill control. 3. Procurement of equipment, development of spill response plans and the evalution of their effectiveness on actual spills of opportunity in the New York Harbor area.



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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

AGENCY'S NUMBER(S)

TITLE OF PROJECT:

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION

PERIOD FOR THIS NRP:

GH-10923 (CONTINUED)

equals 0.68 micron minus 10.66 micron). Separate counts are performed at one micron intervals except for the lower and upper ends of the scale.

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SIE NO.
GH-10923

NOTICE OF RESEARCH PROJECT

NATL. AERONAUTICS & SPACE ADM. SR070
OTHER UNKNOWN OFFICE
MISCELLANEOUS UNITS

TITLE OF PROJECT:

AN INTERDISCIPLINARY STUDY - THE ESTUARINE AND COASTAL OCEANOGRAPHY OF BLOCK ISLAND SOUND AND ADJACENT NEW YORK COASTAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR R NUZZI
ALSO WITH LONG ISLAND UNIVERSITY

RECIPIENT INSTITUTION:

NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

An interdisciplinary study of the physical, chemical, and biological relationships of Block Island Sound and coastal waters is currently being conducted using shipboard sampling techniques. Preliminary studies to date have indicated the presence of unexpected large color differences which are believed to be related to circulation and water mass characteristics, nutrients, trace metal, and the organic content of the water as well as to the quantity of phytoplankton present.

It is proposed to use the ERTS-A RBV and MSS imagery and to perform a Skylab EREP experiment using the S190 multispectral scanner to support and extend this shipboard study. The imagery obtained from these experiments will be analyzed using additive color viewing equipment, density slicing-masking techniques, and computer classification programs. These data will be correlated with the results of shipboard sampling and in situ spectra using multiple regression techniques.

It is expected that the ERTS and Skylab space-acquired data will significantly contribute to this state supported program by providing synoptic repetitive coverage of the Block Island Sound and adjacent coastal waters. Particularly, the tidal and seasonal effects on dynamic variation in the interaction between, as well as changes within, water masses will be invaluable in understanding the coastal environment sufficiently to manage this irreplaceable resource which is being rapidly depleted.

More specifically, this section of SR070 involves the following: three sections in Block Island Sound, comprising 12 stations, are sampled monthly, as close as possible to the period of satellite overflight. Samples are collected quasi-synoptically over a tidal cycle. A series of 16 stations in the New York Bight are sampled seasonally. Differential phytoplankton cell counts are performed on the samples collected from the surface water of Block Island Sound and the New York Bight. Suspended particulate material is analyzed with a Coulter Counter, Model B. By using the aperture tubes (30 micron 100 micron) and varying the threshold controls, it has been possible to count particles between 0.16-635 micron 3 in volume (equivalent diameter

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SIE NO.
GUN-11094

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

W-129-R-1&2-B2-6

CATALOGUE AND DESCRIBE FOREST AND OVERGROWN LAND VARIABLES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

HE DOIG

RECIPIENT INSTITUTION:

STATE DIV. OF FISH & WILDLIFE
ALBANY, NEW YORK 12226

PERIOD FOR THIS NRP:

2/73 TO 3/74
FY73 FUNDS $810

objective: To establish the necessary criteria for inclusion of variables in the catalogue, and then to catalogue and describe the variables of forest and overgrown lands in sufficient detail to permit review for setting wildlife planning, inventory-and management priorities. Where sufficient detail is not available, to indicate areas where information is lacking so as to permit review of research priorities*

Procedure: (A) Criteria for defining what constitutes a variable for inclusion in this job will be established. These criteria will include known Or potential significance forwildlife, and the fact that variation does or can occur. (B) The catalogue will be based on information existing in the literature and, where available, on consultation with specialists On the various aspects of wetland ecology and management. (c) Each description of the variables will include: 1, A summary description of the variable and nature of the variation. 2. Causes of the variation. 3. Method of measuring the variation. 4, The effects or significance of the variation for wildlife. 5. Interactions related to the variable. 6, References. (D) Classes of variables that will be investigated include: economic, social, wildlife (as an environmental factor), substrate, air and climatic, vegetative, land uses, watersheds, location, shape and size, elevation, slope and aspect. (E) The catalogue will be open-ended and kept in a looseleafformatso that additions and corrections can be made as better information becomes available

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SIE NO.
GBP-1231

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
281890

TITLE OF PROJECT:

ECOSYSTEMS INVESTIGATIONS; SUBLITTORAL MEIOBENTHOS OF THE NEW YORK METROPOLITAN REGION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR J TIETJEN BIOLOGY
C REDMAN

RECIPIENT INSTITUTION:

CITY UNIVERSITY OF NEW YORK
SCHOOL OF LIBERAL ARTS
139TH ST. & CONVENT AVE.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $13,000

SUMMARY OF PROJECT:

Technical Objective: The ecology and distribution of the sublittoral meiobenthos occurring in the sediments of the Lower Hudson River and New York Bight will be studied. During the period of this project emphasis will be placed on ascertaining the quantitative distribution of the meiofauna population densities and biomass in the region. The relationships between the spatial distribution of the meiofauna and sediments in relation to ocean disposal of solid wastes will be examined in detail. Seasonal fluctuations in meiofauna population densities will also be examined. Detailed investigation of the temporal and spatial distribution of the dominant taxon, the free-living marine nematodes, will commence in February 1973.

Approach: Field studies will be coordinated with macrobenthos studies expedited by Ecosystems Investigations, MACFC, and project MESA. Samples will be obtained by grab or gravity core and processed according to Hulings and Gray (1971), "A Manual for the Study of Meiofauna".

Progress: Detailed planning developed as a TDP and MESA proposal.

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SIE NO.
GV-30966

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
OFFICE OF DEP. COM. FOR DEV.

AGENCY'S NUMBER(S)

R 021143

OEG-0-72-5060

TITLE OF PROJECT:

DEVELOPMENT OF PILOT WORKSHOPS FOR SCHOOL AND COMMUNITY BASED UPON THE ECOLOGY OF A RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

H DUFFY

RECIPIENT INSTITUTION.

HUDSON RIVER SLOOP RESTOR. INC
P.O. BOX 25
COLD SPRING, NEW YORK 10516

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

THE UNIQUE RESOURCES OF THE HUDSON RIVER SLOOP RESTORATION (HRSR) WILL BE JOINED WITH THE RESOURCES OF THE CITY OF BEACON SCHOOL DISTRICT, COMMUNITY ORGANIZATIONS, AND LOCAL MEDIA TO PROVIDE AN ENVIRONMENTAL EDUCATION PROGRAM DESIGNED TO PROMOTE AWARENESS AMONG THE ENTIRE BEACON COMMUNITY OF THE NEED TO PRESERVE THE NEARBY HUDSON RIVER, ITS WATERFRONT, HILLS AND PEOPLE. IN THIS PROGRAM, 1000 BEACON SCHOOL DISTRICT STUDENTS WILL PARTICIPATE IN FLOATING CLASSROOM, OR A SHIP WHICH WILL SERVE AS AN ENVIRONMENTAL LABORATORY FOR TESTING WATER, EXAMINING ORGANISMS, AND CONDUCTING OTHER ECOLOGICAL ACTIVITIES. AN ADDITIONAL 2500 STUDENTS WILL BE INVOLVED IN A WIDE RANGE OF SHORE ACTIVITIES, SHOWING FIRSTHAND HOW POLLUTION IS CREATED. ALL ACTIVITIES WILL BE CONDUCTED IN SMALL GROUPS ACCORDING TO INTERDISCIPLINARY AND "LEARNING THROUGH DOING" APPROACHES. HRSR WILL FORM A COALITION PLANNING COMMITTEE IN THE COMMUNITY TO PROVIDE A PROGRAM OF MEETINGS AND SEMINARS FOR CONCERNED CITIZENS TO DISCUSS AND SOLVE ENVIRONMENTAL PROBLEMS, FILMSTRIPS, EXHIBITS, AND SAILING EXPERIENCES WILL SUPPLEMENT THE COMMUNITY DISCUSSION PROGRAMS. IN ADDITION, STUDENTS AND INTERESTED COMMUNITY MEMBERS WILL ALSO DIRECT ATTENTION TO THE POSSIBILITY OF RECLAIMING VACATED RIVERFRONT PROPERTY AS A RECREATIONAL PARK AND A PERMANENT STATION FOR ANTI-POLLUTION EFFORTS. ANOTHER ACTIVITY STUDENTS WILL UNDERTAKE WILL BE THE DEVELOPMENT OF THEIR OWN COURSE OR CURRICULUM OF ENVIRONMENTAL STUDIES. DUPLICATION OF THIS PROJECT IN SIMILAR COMMUNITIES WILL BE MADE POSSIBLE, (SW/FP)

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SIE NO.
GUN-11093

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
W-129-R-1&2-B2-5

TITLE OF PROJECT:
CATALOGUE AND DESCRIBE WETLAND VARIABLES

HE DOIG

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & WILDLIFE
ALBANY, NEW YORK 12226

PERIOD FOR THIS NRP:
2/73 TO 3/74
FY73 FUNDS $3,750

SUMMARY OF PROJECT:

Objective: To establish the necessary criteria for inclusion of variables in the catalogue, and then to catalogue and describe the variables of wetlands in sufficient detail to permit review for setting wildlife planning, inventory and management priorities. Where sufficient detail is not available, to indicate areas where information is lacking so as to permit review of research priorities.

Procedure: (A) Criteria for defining what constitutes a variable for inclusion in this job will be established. These criteria will include known or potential significance for wildlife, and the fact that variation does or can occur. (B) The catalogue will be based on information existing in the literature and, where available, on consultation with specialists on the various aspects of wetland ecology and management. (C) Each description of the variables will include: 1. A summary description of the variable and nature of the variation. 2. Causes of the variation. 3. Method of measuring the variation. 4. The effects or significance of the variation for wildlife. 5. Interactions related to the variable. 6. References. (D) Classes of variables that be will investigated include: economic, social, wildlife, (as an environmental factor), substrate, air and climatic, vegetative, land uses, water, location, shape and size. (E) The catalogue will be open-ended and kept in a looseleaf format so that additions and corrections can be made as better information becomes available. (F) A preliminary catalogue will be constructed by 31 March, 1973. A basic catalogue will be developed by 31 March, 1974. Therefore the job will be to maintain and update the catalogue.

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SIE NO.
NCO-29

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COLUMBIA UNIVERSITY

AGENCY'S NUMBER(S)

TITLE OF PROJECT

RELATIONSHIPS BETWEEN SEDIMENTS AND WATER MOTIONS, NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY.

JE SANDERS GEOLOGY

RECIPIENT INSTITUTION:

COLUMBIA UNIVERSITY
SCHOOL OF ARTS
BROADWAY & W. 116TH
NEW YORK, NEW YORK 10027

PERIOD FOR THIS NRP:

7/72 TO6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Geologic history of the New York Bight as revealed in subsurface sediments from engineering borings and geologic borings (Hudson Valley, Great South Bay, and Peconic Bay).

Effects of Holocene submergence on shelf and nearshore sediments (L. 1, shelf, Peconic Bay).

Relationships of waves and tides to movement of sediments on L. I. shelf, Fire Island Barrier, Fire Island Inlet, tidal delta at Moriches Inlet.

Provenance of sediments and relationship to drainage history, sediment movement, and transport of sediment across the shelf valley to the Hudson submarine canyon.

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SIE NO.
GUW-1750-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
CONTRACT
C-1818

TITLE OF PROJECT,
EVALUATION OF RECREATIONAL AND CULTURAL BENEFITS OF ESTUARINE USE IN AN URBAN SETTING

PRINCIPAL INVESTIGATOR> ASSOCIATES ANDDEPARTMENT/SPECIALTY:
AJ VANTASSEL
ALSO WITH HEMSTEAD DEPT. OF CONSERVATION

RECIPIENT INSTITUTION:
HOFSTRA UNIVERSITY
CENTER FOR BUS. & URBAN RES.
1000 FULTON AVE.
HEMPSTEAD, NEW YORK 11550

PERIOD FOR THIS NRP:
7/71 TO 6/72 MULT.SUPPORT
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The proposed research plan involves field investigations to determine the extent of use of estuarine waters of the Town of Hempstead (located in an intensively urbanized area) as a basis for evaluating the benefits from such use. These surveys of use will be supplemented by studies of expenditures with local businesses by users. Data from both types of surveys will be subjected to economic and statistical analysis by investigators from the Hofstra University Center for Business and Urban Research.

Surveys of use will consider four phases: (1) Fishing, (2) Boating, (3) Clamming, (4) Nature Study. On the first of these, the Town of Hempstead has collected extensive data in considerable detail since 1966, and these data will be supplemented by similar data for 1969-1971. In addition, state and local governmental records will be supplemented by field investigations on other uses of Hempstead estuarine waters.

The data collected in these surveys will be subjected to economic analysis by the Hofstra investigators for the purpose of estimating the dollar value of benefits from use of the estuarine waters by type of activity. This has importance in establishing the value of maintaining the estuarine waters in relatively unpolluted conditions. ISG

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SIE NO.
XAR-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
SUFFOLK COUNTY GOVT. - N.Y.

AGENCY'S NUMBER(S)

TITLE OF PROJECT:
OCEANOGRAPHY OF BLOCK ISLAND SOUND (ZOOPLANKTON AND ICHTHYOPLANKTON)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR HM AUSTIN
PM STOOPS

RECIPIENT INSTITUTION:
NEW YORK OCEAN SCIENCE LAB.
BOX 867
MONTAUK, NEW YORK 11954

PERIOD FOR THIS NRP.
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

The project is interdisciplinary in nature and includes the efforts of the NYOSL Physical, Chemical, and Fisheries Oceanography Laboratories and the Phytoplankton Ecology Laboratory. The project is designed to permit the inter-relationships of the physical-chemical and biological environment to be studied seasonally, and tidally.

The main interest of thislaboratoryisthe definition and delineation ofthe physio-chemical water massesin Block Island Sound using biological indicator organisms. Source of Block Island Sound waters, regions of mixing, and eventually percent-by-volume of mixed waters is being studied.

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SIE NO.
NNY-697

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY.
STATE uNIVERSITY OF NEW YORK

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
MICROBIOLOGY OF OYSTER BAY, GREAT SOUTH BAY, AND ADJACENT WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
JM CASSIN

RECIPIENT INSTITUTION:
ADELPHI UNIVERSITY
INSTITUTE OF MARINE SCIENCE
LEVE RMORE HALL
GARDEN CITY, NEW YORK 11530

PERIOD FOR THIS NRP:
5/72 TO 12/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The phytoplankton dynamics of spring, summer, and fall were determined for Oyster Bay, Great South Bay, and adjacent south shore waters. Standing crop, biomass, diversity, and distribution by genus and species were determined. This data is to be used for evaluation of impact of ocean outfall projected for 1980.

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SIE NO.
WZ-2254

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NO FORMAL SUPPORT REPORTED

AGENCY'S NUMBER(S):

BEDROCK ELEVATIONS WITHIN THE HUDSON RIVER VALLEY AND ADJACENT TRIBUTARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

JF DAVIS EDUCATION
RJ DINEEN

RECIPIENT INSTITUTION

STATE DEPT. OF EDUCATION
S. SWAN, NEW YORK STATE OFFICE BLDG.
ALBANY, NEW YORK 12225

PERIOD FOR THIS NRP,

7/72 TO 6/73
FY73 FUNDS UNKNOWN

Objectives: This investigation is directed towards mapping the bedrock surface into which the Hudson Valley and its tributaries have been cut by stream and glacial erosion. The reconnaissance mapping of the unconsolidated materials which cover over 80% of the bedrock, is also part of this investigation. The results of this investigation will be useful in major construction decisions within the Hudson Valley and in evaluating the groundwater resources of this area.

Approach: Refraction seismic techniques, inventorying the logs of domestic water wells, and the evaluation of bore hole data from engineering investigations are the principal sources of in-formation for mapping the bedrock surface of the Hudson Valley.

Current Plans and/or Progress! The possibility of using minor variations in the earth's gravity field as a means of mapping buried valleys within the study area will be investigated during the fall of 1972. If the results are satisfactory, this approach will be used to considerable extent for completion of the Project in 1973.

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SIE NO.
YNY-965

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
NEW YORK STATE GOVERNMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
SURVEY OF WILD AREAS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR DL COLLINS EDUCATION
EM REILLY
SJ SMITH

RECIPIENT INSTITUTION,
STATE DEPT. OF EDUCATION
S. SWAN, NEW YORK STATE OFFICE BLDG.
ALBANY, NEW YORK 12225

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $3,000

SUMMARY OF PROJECT:

Objectives: To identify important "natural areas," especially those with rare or endangered species of plants and animals so that steps can be taken by the responsible state departments (e.g. Environmental Conservation; Transportation) to preserve them from highway and commercial encroachment, impairment or destruction.

Approach: Using Museum records and all other available data as basic information, we make special surveys of selected sites where and when indicated, prepare and publish reports on them, and discuss and explain them to the appropriate state agencies.

Current Plans and/or Progress: Have made special surveys of Hudson Valley and Long Island, and have compiled information on sites in other areas, e.g. Adirondacks and Western New York. We plan continuation of these activities and hope to add new staff members for this purpose.

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SIE NO.
QT-6370

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ROCKEFELLER FOUNDATION

AGE NCYS NUMB ERIS)

THE ECOSYSTEM OF THE LOW ER PART OF THE HUDSON RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

UNKNOWN

RECIPIENT INSTITUTION.

BOYCE THOMPSON INST. PLANT RES
YONKERS, NEW YORK 10701

PERIOD FoR THIS NRP.

7/71 TO 6/72
FY72 FUNDS $386.000

SLIM MARY OF PROJECT:

The Boyce Thompson Institute for Plant Research in Yonkers, New York, in consultation and cooperation with other institutions, has initiated research into the ecosystem of the lower part of the Hudson River. It is hopedthatthis investigation will help establish a scientific basis for a cooperative ecological zoning plan for that portion of the river.

TheInstituteplanstomakeastudy of the Plant life in the marshes and shallows south of Poughkeepsie and its role in the river's capacity to recycle, detoxify, oxidize, and export to the sea the increasing nutrient load being poured into it. (It has been estimated that during the next 15 years more than $5 billion will be invested in major new industry with waste disposal needs in the lower Hudson.)

A salient feature of the Institute's program is that it is designed to draw community participationateverystep. The members of the Institute will meet continually with officials of the communities involved; local high school students and teachers will assist its professionals during the summer in obtaining field data.

Boyce Thompson scientists and their student assistantswill first collect and identify plant species. They will then investigate problems associated with the decomposition ofplant materials the growth rate of plants, the interaction of competing species, and the effects of Pollutants upon the plant communities, Finally they will return to the field to test laboratory observations and hypotheses the aim of the programwillbe a continuously improving understanding of the biological system rather than a routine sampling of it.

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SIE NO.
WZ-2287

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NO FORMAL SUPPORT! REPORTED

AGENCY'S NUMBER(S):

TITLE OF PROJECT
HOLOCENE EVOL UT ION OF THE BLOCK ESTUARY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPART ME NT/5 PECIALTY:
NK COCH EARTH & ENVIRONMENTAL SCIENCES

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
SCHOOL OF LIBERAL ARTS
65-30 KISSENA BLVD.
FLUSHING, NEW YORK 11367

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The research program, initiated in 1971, encompasses a detailed study of the Block estuary (Peconic Bays, Gardiners Bay, Western Block Island Sound, easternmost Long Island Sound) and the shallow continental shelf from East Hampton, New York to Block Island, R.I.

Over 800 sediment samples and shallow cores have been taken. Information on the physical and chemical parameters are being determined from these samples at present. Data from size analyses, supplemented by bottom observations and current measurements will be used to determine the sediment dispersal patterns through the area.

Data from surface sediment, plus data obtained from deep cores, will be used to determine the late Holocene evolution of the area.

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SIE No

GBP-1295

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S,

03-3-043-53

TITLE OF PROJECT:

STATISTICAL ANALYSIS OF BENTHIC SAMPLE DATA FROM THE NEW YORK BIGHT AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

PROF SB SAILA
DS VAUGHAN
RA PIKANOWSKI
SD PRATT

RECIPIENT INSTITUTION,

UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:

6/73 TO 12/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This project involves the creation of standardized machine readable files of biological and environmental data in cooperation with MESA project personnel. Historical sample data concerning the abundance and species composition of organisms from benthic samples will be analyzed. Analyses will include fitting various models to observed frequency distributions application of transformations, and analyses to provide some indication of sample size required for estimation problems or hypothesis testing.

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SIE NO.
GBP-1294

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

281803

TITLE OF PROJECT:

STATISTICAL ANALYSIS OF BENTHIC SAMPLE DATA FROM THE NEW YORK BIGHT AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR S SILA

RECIPIENT INSTITUTION,

UNIV. OF RHODE ISLAND
SCHOOL OF OCEANOGRAPHY
ADMINISTRATION BLDG.
KINGSTON, RHODE ISLAND 02881

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: (1) Provide Statistical Analysis of Replicate data from 205 stations in the apex of the New York Bight - to demonstrate (a) accuracy, (b) precision and (c) consequent necessary sampling intensity for predictive monitoring capability.

(2) Provide ADP program for analyzing (a) routine distributions around a variable, (b) distributions around two or more variables, (c) associations and interrelationships (dependent/independent) of a host of environmental and biological variables.

Approach: Apply frequency distributions of counts of invertebrate species to positive binomial, Poisson series and negative binomial distribution models. Develop transformations to normalize frequency distributions. Apply statistical analyses associated with normal distributions to the transformed data. Write and apply suitable computer programs for data analysis.

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GSV-3822-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S)
AG-375

1 "

TITLE OF PROJECT:
CARBON BUDGET OF FLAX POND ESTUARY, LONG ISLAND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GM WOODWELL
PH RICH
CA HALL
CS HEUSSER

RECIPIENTINSTITUTION
BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THISNRP
5/73 TO 4/74
FY73 FUNDS $105,000

SUMMARY OF PROJECT

A two-year program of basic research on the carbon cycle of a Long Island estuary is proposed to contribute to knowledge of the exchanges of carbon and its compounds between estuaries and other ecosystems The Flax Pond estuary offers a simple and reasonably practical opportunity for appraisal of net ecosystem production measured as carbon and as other elements including N, P, S and cations, In the first year water chemistry analyses and studies of underwater benthos will be conducted. The work on productivity will be restricted during this period to preliminary studies of methods and limited sampling. In the second year the program will be expanded to measure net primary production and respiration of the Spartina mat, the benthos and the water by a series of techniques designed to give separate, independent measurements of the same attributes, Partitioning of net production among its Principal uses will be measured as will major segments of the secondary production. An estimate of net ecosystem production will be available at the completion of the second year's work. ISG

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SIE NO.
QT-6198-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ROCKEFELLER FOUNDATION

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
HUDSON RIVER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
BOYCE THOMPSON INST. PLANT RES
YONKERS, NEW YORK 10701

PERIOD FOR THIS NRP:
1/74 TO 4/74
FY74 FUNDS $40,000

SUMMARY OF PROJECT:

The Boyce Thompson Institute, in consultation and cooperation with other institutions, has initiated research into the ecosystem of the lower part of the Hudson River to help establish a scientific basis for a cooperative ecological zoning plan for that part of the river. The Institute plans to make a study of the plant life in the marshes and shallows south of Poughkeepsie and its role in the river's capacity to recycle, detoxify, oxidize, and export to the sea the increasing nutrient load being poured into it. The members of the Institute will meet continually with officials of the communities involved; local high-school students and teachers will assist its professionals in obtaining field data.

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SIE NO
GBP-1187-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBERS
R63103541

TITLE OF PROJECT

NOAA/NAVY MESA NEW YORK BIGHT EXPERIMENT

PRINCIPAL INVESTIGATOR, ASSOCIATE, AND DEPARTMENT SPECIALTY

E RIDLEY
L FISHER

RECIPIENT INSTITUTION

U.S. NAVY
OCEANOGRAPHIC OFFICE
WASHINGTON, DISTRICT OF COLUMBIA 20390

PERIOD FOR THIS NRP

7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS $12,000

SUMMARY OF PROJECT

Technical Objective: Enlist technical capabilities of the Naval Oceanographic Office to conduct in situ oceanographic measurements, analyze data collected, and generate hydrodynamic model from acquired dye tracer and current meters data.

Approach: The Naval Oceanographic Office (NAVOCEANO) under the direction Of Mr. Dennis Clark, NOAA/NESS will provide equipment, personnel, and data analysis capabilities to the NOAA/MESA New York Bight Experiment in July 1973. The requirements to be filled by NAVOCEANO are contained in the NOAA/MESA experiment plan and in the work statement attached to DOC CD-45 (Jan. 1973) transferring funds to NAVOCEANO for the task. Documentation of data and current model will be sent to Mr. D. Clark, NOAA/NESS 30 days after data acquisition in July 1973.

ISG

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SIE NO.
GPE-1694-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
BER-74-165
CONTRACT CODE AA
AT(11-1)3254

TITLE OF PROJECT
THE EFFECTS OF ENVIRONMENTAL STRESS ON THE COMMUNITY STRUCTURE AND PRODUCTIVITY OF SALT MARSH EPIPHYTIC COMMUNITIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF JJ LEE BIOLOGY
WA MULLER
M MCENERY
J GARRISON
E KENNEDY

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
CONVENT AVE. & 138 ST.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP:
9/73 TO 8/74
FY74 FUNDS $47,300

SUMMARY OF PROJECT:

We propose to analyze and define the subtle variables which regulate the microbial and micrometazoan assemblages in salt marshes and shallow embayments in the greater New York City metropolitan region. This year we plan to make a comparative assessment of the role of diverse species of marine nematodes and ciliates in the detritus food chain including: mineral cycling and concentration, energy flow, biological half life, food web complexion, biotic potential and trophic efficiency estimations. Microcosm experiments will be used to evaluate effects of environmental stress including: intense; radiation; thermal; heavy metal; organic and petrochemical; as well as in the design and testing of a water quality assay system for near-shore water testing. It is hoped that the identification of the structure-function relationships may help to establish realistic guidelines for more effective use and management of this important habitat which surrounds much of this great city.

Results: A 578 page progress report (COO 3254-12) summarizes our results to date. In total, 3 technical papers supported by this contract were published this year, 5 papers have been accepted for publication and are in press, and 3 papers have just been completed and are under review. The results of one subproject (COO 3254-9), when published will be a substantial contribution to the field and will, in our opinion, be considered a major breakthrough in approaches to microbial and micrometazoan food web analysis.

INVESTIGATORS (CONT)
H RUBIN

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WASHINGTON, D.C. 20036

SIE NO
GBP-1188-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY NUMBER(S)

CONTRACT
R63103531

TITLE OF PROJECT

NEW YORK BIGHT COASTAL OCEANOGRAPHY EXPERIMENT

PRINCIPAL INVESTIGATOR AND ASSOCIATES AND DEPARTMENT/SPECIALTY

FJ WOBBER

RECIPIENT INSTITUTION

EARTH SATELLITE CORPORATION
1771 N ST, N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20036

PERIOD FOR THIS NRP

7/73 TO 6/74 MULT. SUPPORT
FY74 FUNDS $27,000

SUMMARY OF PROJECT

Technical Objective: To develop remote sensor information products related to in situ data for an analytical summary of physical and biological characteristics in the New York Bight coastal area.

Approach: The Earth Satellite Corporation, in cooperation with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, and the Naval Oceanographic Office will collect and summarize remote sensor data and correlative in situ ocean sensor data from the New York Bight coastal marine area. Previous remote sensor and in situ ocean sensor data will be inventoried In preparation for the April-May 1973 New York Bight experiment to determine the sensors, locations, flight lines, equipment, and other materials needed in the summary analysis of currents, pollution dispersion, and oceanographic features in this test area. The contractor will provide personnel, equipment, and technology before, during, and after data acquisition as well as post experiment analyses, interpretation, data display, and documentation of results. ISG

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SIE NO.
GBP-1327

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
03-4-043-310

TITLE OF PROJECT:
PHYTOPLANKTON PRODUCTIVITY, NUTRIENT RECYCLING & ENERGY FLOW IN THE INNER NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
TC MALONE BIOLOGY

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
SCHOOL OF ARTS
CONVENT AVE. & 138 ST.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP
9/73 TO 8/74
FY74 FUNDS $33,298

SUMMARY OF PROJECT:

Seasonal variations in the distribution and magnitude of phytoplankton and zooplankton abundance and productivity in the dumping grounds of the New York Bight will be studied in relationship to selected environmental parameters which reflect the effects of current practices of waste disposal in the area. The study will focus on the relationships between phytoplankton productivity water turbidity concentrations, volume transport of the Hudson River and zooplankton grazing. In addition to its basic ecological importance this study is designed to provide information required to predict and monitor the impact of changes in the quantity and quality of municipal wastes and dredge spoils discharged into the lower Hudson River Estuary and the New YorkBight on thepelagic ecosystem,

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S)

CONTRACT
R63103532

TITLE OF PROJECT

AEROSPACE OCEAN IMAGERY DISPLAY

PRINCIPAL INVESTIGATOR, ASSOCIATE, AND DEPARTMENT SPECIALTY

DK ROSS

RECIPIENT INSTITUTION

INTERNAT. IMAGING SYSTEMS CORP
510 LOGUE AVE.
MOUNTAIN VIEW, CALIFORNIA 94040

PERIOD FOR THIS NRP

7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS $33,000

SUMMARY OF PROJECT

Technical Objective: To provide services to NOAA/NESS SPOC Group for enhancing selected aircraft and satellite imagery and testing of various films for optimum oceanic image acquisition relevant to NOAA Marine Ecosystem Analysis in the New York Bight test area.

Approach: Imagery will be acquired with the NASA MSC remote sensing aircraft. NOAA will obtain concurrent in situ oceanic data in conjunction with contractors (ERIM, NAVOCEANO, EARTHSAT). International Imaging System (I2S) will enhance imagery selected by NOAA for improving information content by density slicing and false coloring techniques and id in interpretation through comparison of imaged data and in situ measurements of currents, depths, sediment, and other coastal marine features. I2S will also modify the NOAA SPOC camera to test various films during the NOAA MESA experiment over the New York Bight test site.

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SIE NO.
GBP-771-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
CONTRACT
03-4-043-311

TITLE OF PROJECT:
SUBLITTORAL MEIOBENTHOS OF THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JH TIETJEN BIOLOGY

RECIPIENT INSTITUTION:
CITY UNIVERSITY OF NEW YORK
SCHOOL OF LIBERAL ARTS
139TH ST. & CONVENT AVE.
NEW YORK, NEW YORK 10031

PERIOD FOR THIS NRP:
9/73 TO 8/74
FY74 FUNDS $14,219

SUMMARY OF PROJECT:

The ecology and distribution of the sublittoral meiobenthos occurring in the sediments of the Lower Hudson River and New York Bight will be studied. During the period of this project emphasis will be placed on ascertaining the quantitative distribution of the meiofauna population densities and biomass in the region. The relationships between the spatial distribution of the meiofauna and sediments will be examined. Seasonal fluctuations in meiofauna population densities will also be examined. Detailed investigation of the temporal and spatial distributing of the dominant taxon, the free-living marine nematodes, will commence during the year.

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SIE NO
GZF-28

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
TRANSPORTATION DEPARTMENT
COAST GUARD

AGENCY'S NUMBER(S)
CONTRACT
038155 (TRAIS NO, }

TITLE OF PROJECT
'SURFACE WATER MOVEMENTS IN NEW YORK HARBOR

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT SPECIALTY
J TYLER

RECIPIENT INSTITUTION
LONG ISLAND UNIVERSITY
GRADUATE SCHOOL
GREENVALE, NEW YORK 11548

PERIOD FOR THIS NRP
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT

Definition of geographical limits of NY harbor for the purpose of oil pollution transport control. Compilation and review of the existing literature on water movements in NY harbor, with special emphasis on surface waters. Identification of the current local government, industries, and academic data acquisition programs and their applicability to the Coast Guard's mission. Specification of a sampling program to provide necessary information for further harbor modeling and flow knowledge,

Document provided to S.S.I.E. by the T.R.A.I.S. Information Service,

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GBP-111-3

NOTICE OF RESEARCH PROJECT

T

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
R69103511

TITLE OF PROJECT:
REMOTE SENSING OF COASTAL PROCESSES

PRINCIPAL INVESTIGATOR, AS SOCIATES AND [DEPARTMENT/SPECIALTY:
PROF FC POLCYN
RE TURNER
SR STEWART

RECIPIENT INSTITUTION:
ENVIRONMENTAL RES. INST. MICH.
P.O. BOX 618
ANN ARBOR, MICHIGAN 48107

PERIOD FOR THIS NRP:
7/73 TO 6/74 MULT.SUPPORT
FY74 FUNDS $20,000

SUMMARY OF PROJECT:

Technical Objective - To develop remote sensing data acquisition and analyses techniques for basic research on coastal marine processes.

Approach - The Environmental Research Institute of Michigan will conduct overflights over the New York Bight and other nearshore sites to obtain multispectral and infrared scanner data concurrently with in situ oceanographic data. Thermal, optical, biological, sediment, and physical in situ data will be correlated to the aircraft sensor data to construct and evaluate models of currents, diffusion, water quality, bathymetry, productivity, sediment patterns, and other coastal phenomena.

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SIE NO
ZH-6101

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

NATL. AERONAUTICS & SPACE ADM.
OTHER UNKNOWN OFFICE
MISCELLANEOUS UNITS

AGENCY'S NUMBER(S):

ESTUARINE AND COASTAL WATER DYNAMICS CONTROLLING SEDIMENT MOVEMENT PLUS PLUME DEVELOPMENT IN LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

FH RUGGLES

RECIPIENT INSTITUTION,

U.S. NATL. AERO. & SPACE ADM.
HEADQUARTERS
WASHINGTON, DISTRICT OF COLUMBIA 20546

PERIOD FOR THIS NRP:

7/72 TO 6/73.
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The movement of water and sediment in and out of 3 estuaries of Connecticut and areas of littoral drift along shorelines will be studied using ERTS imagery. The 3 estuaries are the Thames, Connecticut, and Housatonic all of which enter Long Island Sound, and water movement in and out of the sound near Fishers Island and Throgs Neck will be obtained. Temperature, conductivity, and turbidity data will also be collected.

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SIE NO
GY-63464

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW YORK STATE GOVERNMENT

AGENCY'S NUMBER(S):
0063464
NYC-121368

TITLE OF PROJECT
MARINA B USINESSES AND USERS IN NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DA EILER AGRICULTURAL ECONOMICS
TL BROWN

RECIPIENT INSTITUTION:
STATE UN IVERSITY OF NEW YORK
AGRICULTURAL EXPERIMENT STA.
ITHACA, NEW YORK 14850

PERIOD FOR THIS NRP
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

OBJECTIVE: Identify private marinas in New York's Great Lakes, St. Lawrence Seaway, and Long Island waters. Survey these marinas to determine facilities provided, planned rates of expansion, and economic viability. Survey New York boat owners, focusing on characteristics of users, and demand for marina-related facilities in the study areas. Survey local units of government to determine plans for marina development and expansion, facilities currently provided, and existing marina needs. Determine areas where more marinas are needed, and any barriers that exist to private development of marinas in those areas. Suggest criteria for public involvement in development of marinas by public and private agencies or groups.

APPROACH: Conduct personal interviews of a stratified sample of marinas in each of the regions. Conduct a mail survey of a sample of New York boat owners.

PROGRESS:

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ZMA-706-

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S)

21 AIS 52

DEVELOP MARINE ECOSYSTEM ALTERATION ASSESSMENT TECHNIQUES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT,SPECIALTY:

RC SWARTZ — NATL COAST POLLUTION RES, PROG
WA DEBEN
FN COLE

RECIPIENT INSTITUTION:

U.S. ENVIRON. PROTECTION AGCY.
PAC. N.W. ENVIRON. RES. LAB.
200 S.W. 35TH ST.
CORVALLIS, OREGON 97330

PERIOD FOR THIS NRP.

7/72 TO 6/73
FY73 FUNDS $38,500

SUMMARY OF PROJECT

The overall objective of this project is to develop quantitative methods of assessing ecosystem alterations caused by pollution stresses associated with waste discharges to coastal waters. These techniques are expected to be useful for regulatory agencies to monitor discharge areas prior to and after discharges. In the first phase of this project, a site in the New York Bight will be studied before, during, and after an experimental sewage sludge dumping program. Spatial and temporal changes in the structure of the macrofaunal association will be determined thru analysis of faunal composition, density, dominance, biomass, diversity, and homogeneity. Correlations between these biotic parameters and abiotic factors will be attempted in relation to differences at the dumping site and surrounding stations before, during, and after the experimental dumpings. Documentation of ecosystem alterations at one point in time does not in itself indicate lasting effects; therefore we intend to observe the rate of recovery of the area in the post-dumping period. This should provide measures of the vulnerability of the local ecosystem and the extent of enviromental damage sustained.

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SIE NO.
ZBP-442

NOTICE OF RESEARCH PROJECT

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

TITLE OF PROJECT:

PILOT EXPERIMENT FOR THE REMOTE SENSING OF THE NEW YORK BIGHT MARINE ENVIRONMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DK CLARK ENVIRONMENTAL SCIENCES GROUP
LV STREES
WS GLIDDEN

RECIPIENT INSTITUTION,

U.S. DEPT. OF COMMERCE
NATL. ENVIRON. SATELLITE SERV.
WASHINGTON, DISTRICT OF COLUMBIA 20230

PERIOD FOR THIS NRP:

1/73 TO 6/74
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

An extensive experiment was executed on 7 April 1973 involving two satellites, three aircraft, nine surface vessels, two helicopters, 140 dye markers, three installed tide and current meters, and coordination between six federal and state agencies and three NOAA Main Line Components. Primary objectives of this experiment were: 1. Describe via remote sensing sea surface spectral band signatures, water masses and their movement as indicated by: a) Tubidity components of suspended particulate matter and/or chlorophyll concentrations. b) Sea surface temperature distribution. c) Surface slicks concentrated in areas of convergent flow. d) Spoil dump "scars". e) Dye tracer materials. 2. Determine the accuracy and limitations of photogrammetric measurements of dye tracer displacements for calculating surface current velocities and horizontal diffusion rates under specific conditions. 3) Characterize as a function of time both the physical and optical (spectral transmittance and scattering) properties of the waters surrounding and within a spoil dump. 4. Define the appropriate spectral ratios within the chlorophyll absorption bands and relate various ratios as a possible indicator of nutrient and productivity levels. 5. Generate surface currents from a hydronamic numerical model and evaluate the model. 6. Correlate sea surface temperature map for NOAA-II VHRR data. 7. Determine dye tracer dispersion techniques necessary for imaging and registration by ERTS-1 multispectral scanner. 8. Develop visual/graphical remote sensor data analysis products and techniques for anticipated requirements.

Data collected on 7 April 1973 is sufficient to provide considerable insight into or permit the fulfillment of the above objectives. This data is being processed and analyzed at this time for publication in the near future.

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SIE NO
GBP-1289

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S)

SEDIMENT TRACING IN THE AREA OF THE NEWYORKBIGHT USING RADIONUCLIDE-TAGGED SAND

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY,

FN CASE — ISOTOPES DEVELOPMENT CENTER
HR BRASHEAR

OAK RIDGE NATIONAL LABORATORY
P.O. BOX X
OAK RIDGE, TENNESSEE 37830

7/73 TO 6/74
FY74 FUNDS UNKNOWN

Sand tagged with gold-198/199 is deposited in selected area of the New York Bight and transport is determined by surveying the sea floor with a ship-towed radiation detector that moves over the floor. Realtime data processing and display of radiation contours provide direction and rate of sediment transport as it is dispersed from the original injection point.

Correlation of transport. data with waves, currents, and other measured parameters is made from data tapes prepared during survey. The survey systems consists of an underwater detector, positioning equipment, an onboard computer and associated radiation spectroscopy equipment.

This work is part of an Intensive study to determine the movement of sediment In the New York Bight area and its relationship to the management of waste disposal operations carried out in the past and to provide a basis for future wastedisposal planning and management.

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GPE-5014-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):

CONTRACT
AT(11-1)-3573

TITLE OF PROJECT:

TRACE ELEMENTS IN NATURAL WATERS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

PROF KK TUREKIAN — GEOLOGY & GEOPHYSICS
DP KHARKAR
J THOMSON

RECIPIENT INSTITUTION,

YALE UNIVERSITY
SCHOOL OF ARTS
206 ELM
NEW HAVEN, CONNECTICUT 06520

PERIOD FOR THIS NRP:

12/72 TO 11/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

There are three areas in which our investigation on the sources and fates of trace metals in natural waters will be focussed next year: (1) the riverine sources; (2) estuarine processes; (3) deep-sea processes. We will attempt to distinguish between the natural organically associated particulate trace element burden of streams from man-supplied material from sewer outfalls, using the distinctive trace element and uranium decay series disequilibrium of each as diagnostic criteria. We will try to assess the rates of deposition of metals in salt marshes and off-shore sediments in Long Island Sound using Pb210 for dating purposes. We will begin a budget for iron and manganese in Long Island Sound to see the size of the flux of these metals to the deep ocean. In the deep sea, we will continue our work on the composition of hard tissues of pelagic organisms. We will determine the rates of growth of deep-sea benthic molluscs using Ra228 and assay the nature and rate of growth of ferromanganese deposits on living calcareous molluscan shells from the deep abyss.

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SIE NO
NTX-206

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

UNIVERSITY OF TEXAS

AGENCY'S NUMBER(S)

ESTUARINE WATER QUALITY-BIOTA MODELS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,

PROF NE ARMSTRONG CIVIL ENGINEERING
RH FLAKE
D WILLIAMS

RECIPIENT INSTITUTION,

UNIV. OF TEXAS
SCHOOL OF ENGINEERING
200 W. 21ST
AUSTIN, TEXAS 78712

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: The objective of this research is to develop a mathematical model or models to describe the dynamics of biological populations in estuaries using new models or improvements on existing models and to determine the feasibility of using feedback control theory for large-scale systems as a modeling technique for water quality and biota. Natural environmental conditions and imposed stresses from waste dischargeswill be included in the models, and the models will be developed using existing (Z-year coverage) waste discharge, water quality, and biological data from Jamaica Bay, New York.

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SIE NO.
WZ-2448

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

UNIVERSITY OF TEXAS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

OPTIMAL CONTROL OF DISPERSED WASTE SOURCES IN ESTUARIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

PROF RH FLAKE ELECTRICAL ENGINEERING
N ARMSTRONG
BJ OLUFEAGBA

RECIPIENT INSTITUTION,

UNIV. OF TEXAS
SCHOOL OF ENGINEERING
200 W. 21ST
AUSTIN, TEXAS 78712

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: The application of optimal control theory to the process of water quality managment of estuaries. Special interest is being focused on optimization of the locations of waste discharge points so as to achieve the least impact of the waste in the receiving water.

The optimal control model will be tested on one or two major, complex estuaries - Jamaica Bay, New York and Galveston Bay, Texas, both of which have been the subject of recent, comprehensive water quality management studies and in which the problem of method and location of waste disposal was important.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL SYSTEMS

AGENCY'S NUMBER(S)

TITLE OF PROJECT:

COMPREHENSIVE CONCEPTUAL MODEL OF THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR GT ORLOB
RP SHUBINSKI
FD MASCH
JA ELDER

WATER RESOURCES ENGINEERS INC.
8001 FORBES PL., SUITE 312
SPRINGFIELD, VIRGINIA 22151

7/73 TO 9/74.
FY74 FUNDS UNKNOWN

Conceptual modeling of the New York Bight is part of a broader NOAA program which includes field investigations, analysis and data information services to provide a practical master plan for management of the Bight. The modeling program has as its objective the conceptual development of predictive tools which describe the physical, chemical, biological and oceanographic factors influencing the Bight. Emphasis is placed on the solution of real-world problems, i.e., being able to determine the effects of changing outside forces, primarily through man's activities, on the ecosystem of the Bight.

Three major systems have been identified for the conceptual model: 1. Circulation, 2. Sedimentation, and 3. Water quality-ecology.

A number of subsystems representing specific phenomena exist within these divisions and each is a separate part of the conceptual model. The model describes and assesses the driving variables for each subsystem, identifies critical rates and relationships and delineates the transfer paths between subsystems,

In the first phase of the project, the structure of each segment of the model is described, both narratively and graphically, and its relation to other sections is depicted. In subsequent phases, critical subsystems are explored more deeply and data needs are assessed. Attention is given to the impact of model needs on the data acquisition programs, and the framework for an ADP information system is recommended for selected subsystems. Finally, a report describing all aspects of the model is required.

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NTX-179

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
UNIVERSITY OF TEXAS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
ESTUARINE WATER QUALITY-BIOTA MODELS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF RH FLAKE ELECTRICAL ENGINEERING
N ARMSTRONG
D WILLIAMS

RECIPIENT INSTITUTION:
UNIV. OF TEXAS
SCHOOL OF ENGINEERING
200 W. 21ST
AUSTIN, TEXAS 78712

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Description: The objective of this research is to develop a mathematical model or models to describe the dynamics of biological populations in estuarines using new models or improvements on existing models and to determine the feasibility of using feedback control theory for large-scale systems as a modeling technique for water quality and biota. Natural environmental conditions and imposed stresses from waste discharges will be included in the models, and the models will be developed using existing (2-year coverage) waste discharge, water quality, biological data from Jamaica Bay, New York.

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ZUA-2005-2
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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S)

AC70-048-F

TITLE OF PROJECT:

URBANIZATION AND ITS EFFECT ON STREAM TEMPERATURE

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY,

EJ PLUHOWSKI WATER RESOURCES DIVISION

RECIPIENT INSTITUTION,

U.S.DEPT.OF THE INTERIOR
GEOLOGICAL SURVEY
ARLINGTON, VIRGINIA 22209

PERIOD FOR THIS NRP,

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Man's impact on the hydrologic environment has received greater attention in recent years. Such factors as increased storm runoff, loss of valuable top soil, stream and atmosphere pollution have come under scrutiny owing to their rather obvious undesirable effects. Aside from large scale isolated instances of thermal pollution, however, little has been done to assess man's influence on the thermal patterns of streams. Alteration of the natural hydrologic environment of a stream may affect its heat energy balance causing substantial changes in water temperatures.

Five streams with varying degrees of urbanization in their drainage basins have been selected for intensive study. Connetquot River in central Long Island was chosen as a control for comparison purposes. This stream flows through a hunting Preserve and is essential in its natural state. Five sites were selected along each stream and water temperatures obtained at each site. A statistical analysis employing a randomized block or latin square design will be utilized to test for significance between sites. Stream reaches yielding significantly different results will be subjected to an intensive field reconnaissance to isolate the cause of the anomaly.

An energy-budget approach will be utilized to assess the importance of urbanization factors on the overall flux of energy. Owing to the profound effect of certain meteorologic parameters on the heat balance it is likely that most studies will be restricted to periods of not less than 7 consecutive days. The most important factor in the energy budget is Insolation which is being measured directly by placing a pyranometer just above the water surface of the control stream. ISG

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SIE NO.
GBP-1288

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

CONCEPTUAL MODEL OF NEW YORK BIGHT ECOSYSTEM

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

UNKNOWN

RECIPIENT INSTITUTION:

WATER RESOURCES ENGINEERS INC.
8001 FORBES PL., SUITE 312
SPRINGFIELD, VIRGINIA 22151

PERIOD FOR THIS NRP:

7/73 TO 8/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The model will display through a series of graphs with accompanying narrative the major subsystems and forces that influence the ecology of the New York Bight. It will be used both to help scientist assess and predict the impact of man's activities on the Bight, and to aid in the design and development of NOAA's New York Bight Ecosystems Project.

Water Resources Engineers will provide a conceptual model in three formats: 1. A graphical representation similar to a flow chart which should depict clearly all ecosystem subsystems, components, processes and relationships including all transferred parameters and rates clearly identified. Additionally, exogenic inputs, sedimentations or partitioning within the model, and outputs should be easily disernable. 2. A narrative, cross-referenced with the graphical representation above adequately discussing the major subsystems involved. 3. An ADP Information System structured by the framework developed above and functioning to provide information relating to the Marine Environment.

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SIE No
ZUA-2687

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S)

NR 70-039

HYDROLOGIC INTERPRET ATIONS BASED ON REMOTE SENSING TECHNIQUES -- LONG ISLAND, LAKE ONTARIO, CHESAPEAKE BAY

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY,

UNKNOWN WATER RESOURCES DIVISION

RECIPIENT INSTITUTION.

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
ARLINGTON, VIRGINIA 22209

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $2,500

SUMMARY OF PROJECT

With the proliferation of nuclear power plants, thermal pollution of the nation's waterways becomes an increasingly acute danger, Remote-sensing techniques presently available permit detection and monitoring of thermal plumes generated by powerplants. Moreover, remote sensing provides a means, never before available, of detecting areas of ground-water discharge. Such areas may define potential sources of water supply.

To obtain baseline water-termperature data in the vicinity of two nuclear power stations on Lake Ontario. To identify the source, movement., and fate of pollutants entering the lake from the Niagara, Genessee, and Oswego rivers. To evaluate the extent and, identify areas of ground-water discharge,

Black and white, color, and false color photography will help identify pollutants and sediment. Thermal-infrared imagery is suited to thermal field studies, Multispectral scanners may be useful in identifying specific types of Pollutants,

Wind stress generated by atmospheric pressure gradients is the major factor controlling sediment-plume patterns. Prevailing westerly windsacross the south shore of Lake Ontario cause sediment to be carried predominantly to the east-northeast of the axes of all northward flowing rivers.

It is anticipated that the ERTS-A satellite will be in orbit during FY 1973. Ground-truth data will be obtained under favorable cloud conditions whenever the satellite passes over Lake Ontario.

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SIE NO.
ZUA-2390

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):

NR-70-039-0

TITLE OF PROJECT.

HYDROLOGIC INTERPRETATIONS BASED ON REMOTE SENSING TECHNIQUES - LONG ISLAND, LAKE ONTARIO, CHESAPEAKE BAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

EJ PLUHOWSKI WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
ARLINGTON, VIRGINIA 22209

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARYOF PROJECT

Purpose: To obtain baseline water-temperature data in the vicinity of two nuclear power stations on Lake Ontario. To identify the source, movement, and fate of pollutants entering the Lake from the Niagara, Genessee, and Oswego Rivers. To evaluate the extent and identify areas of ground-water discharge.

Methods: Black and white, color, and false color photography will help identify pollutants and sediment. Thermal-infrared imagery is suited to thermal field studies. Multispectral scanners may be useful in identifying specific types of pollutants.

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SIE NO.
GBP-1187

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S)

R63103

TITLE OF PROJECT.

NOAA/NAVY MESA NEW YORK BIGHT EXPERIMENT

E RIDLEY
I FISHER

RECIPIENT INSTITUTION.

U.S. NAVY
OCEANOGRAPHIC OFFICE
WASHINGTON, DISTRICT OF COLUMBIA 20390

PERIOD FOR THIS NRP:

7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

Technical Objective: Enlist technical capabilities of the Naval Oceanographic Office to conduct in situ oceanographic measurements analyze data collected, and generate hydrodynamic model from acquired dye tracer and current meters data.

Approach: The Naval Oceanographic Office (NAVOCEANO) under the direction of Mr. Dennis Clark, NOAA/NESS will provide equipment, personnel, and data analysis capabilities to the NOAA/MESA New York Bight Experiment in July 1973. The requirements to be filled by NAVOCEANO are contained in the NOAA/MESA experiment plan and in the work statement attached to DOC CD-45 (Jan. 1973) transferring funds to NAVOCEANO for the task. Documental.-ton of data and current model X will be made to Mr. D. Clark, NOAA/NESS 30 days after data acquisition in July 1973.

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SIE NO.
GBP-1188

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
CONTRACT
R63103771

TITLE OF PROJECT:
NEW YORK BIGHT CO ASTAL OCEANOGRAPHY EXPERIMENT

PRINCIPAL INVESTIGATOR. ASSOCIATESANDDEPARTMENT/SPECIALTY:
FJ WOBBER

RECIPIENTINSTITUTION:
EARTH SATELLITE CORPORATION
1771 N ST. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20036

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: To develop remote sensor information products related to in situ data for an analytical summary of physical and biological characteristics in the New York Bight coastal area.

Approach: The Earth Satellite Corporation, in cooperation with the National Oceanic and Atmospheric Administration, the National Aeronautics and Space Administration, and the Naval Oceanographic Office will collect and summarize remote sensor data and correlative in situ ocean sensor data from the New York Bight coastal marine area. Previous remote sensor and in situ ocean sensor data will be inventoried in preparation for the April-May 1973 New York Bight experiment to determine the sensors, locations, flight lines, equipment, and other materials needed in the summary analysis of currents, pollution dispersion, and oceanographic features in this test area. The contractor will provide personnel, equipment, and technology before, during, and after data acquisition as well as post experiment analyses, interpretation, data display, and documentation of results.

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SIE NO.
ZMA-743

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
ENVIRONMENTAL PROTECT, AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMB ER(S)
729?20696

TITLE OF PROJECT
DEVELOP MARINE ECOSYSYEM ALTERATION ASSESSMENT TECHNIQUES

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY:
RC SWARTZ

RECIPIENT INSTITUTION
U. S. ENVIRON. PROTECTION AGCY.
NATL. ENVIRON, RESEARCH CENTER
CORVALLIS, OREGON 97330

PERIOD FOR THIS NRP.
7/72 TO 6/73
FY73 FUNDS $38,500

SUMMARY OF PROJECT:

The overall objective of this project is to develop quantitative methods of assessing ecosystem alterations caused by pollution stresses associated with waste discharges to coastal waters. These techniques are expected to be useful for regulatory agencies to monitor discharge areas prior to and after discharges. In the first phase of this project, a site in the New York Bight will be studied before, during, and after an experimental sewage sludge dumping program. Spatial and temporal changes in the structure of the macrofaunal association will be determined through analysis of faunal composition density, dominance, biomass, diversity, and homogeneity. Correlations between these biotic parameters and abiotic factors will be attempted in relation to differences at the dumping site and surrounding stations before, during, and after the experimental dumpings. Documentation of ecosystem alterations at one point in time does not in Itself indicate lasting affects; therefore, We intend to observe the rate of recovery of the area in the post-dumping period. This should provide measures of the vulnerability of the local ecosystem and the extent of environmental damage sustained.

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SIE No.

ZMA-720

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

ENVIRONMENTAL PROTECT, AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):

21 AIS 05

72P18019

TITLE OF PROJECT:

EVALUATION OF POLLUTION LOADINGS, LOCAL WATER QUALITY, TOXICITY AND RESOURCE DATA IN PUGET SOUND AND NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/sPEcIALTY,

DJ BAUMGARTNER NATL COASTAL POLL RES PROG
DT MARTIN

RECIPIENT INSTITUTION:

U.S. ENVIRON. PROTECTION AGCY.
PAC. N.W. ENVIRON. RES. LAB.
200 S.W. 35TH ST.
CORVALLIS, OREGON 97330

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $25,000

SUMMARY OF PROJECT:

The objectives of this project are to aid the formulation and direction of research projects and to assist regulatory programs of the Environmental Protection Agency in formulating water quality criteria and implementation procedures for two critically important costal areas--Puget Sound and the New York Bight. This is to be achieved through desk-top evaluations of available literature and personal interviews with scientists and water pollution control officials in the area. In Puget Sound, the effort to date has been concentrated on the formulation of research plans, and a report of the results is in press. The New York Bight activities will focus on the environmental interactions of sewage sludge dumped from barges. Results of this work will be used to develop information for an environmental impact assessment of an experimenal sludge dmping project to be initiated by the National Coastal Pollution Research Program.

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ZUA-2378

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S)

CT-71-027-0

REMOTE SENSING OF LONG ISLAND SOUND

FH RUGGLES WATER RESOURCES DIVISION

RECIPIENT INSTITUTION,

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
HARTFORD, CONNECTICUT

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

Purpose: To evaluate data collected by remote sensing techniques as tools to measurehydrologicparameters such as sediment transport and tidal currents.

Method: This is a continuing program to utilize NASA overflights at altitudes of 15,000, 25,000, and 50,000 ft, to record dynamic hydrologic parameters via Phonography and infrared scanning, These data will be used together with some ground truth data to document present conditions and attempt to forecast changes that will be monitored by satellites

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SIE NO.
ZMA-683

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
21 AIS 06

TITLE OF PROJECT:
DETERMINE DISTRIBUTION OF PCB'S AND OTHER PERSISTENT ORGANICS ASSOCIATED WITH PARTICLES OF WASTE ORIGIN IN THE NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR JN BLAZEVICH

RECIPIENT INSTITUTION:
U.S. ENVIRON. PROTECTION AGCY.
NATL. ENVIRON. RESEARCH CENTER
CORVALLIS, OREGON 97330

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $70,000

SUMMARY OF PROJECT:

The objective of this research is to study the fate of persistent organics (i.e., chlorinated hydrocarbons) in sewage sludge discharged by barge dumping into the near-shore ocean environment. This includes determination of rates and mechanisms of accumulation, transport, and transformation of persistent organics in the water column, sediments, surface films, and biota. The results will be used to make recommendations on monitoring schemes, for abatement, and guidance on discharge restrictions relating to persistent organics. The work will be carried out in three phases. First, a determination of a suitable sludge plant and dumping site will be made based on levels of persistent organics found in sludges and at the sites. Second, dumping will be initiated and continue for a predetermined period of time. Samples of sludge, sediments, surface films, water, and biota will be taken and analyzed at appropriate intervals. Third, the site will be monitored after dumping to determine changes in concentration of persistent organics with time in sediments and biota. Cooperative efforts with NOAA have been initiated and are expected to continue. Phase I of the plan has been initiated. A tentative dumping site and sludge plants are being investigated.

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GBP-1290

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S),

STUDY OF THE DUMPED MATERIALS AT THE NEW YORK BIGHT SEWAGE SLUDGE AND DREDGE SPOILS SITES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,

JJ DOWLING GEOLOGY & GEOGRAPHY

RECIPIENT INSTITUTION

UNIV. OF CONNECTICUT
MARINE SCIENCES INSTITUTE
GROTON, CONNECTICUT 06340

PERIOD FOR THIS NRP

6/73 TO 11/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

This study is designed to map the distribution of spoils material within the New York Bight. Seismic reflection profiling and analysis of bottom samples are the principle field techniques. In addition, bottom photography will be used.

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SIE NO.

ZBP-395

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

281810

EXPERIMENTAL BIOLOGY INVESTIGATIONS - ENVIRONMENTAL BIOASSAY INVESTIGATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR A CALABRESE
FP THURBERG
E GOULD
R COLLIER

RECIPIENT INSTITUTION:

U.S. DEPT. OF COMMERCE
LAB. FOR EXPERIMENTAL BIOLOGY
ROGERS AVE.
MILFORD, CONNECTICUT 06460

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

Technical Objective: To examine in the laboratory by bioassay, physiological and biochemical techniques, a selected group of New York Bight coastal animals and the effect of contaminants on their normal life functions. These experiments will indicate that some marine animals are extemely sensitive to minute amounts of pollutants, or that certain animals or communities will flourish where specific contaminants are available at those levels.

Approach: Experiments will be conducted to assess physiological changes in various species of marine bivalves, crustaceans and fish. Embryos and larvae of shellfish will be exposed to heavy metal ions through in vivo laboratory experiments to determine concentrations which affect normal development. Adult crustaceans and fish will be exposed to contaminants to determine changes in osmo-regulation and respiration rates. Also, as part of a broad-spectrum study of the effects of pollutants upon representative marine organisms, studies will be made to discover significant enzymological changes in the tissues of target animals during their exposure to known amounts of pollutants, and to interpret any such changes from the standpoint of biochemical adaptation or malfunction in response to the pollutant. By determining the degree and rate of such change in the light of concurrent work in related disciplines, it should be possible to monitor and even to predict the probable success or failure of the species to survive under known conditions of pollution. These organisms will be exposed to a great assortment of contaminant material. They will be subjected to acute exposures initially, but as facilities are developed, they will be subjected to long-term, chronic exposures of sublethal stress levels of pollutants.

Progress: Experimental results have provided lethal levels for embryos of the American oyster and hard shell clam for 10 and 5 heavy metals, respectively. Tests on changes of osmo-regulation and respiration rates of various species of crustaceans have been completed.

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NOTICE OF RESEARCH PROJECT

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AGENCY'S NUMBER(SI

TITLE OF PROJECT

PRINCIPAL INVESTIGATOR. ASSOCIATESANDDEPARTMENT/SPECIALTY

RECIPIENT INSTITUTION

PERIOD FOR THIS NRP

SUMMARY OF PROJECT

BP-1196 (CONTINUED)

nder water photometer and direct measurement of suspended material.

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SIE NO.
GBP-1196

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
028520577

TITLE OF PROJECT:

STUDIES ON METHODS FOR CONTROL OF CODIUM FRAGILE IN LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,

UNKNOWN

RECIPIENT INSTITUTION:

STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $8,621

SUMMARY OF PROJECT:

Objectives - Management of shellfish beds infested with Codium, assessment of colonization rates of Codium, in shellfish beds, and natural factors which encourage the growth of Codium. Continued experiments on the development of 'dips' for the removal of Codium from shellfish. Determination of vertical distribution of Codium as a function of water turbidity (light penetration).

Procedures - At 5 estuary sites lay-out 3 bottom plots at 2 meters depth, middle estuary, in early spring. Remove all Codium in 2 plots. The third shall remain a control. In 1 of the 2 culled plots, continue to remove Codium at 4-week intervals. Monthly census of both living and dead scallops, oysters, quahaugs and Codium, and if possible relate condition of shellfish to Codium.

At five sites on the estuary, water quality analyses will be continued. Settling surfaces for Codium were set out in March at these sites. They consist of oyster shells strung on buoyed lines anchored by cement blocks. They thus far have proven excellent in that the settling surfaces are easy to remove, resist sedimentation and are not easily located by vandals. At each site, two lines are removed and replaced at 1 - month intervals. The attached Codium is harvested for measurements of growth and photosynthetic capacity.

Use techniques developed in the past year to produce differentiating plants on oyster shells in culture. By varying exposure time and concentration, test lethality of heavy metal salts, oxidizing agents, biodegradable organic compounds, chelators and osmoticums. Adapt findings to shellfish cultivation practices.

Pre-measured apical segments of physiologically uniform Codium are attached to vertically-buoyed lines at 1 meter intervals. After 2 days, the plants are assayed for photosynthetic capacity in situ by measuring $H^{14}CO_3$ uptake rates. After 2 weeks, the plants are harvested and assayed for increase in length, wet weight and dry weight, and levels of chlorophyll and starch.

Light penetration as a function of turbidity will be determined by

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SIE NO.
GBP-482-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE **DEPARTMENT**
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S)

CONTRACT
028520276

ECOLOGY, **POPULATION** STRUCTURE AND MOVEMENTS **OF LOBSTERS**

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

DR W LUND

RECIPIENT INSTITUTION

STATE DEPT. OF ENV. PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP.

7/72 TO 6/73
FY73 FUNDS $18,600

SUMMARY OF PROJECT

Objectives - Determine the movements of lobsters in and from Long Island and Fishers Island Sounds. Define the population to which these lobsters belong. Determine hours and periods of activity and inactivity on a daily and seasonal basis.

Procedures - It is planned to continue the tagging program by tagging lobsters in Block Island Sound. The lobsters will be captured for tagging by fishing our own traps, SCUBA diving and buying directly from the fishermen. Lobsters will be tagged underwater and aboard ship and returns should allow us to evaluate the two methods.

Sub-legal as well as legal lobsters will be" tagged to determine any differential movements which might exist with size. Recapture of moulted lobsters will give information on frequency of moulting for individual lobsters as well as the increase in size increment

Sonic tags will be employed to study movements of individual lobsters on a daily basis. The power source for the tags lasts about 14 days but this source can be renewed, The lobster is recaptured by diver and the entire sonic tag replaced. Inthis way an individual lobster's daily movements **can** be followed over an extensive period,

The sonic tag program will continue on a limited basis. All information collected during the last two years will be analyzed and prepared for publication. The use of sonic ta9s during the coming year will be to complete any part of the program which is found incomplete Expansion of the sonic tagging program will be undertaken until all data collected have been analyzed.

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SIE NO.
GBP-753

NOTICE OF RESEARCH PROJECT

SUPPORT(NG AGENCY.

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
028520483

TITLE OF PROJECT:

A STUDY OF THE MIGRATORY BEHAVIOR OF AMERICAN SHAD

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

WC LEGGETT

RECIPIENT INSTITUTION:

STATE DEPT. OF ENV, PROTECTION
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $8,500

SUMMARYOF PROJECT:

Objectives: To use sonic tags to track normal and sensory impaired shad in Long Island Sound and to use dart tags to follow the general movement of normal and sensory impaired shad in Long Island Sound.

Procedures: Individual shad will be tagged with sonic tags and tracked with boat mounted receivers. Shad to be tracked are control, blind, anosonic, anosonic and blind. Movements of these shad will be plotted on coastal navigation charts coincident with measurements of wind direction and force, wave direction and height, tide state, sky condition, salinity, and fish swimming speed.

Seventy-five fish of each of the aforementioned categories will be tagged and released from each of the two tagging areas. Fifty fish of each category will be captured east of the river, displaced to the tagging station west of the river, and released. Blinding will be accomplished by injection of 3% aqueous benzethonium chloride directly into the eye. Olfactory occlusion procedures will be finalized following a more complete evaluation of available methods.

School size and dispersal of shad entering Long Island Sound from the east will be determined by echo location procedures. The extent of the fresh water plume originating from the Connecticut River over eastern Long Island Sound will be determined by infrared imagery and airborne radiation thermometer techniques.

Dart tag returns will be analyzed for different return frequencies between the two tagging sites and between normal and impaired fish.

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SIE NO
GDP-1253

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
OFFICE OF COASTAL ENVIRONMENT

AGENCY'S NUMBER(S):

NEW YORK BIGHT REGIONAL PROJECT (MESA)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

RL sWANSON MARINE ECOSYSTEMS ANAL PROG

RECIPIENT INSTITUTION

U.S. DEPT. OF COMMERCE
OFF. OF COASTAL ENVIRONMENT
ROCKVILLE, MARYLAND 20852

PERIOD FOR THIS NRP:

7/72 TO 6/73,
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

TheNewYork Bight MESA Project is a five-Year effort designed to undertake integrated studies of the physical, chemical and biological characteristics of the marine environment. It is not only established to coordinate NOAA activities in the Bight but also will help to serve as a focus and coordinator of other pertinent research in the area. The objectives are to: 1. Describe, understand, and monitor the physical, chemical, and biological Processes of the marine environmental system. 2. Provide information and expertise required for effective management of marine areas and the rational use of their associated resources 3. Analyzeimpactofnaturalphenomena or man-made alterations on the marine environment.

The first year's effort will specifically address the research on ocean dumping, the authority of which is assigned to NOAA in Public Law 92-532 - The Marine Protection, Research and Sanctuaries Act of 1972.

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GBP-470-1

NOTICE OF RESEARCH PROJECT

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

CONTRACT
028520546

STUDIES DIRECTED TOWARD METHODS FOR CONTROL OF CODIUM FRAGILE IN LONG ISLAND SOUND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR RAMUS

RECIPIENT INSTITUTION:

STATE PRESERV. & CONSERV. DIV.
STATE OFF. BLDG.
HARTFORD, CONNECTICUT 06115

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $7,500

To determine the effects of variation in environmental conditions on the growth and reproduction of Codium fragile and to test the effectiveness of specific means to control the invasion by this alga.

Procedures: Continued studies on management of shellfish beds infested with Codium will entail creation of three 10 x 10 meter sample plots to be laid out at fine estuary locations in early spring. All Codium will be removed from two, the third plot to serve as a control. Codium will be culled from one of the cleared plots at four week intervals to ascertain the re-infestation rate of this organism and its effect upon shellfish. Water quality analyses will be continued. Determination of total soluable phosphates and nitrates, temperature, salinity, light penetration, and dissolved oxygen profiles will be made. Laboratory experiments on the development of dips for removal of Codium from shellfish will be continued. Tests of lethality of heavy metal salts, oxidizing agents, biodegradable organic compounds, chelators, and osmoticums will be made to determine responses to various exposure times and concentrations. Determination of vertical distribution of Codium as a function of turbidity (light penetration) will be made by utilizing premeasured apical segments of physiologically uniform Codium attached to vertically buoyed lines at 1-meter intervals. After 2 days, the plants are assayed for their photosynthetic capacity and, after 2 weeks, they are harvested and assayed for increased length, wet weight, dry weight, and levels of chlorophyll and starch. Light penetration will be measured by underwater photometer and direct measurement of suspended material.

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SIE NO.
ZTK-59

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

)EPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT,

JAMAICA BAY HURRICANE BARRIER STUDY NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

TC HILL ESTUARIES BRANCH

RECIPIENT INSTITUTION,

I.S. ARMY
WATERWAYS EXPERIMENT ST ATION
P.O. BOX 631
VI CKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:

7/72 TO 6/73.
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Purpose of Study/Investigation: To determine the effects of a urricane protection structure with all tidal passages open on tidal eights, current velocities, salinities, temperatures, and dye ispersion within Jamaica Bay for normal tides. Plans which had no verse effects on the above phenomena and which did not create maximum locities hazardous to navigation were subjected to hurricane surges to termine the amount of suppression obtained throughout Jamaica Bay. An dditional objective of the investigation to improve the quality of ater in the Bay has been added by the New York District. This edification may involve barrier gate operation and/or structural, nges in the Bay.

Approach or Plan: The Jamaica Bay segment of the existing New York arbor Model was updated to topographic conditions of 1967. The xisting New York Harbor model linear scale ratios are 1:100 vertically nd 1:1000 horizontally. A hurricane surge generator was added to the odel to conduct the surge test. A series of tests was conducted for isting conditions and then duplicated for plan conditions: comparison f test results allows the effects of the plans to be evaluated.

Progress to Date: New York District personnel recommended a arrier plan consisting of a 300-ft-wide ungated navigation opening to tural bottom depths (approximately -32 ft msl) plus six 75-ft-wide ated tidal passages with bottom sills to an elevation of -26 ft msl on ach side of the navigation opening. Model tests indicated no adverse ffects on tidal heights, current velocities, salinities, and dye ispersion within Jamaica Bay; however, the plan would not provide equate suppression of the hurricane surge elevations within the Bay. an 6 included a 110-ft wide unsated navigationopeningto natural ottom conditions plus eight 75-ft-wide gated tidal passages with bottom ills to elevations of -26 ft msl on each side of the navigation pening. This plan had no adverse effects on the related phenomena and rovided the required suppression of hurricane surges within the Bay; owever, the 110-ft-wide navigation opening did not meet the present avigation needs which require a minimum opening of 150 ft. A series of urricane surge tests was conducted utilizing widths of navigation penings varying from 150 to 200 ft. These openings provided bottom

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SIE NO.
GBP-111-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):
R63103761

TITLE OF PROJECT:
REMOTE SENSING OF COASTAL PROCESSES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF FC POLCYN
RE TURNER
SR STEWART

RECIPIENT INSTITUTION:
ENVIRONMENTAL RES. INST. MICH.
P.O. BOX 618
ANN ARBOR, MICHIGAN 48107

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Technical Objective - To develop remote sensing data acquisition and analyses techniques for basic research on coastal marine processes.

Approach - The Environmental Research Institute of Michigan will conduct overflights over the New York Bight and other nearshore sites to obtain multispectral and infrared scanner data concurrently with in situ oceanographic data. Thermal, optical, biological, sediment, and physical in situ data will be correlated to the aircraft sensor data to construct and evaluate models of currents, diffusion, water quality, bathymetry, productivity, sediment patterns, and other coastal phenomena.

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SIE NO
ZTK-57

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S)

MODEL STUDY OFMORICHES INLET, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

RA SAGER ESTUARIES BRANCH

RECIPIENT INSTITUTION

U.S. ARMY
WATER WAYS EXPERIMENT STATION
P.O. BOX 631
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Purpose of Study/Investigation: To develop an effective plan of improvement for Moriches Inlet, to maintain a stable and safe navigation channel through the inlet and effectively transfer sand east the inlet.

Approach or Plan: Fixed- and movable-bed model tests were conducted to define the effects of proposed plans ofimprovementon the hydraulic conditions and shoaling and scouring trends of the inlet, respectively.

Progress to Date: Several tests in both the fixed- and movable-bed models were conducted with various size navigation channels and single littoral traps at various locations or a combination of a littoral trap, andrehandling basin each at- various locations. Results indicated that a single littoral trap sufficiently protected from ocean waves to allow dredging to be effectively performed, could not be considered. Previous tests with protective structures have been effective; however, excessive costs would be required, Tests conducted with the littoral trap located sufficiently landward to achieve wave protection demonstrated that material would not move into the littoral traps. Tests with a combination ocean littoral trap and interior rehandling basin indicated effective results could not be achieved.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY.

AGENCY'S NUMBER(S):

TITLE OF PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

ZTK-59 (CONTINUED)

sill elevations varying from -23 ft msl to -26 ft msl.

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SIE NO.
ZUH-3310-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
FR2518-03

HYDROGRAPHY OF NEW YORK BIGHT IN RELATION TO OFFSHORE WASTE DISPOSAL

RI WICKLUND

RECIPIENT INSTITUTION
U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Study the hydrography of the New York Bight with particular emphasis on conditions having a direct effect on the movements of waste disposal.

Measure and analyze temperature and salinity throughout the water column at 26 stations every two weeks, and release 300 sea bed drifters and drift bottles once a month.

Establish stations, utilizing sub-surface buoys, at six locations equipped with thermographs located at the bottom and in mid-water. Supplemental buoy stations may be added to verify hypothesis developed from interpretation of regular station data.

Temperature, salinity, and density determinations to be plotted on horizontal and vertical profiles and drifter, current meter, and thermograph data processed and analyzed by computer techniques. ISG

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SIE NO.
ZTK-42

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
MODEL STUDY OF HAMLIN BEACH HARBOR, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RW WHALIN WAVE DYNAMICS BRANCH

RECIPIENT INSTITUTION
U.S. ARMY
WATERWAYS EXPERIMENT STATION
P.O. BOX 631
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Purpose of Study/Investigation: To determine the optimum design of the proposed harbor.

Approach or Plan: A 1:64-scale model of the proposed harbor and sufficient portion of Lake Ontario needed to generate the required test waves will be used to determine the optimum design of the harbor.

Progress to Date: Model construction has been completed, and model testing will be initiated as soon as funds are provided by the Buffalo District.

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SIE NO.
GBP-1293

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER (S)

281803

TITLE OF PROJECT:

ANALYSIS OF BENTHIC SAMPLES COLLECTED BY NOAA-MESA PROGRAM

PRINCIPAL INVESTIGATOR ASSOCIATES AND APARTMENT SPECIALTY

DR D ROSE

RECIPIENT INSTITUTION

TRENTON STATE COLLEGE
GRADUATE SCHOOL
HILLWOOD LAKES
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $16,758

SUMMARY OF PROJECT

Technical Objective: One of three Universities and two MACFC Laboratories who will receive sub-samples of 340 bottom grab samples taken from the Apex of the New York Bight during June, 1973.

Approach: Macrofaunal sub-samples, under dissecting microscopes are sorted and identified to the species level; count of individuals by species and count of number of species. Quality control rechecks will be made.

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SIE No
ZRP-466

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

281890

TITLE OF PROJECT:

ECOSYSTEMS INVESTIGATIONS-MARINE CONTAMINANTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR RK TUCKER
A MATTEE

RECIPIENT INSTITUTION:

U.S. DEPT. OF COMMERCE
MIDDLE ATL. FISHERIES CENTER
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP,

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: Objectives of the investigation are to: establish the patterns of distribution of heavy metals, pesticides, petrochemicals and other toxic materials in sediments collected in the New York Bight and ancillary waters and embayments; determine patterns of distribution of bottom-dwelling macrofauna and meiofauna as these patterns are related to heavy metals and other toxins, thermal additions and deteriorated environments; determine the effects of a variety of contaminants on the physiology, behavior and reproduction of selected species of marine organisms indigenous to the New York Bight; study the sublethal and lethal effects of thermal additions and oil pollution on marine and estuarine species; and begin to develop, based on laboratory and field data collected from the New York Bight, hypotheses and models which can be used to predict the effects of waste disposal in coastal and estuarine waters on the life history of selected species and which would be generally applicable to other temperate water exosystems.

Approach: In conjunction with the Biological Oceanography Investigation we have developed a grid of sampling stations which will encompass portions of the New York Bight, western Long Island Sound and Raritan Bay, including adjunct embayments and estuaries. Initally, grab, dredge, trawl and epibenthic samples are taken at five-mile intervals except with the Hudson Shelf Valley, alternative dumping sites, and embayments. At these sites collections will be taken at intervals necessary to obtain samples for analyses for heavy metals and other contaminants. Once having ascertained the amounts of specific metals and other toxins in living tissues and the physical environment, we perform laboratory tests to determine the effects of toxins and thermal additions on amino acid metabolism, ionic regulation and ion transport, neurophysiology and behavior, and respiration. Tests are performed using laboratory grade reagents as toxins as well as sediments and water from the field which contain known amounts of toxic materials. Experiments utilizing actual toxic materials collected from the environment are extremely difficult to set up, perform and interpret because of the synergistic effect of the numerous toxins present in sediments and water. This tends to decelerate the progress of work but experiments are essential if the real environment is to be understood.

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SIE NO.
GBP-454

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMB ERIS)

720102
CONTRACT

TITLE OF PROJECT:

A BASELINE STUDY OF THE WATERS SURROUNDING DAVID'S ISLAND PRIOR TO THE INTRODUCTION OF THERMAL ADDITIONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

JB PEARCE MARINE LABORATORY
CI GIBSON

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
BUR.OF SPORT FISH.& WILDLIFE
HIGHLANDS, NEW JERSEY 07?32

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS $11,000

SUMMARY OF PROJECT

Technical objective: To assess the standing crops of finfish, zooplankton and bottom-dwelling invertebrates in waters surrounding David's Island, western Long Island Sound. Evaluate the potential effects which thermal additions from a steam-electric generating station might have on those living resources.

Approach: Sampling transects and stations are sampled on a monthly basis. Appropriate nets, dredges and bottom samplers are used, Hydrographic data including temperature, salinity, dissolved oxygen and nutrients are collected simultaneously. Laboratory studies to determine the sublethal effects of elevated temperatures are being conducted

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SIE No.

GBP-1229

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
281890

TITLE OF PROJECT

LONG ISLAND SOUND BASELINE SURVEY (BENTHIC MACROFAUNA)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR D DOREMAN

RECIPIENT INSTITUTION,

MONMOUTH COLLEGE
GRADUATE SCHOOL
WEST LONG BRANCH, NEw JERSEY 07764

PERIOD FoR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $10,000

SUMMARY OF PROJECT

Technical Objective: Provide data on species diversity and on seasonal and spatial distribution and abundance of benthic macrofauna in Long Island Sound.

Approach: Sort, identify, and enumerate, by species the macrofauna found in 158 sediment samples derived from the Sound.

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SIE NO
ZRP-529

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADM IN.
ENV IRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S)

NEW YORK BIGHT - MARGINAL AREA SEDIMENT AND SEDIMENT INVENTORY COMSED PROJECT OF AOML

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

DR TF MCKINNEY
ALSO WITH VASSAR COLLEGE
D SWIFT
M DICKEN CITY UNIVERSITY OF NEW YORK
W STUBBLEFIELD

RECIPIENT INSTITUTION

U.S. DEPT. OF COMMERCE
ATL. OCEAN. & METEOROL. LAB.
MIAMI, FLORIDA 33132

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

This study is a part of the COMSED project of AOML (Continental Margin Sedimentation). Data collection began in the summer of 1972 in two detailed study area on the New Jersey continental shelf: 1) area 1A, the brigantine Shoal area of the inner shelf 2) area 1B, The Great Egg Nassif Ridge Field of the central shelf. Data consisted of bottom samples (1A - 189, 1B - 200), side scan sonar surveys (1A - 20 n.mi., 1B -91n.mi.), vibrocores (1A - 3, 1B - 4) and submersible dive traverses (1A - 1, 1B - 4).

The '72 side scan survey has revealed sediment patterns associated with large-scale current lineations Produced by storms. Also revealed were wave ripple patterns and areas of suspected outcropping of Holocene or Pleistocene clayey sediments in troughs, Observations from submersible dives and bottom samples were correlated with side scan data.

Additional side scan reconnaissance surveys are planned for '73 1A-60 n.mi., 1B - 60 n.mi.). This will complete the resonnaissance of 1A, expand into adjacent areas of 1B and rerun segments of the '72 1B surveys. The rerun of parts of 1B will be used to check for changes in the nature and directional aspect of th lineations, Sub-bottom profiling will run concurrently with the side scan surveys using a 3.5 Khz acoustic transducer to evaluate the shallow stratigraphy of the Holocene transgressive sequence. In addition to continued bottom sampling (about 75 in each area), camera stations and a few gravity cores are also planned.

This study will seek to clarify the origin of the ridge and swale topography and its evolution on the inner and central New Jersey shelf and evaluate the nature of the shelf response to modern shelf hydraulics.

INVESTIGATORS (CONT)
P NEWSON STATE BUR. OF LAND MANAGEMENT

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GBP-1298

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

CYCLESONDE MEASUREMENTS IN NEW YORK BIGHT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

JC VANLEER

RECIPIENT INSTITUTION:

UNIV. OF MIAMI
GRADUATE SCHOOL
MIAMI, FLORIDA 33149

PERIOD FoR THIS NRP:

5/73 TO 5/74
FY73 FUNDS UNKNOWN

SUMMARY OF PRoJECT:

The Cyclesonde will be used in the New York Bight area to explore the vertical structure of current and temperature over several diurnal tidal cycles at three or four locations. This diagnostic information will allow planning for the best placement of fixed current meters in later phases of the project in addition to its own intrinsic value. One can conpute fluxes of heat and momentum either in layers or integrated over the content of the entire water column during individual profiles or whole tidal or inertial periods to form realistic mean values without the spatial aliasing problems inherent in usual fixed instrument arrays.

The Cyclesonde consists of a buoyancy driven platform with a recording package containing sensors for pressure, temperature, conductivity, current. speed, and current direction. The Cyclesonde makes repeated automatic round trips up and down a taut-wire, subsurface mooring while scanning all five parameters with a. 26-second sampling interval, According to the adjustable vertical speed ranging between 2 and 20 c!n/see; a vertical resolutionrangingbetween0.5 and 5 meters can he achieved.

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GMA-1462

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S)

IAG 0228(D)

DEVELOPMENT AND TESTING OF NUMERICAL MODELS OF POLLUTION OF THE NEW YORK BIGHT AREA

PRINCIPAL INVESTIGATOR ASSOCIATE AND DEPARTMENT, SPECIALTY

DR T LA EVASTU

U.S. NAVY
POSTGRADUATE SCHOOL
MONTEREY, CALIFORNIA 93941

7/72 TO 6/73
FY73 FUNDS $48,500

SUMMARY OF PROJECT

TO develop single and multi-layer models of circulation, dispersion, and transport and apply them to the New York Bight area. Two-dimensional, vertically integrated, solutions of the equations of motion and continuity are numerically integrated to describe the flow field. Numerical integration of the mass transport equations is used to predict dispersion of effluents in various regions of the Bight.

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SIE NO.
GBP-1185

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):

CONTRACT
R63103332

TITLE OF PROJECT.

AEROSPACE OCEAN IMAGERY DISPLAY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DK ROSS

RECIPIENT INSTITUTION:

INTERNAT. IMAGING SYSTEMS CORP
510 LOGUE AVE.
MOUNTAIN VIEW, CALIFORNIA 94040

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: To provide services to NOAA/NESS SPOC Group for enhancing selected aircraft and satellite imagery and testing of various films for optimum oceanic image acquisition relevant to NOAA Marine Ecosystem Analysis in the New York Bight test area.

Approach: Imagery will be acquired with the NASA MSC remote sensing aircraft. NOAA will obtain concurrent in situ oceanic data in conjunction with contractors (ERIM, NAVOCEANO, EARTHSAT). International Imaging System (I2S) will enhance imagery selected by NOAA for improving information content by density slicing and false coloring techniques and aid in interpretation through comparison of imaged data and in situ measurements of currents, depths, sediment, and other coastal marine features. I2S will also modify the NOAA SPOC camera to test various films during the NOAA MESA experiment over the New York Bight test site.

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GSV-3822-/

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):

AG-375

TITLE OF PROJECT:

CARBON BUDGET OF FLAX POND ESTUARY, LONG ISLAND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

GM WOODWELL
PH RICH
CA HALL
CS WEISSER

RECIPIENT INSTITUTION:

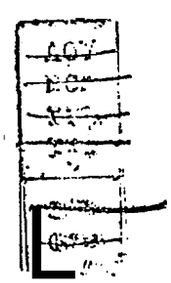
BROCKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

~~5/73~~ TC 4/74
~~FY74~~ FY73

FUNDS $105,000

SUMMARY OF PROJECT:

A two-year program of basic research on the carbon cycle of a Long Island estuary is proposed to contribute to knowledge of the exchanges of carbon and its compounds between estuaries and other ecosystems* The Flax Pond estuary offers a simple and reasonably practical opportunity for appraisal of net ecosystem Production measured as carbon and as other elements including N, P, S and cations. In the first year water chemistry analyses and studies of underrater benthos will be conducted. The work on productivity will be restricted during this period to preliminary studies of methods and limited sampling. In the second year the program will be expanded to measure net primary production and respiration of the Spartina mat, the benthos and the water by a series of techniques designedtogive separate, independent measurements of the same attributes. Partitioning of net production among its principal uses will be measured as will major segments of the secondary production. An estimate of net ecosystem production will be available at the completion of the second year's work.



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SIE NO.
GSB-12585

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF BIOLOGICAL & MED. SCI.

AGENCY'S NUMBER(S):
GB-36593

TITLE OF PROJECT:
EFFECTS OF PERSISTENT POLLUTANTS ON BIRD **POPULATIONS**

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RW RISEBROUGH

RECIPIENT INSTITUTION,
UNIV. OF CALIFORNIA
BODEGA MARINE LABORATORY
BODEGA BAY, CALIFORNIA 94923

PERIOD FOR THIS NRP:
12/72 TO 11/73
FY73 FUNDS $32,450

SUMMARY OF PROJECT:

Studies of pollutant effects on bird populations will be continued. Work with chlorinated hydrocarbons will be expanded to include studies of heavy metals. Priority will be given to an examination of pollutants associated with abnormalities in a Common Tern colony in Long Island Sound. The phenomenon of feather loss will be investigated both in this colony and in a colony on Sooty Terns on the Dry Tortugas. Known-age banded Common Terns will be obtained for tissue and whole body analysis to investigate the accumulation with age of the chlorinated hydrocarbons, the principal heavy metals, and petroleum compounds. Detailed studies of food chain accumulation of heavy metals will be made in the Long Island Sound ecosystem, in brown pelicans of Florida, and in birds occupying a variety of niches on St. Lawrence Island, Alaska. A long-term program for measuring trends in organochlorine concentrations in a raptorial species will be begun with biopsy samples of sharp-shinned hawks trapped in the fall in Wisconsin. Studies of the breeding biology of the ashy petrel will be undertaken on the Farallons to assess the impact of shell thinning in that species. Continuing studies on the physiology of pollutant effects on birds will be undertaken in collaboration with other laboratories.

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SIE NO
ZUA-3000

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S)

NY 72-014

GEOCHEMICAL ASPECTS OF GROUND-WATER POLLUTION IN THE BABYLON-ISLIP AREA, LONG ISLAND, NEW YORK

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

CA HARR WATER RESOURCES DIVISION

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
MINEOLA, NEW YORK 11501

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $56,000

SUMMARY OF PROJECT

Ground water and, to some extent, surface water in the Babylon-Islip area, Long Island, New York, have been polluted by the activities of man. The source of public water supply in the area is ground water derived from the upper glacial and magothy aquifers. The extent and manner of pollution in the two aquifers needs to be more clearly defined so as to provide a basis from which water managers can develop plansto assure a safe public water supply in the future along with satisfactory disposal ofsewage and waste materials without attendant deleterious effect to the ecology or the environment.

The major objective of this proposed project is to evaluate the geochemical aspects of the nature, extent, movement, and temporal variations of inorganic and certain organic pollutants in the ground-water reservoir of the study area, with special emphasis on the water in the upper glacial and magothy aquifers. The information thus developed will be useful in evaluating present and future suitability of ground water for public use, and will provide a data base and data collection network for monitoring the effects of proposed sewers. Other water-management activities, and waste disposal.

Assembleand review existing hydrologic data and reports on the area of study. Collection of new data will consist of: periodic water-level measurements; collection of water samples from existing wells and streams, Additional wells will be drilled in areas where needed; especially in the vicinity of sanitarylandfill and sewagedisposal operations. Stage and conductivity recorders will be installed on streams or wells where needed. A series of maps and cross sections will be constructed to show areal and vertical extent of pollutants in the aquifer as well as temporal trends.

A around-water and surface-water sampling network has been established and samples collected for them.1.cal analyses including the toxic-trace metals. The chemical data has been placed onmapsfor contouring water-quality parameters 5000 chemical analyses from cooperator's files have been processed for computer analyses of trends in water-quality changes. hater-levels are being measured for preparatior of water-level change maps. Preliminary draft of final

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TAPE INPUT 281
GY-6361-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
NEW YORK ITHACA

AGENCY'S NUMBER(S):
0006361
NYC-147403
SUBGROU P H
CSRSNY.CO 000000000

TITLE OF PROJECT
IMPACTS OF WATER RESOURCE DEVELOPMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
HAMILTON L S
REETZ G R

KIND C AH ARE
DATE SPO 1 DISTR

31-1111 20-931

RECIPIENT INSTITUTION
STATE UNIV. OF N.Y.
~~CORNELL UNIV~~
IN ATURAL RESOURCES - Dept
AGRICULTURAL EXPER. STATION
ITHACA NEW YORK 14850 50512711

PERIOD FOR THIS NRP
BEG 600926 END 740208
FY 74 FUNDS 00000000

SUMMARY OF PROJECT

OBJECTIVE: 'Investigate the myriad impacts of various kinds of water development prcjects. Results will be made available to the planning process.

APPROACH: The case study approach will be used, both prior and post-facto in order tc develop methods whereby impacts of water development prcjects may be assessed in advance of implementation. Previous case study work has shown the value cf this approach. The particular kind of water project studied will be selected on the basis of timeliness and the expertise of the research assistants. Two initial sub-project studies are: An assessment of the physical, chemical, biological, social and economic effects of a reservoir on a stream. The case study will be a proposed reservoir on Fall Creek (Central N.Y.). The" development of an ecosystem framework for planning water and related resources development in a lake basis. Owasco Lake basin has been selected as the study area. Attempt to identify the major Processes>- operating as natural cr man-made variables in the watershed and to indicate what the effect of a change in any one of these will have on the others. At first this will be a directional change only, but will search for quantifiable data.

PROGRESS: Following completion of the sub-project on Owasco Lake Basin ecosystem planning, and the re-direction cf that study under other funding, a new sub-project has beeninitiated. This concerns the apparent conflict between water development and wilderness values. This research is investigating as a case study a portion of the Upper Hudson River in New York State, in particular the Hudson River Gorge area. Water resource planning alternatives are being examined, with afocus on the"values" of preservation of this as a wild river. To date most research effort has been directed at obtaining information about current Recreational use cf the Gorge area. Four self administering trail registers were installed at strategic access points to the Gorge. Non-registrants were accounted for by a stratified random sample of users of the only public trail to the Gorge. A mail survey questionnaire has been developed (Wilderness Recreation in the Hudson River Gorge) and has been sent to randomly selected users of the area

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SIE NO
ZUA-3003

NOTICE OF RESEARCH PROJECT

SUPPOR TiNG AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOUR CES DIVISION

AGE NCY'S NUMBER(S)

NY 69-055

HYDROLOGIC EFFECT OF RECHARGE BASINS ON LONGISLAND, NEW YORK

PRINCIPAL INvESTIGATOR, ASSOCIATES AND DE PA RTMENT/5PECI ALTY

GE SE ABURN WATERRESOURCES DIVISION

RECIPIENT INSTITUTON

U.S.DEPT.OF THE INTERIOR
GEOLOGICAL SURVEY
MINEOLA, NEW YORK 11501

PERIOD FOR THIS NRP

7//72 TO 6/73
FY73 FUNDS UN KNOWN

More than 2100 recharge basins on Long Island have markedly affected the natural hydrologic regimen of the island, Specifically, runoff to streams, ground-water recharge, and perhaps the chemical quality of the water have been affected, The proposed study is designed to evaluate the nature and magnitude of these changes in the natural hydrologic regimen.

(1) catalogbasic physical data on all recharge basins in operation on Long Island. (2) Make quantitative and qualitative measurements of precipitation and inflow and measurements of Infiltration rates at selected basins. (3) Evaluate the regional effects of recharge basins on the hydrologic regimen of Long Island.

(1) Collect, catalog,summarize, and publish basic Physical and engineering data on all recharge basins on Long Island. (2) instrument three recharge basins to measure precipitation, inflow, and infiltration rates; chemical quality of precipitation and inflow. (3) evaluate islandwide recharge using data from (1) & (2).

Reports completed; and one approved for publication as U.S.G.S. water supply paper 200L-D, the second in review.

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SIE NO. 1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INsTITuTION,

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT

ZUA-3000 (CONTINUED)

report outline is being prepared.

Complete the water-quality sampling program particularly in areas not presently covered. Revise outline of final report and prepare interim reports as needed. Complete computer analysis of water quality trends.

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SUPPORTING AGENCY

AGENCY'S NUMB ERIS)

TITLE OF PROJECT

PRINCIPALINVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

RECIPIENT INSTITUTION

PERIOD FOR THIS NRP

SUMMARY OF PROJECT

ZUA-2722 (CONTINUED)

acquisition of required equipment and instrumentation is planned for next year.

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SIE NO.
ZUA-2722 ' 1 "

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NY 65-021

TITLE OF PROJECT:
ARTIFICIAL RECHARGE OF TREATED SEWAGE WATER AT BAY PARK, N. Y.--PHASE 1

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN WATER RESOURCES DIVISION

RECIPIENT INSTITUTION:
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
MINEOLA, NEW YORK 11501

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $234,000

SUMMARY OF PROJECT:

Nassau County is an area of Long Island, N. Y., with a rapidly increasing population and a concurrent rapid increase in water-supply requirements. Engineering studies have recommended programs for optimizing this water supply. One recommended water-management approach is to inject tertiary-treated sewage into the deep aquifer to (a) halt and perhaps reverse landward movement of salty water into the aquifer and (b) replenish the ground-water supply. This project will develop some of the information needed to evaluate this water-management proposal.

Objectives are to experimentally evaluate the feasibility of injecting treated sewage through a specially designed recharge well into a deep aquifer. The study is intended to furnish the cooperator with information on the mechanics, difficulties and costs associated with artificial recharge of highly treatedsewage wastes; and to assess, to whatever extent possible, the hydrologic and geochemical effects of such recharge.

An 'injection and several observation wells have been installed at the site. The coopers.t.nc has provided a plant for storage, treatment and pumping of the waste water, and a laboratory for on-site chemical work. The study will involve: an investigation of the pre-injection hydrology and chemistry at the injection site; a number of injection experiments utilizing municipal-supply water; and a series of injection experiments utilizing the sewage wastes. Extensive hydraulic and chemical monitoring will accompany each experiment.

Injection testing involving variations in organic content, chlorine resi

A quasi-continuous injection period of up to 6 months is planned. This test will aid in determining the long-term rate of well clogging and long-term geochemical stability of the injected water. Preparation of reports for the professional paper series and of papers for the new Geological Survey Journal and outside journals will be continued. Scope of the project is being expanded to include laboratory studies of the application of the treated sewage to soil columns. Design and

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SIE NO.
ZPE-10092

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S)
CONTRACT
AT(30-1) 16

COMMUNITY OXYGEN METABOLISM OF FLAX POND, NEW YORK

PRINCIPAL INVESTIGATOR,ASSOCIATES AND DEPARTMENT/SPECIALTY
GM WOODWELL — BIOLOGY
ALSO WITH — ASSOC. UNIVERSITIES INC.
CA HALL

RECIPIENT INSTITUTION
BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP
7/72 TO 4/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Existing techniques for the analysis of community oxygen metabolism are being modified for use in strongly tidal estuaries such as Flax Pond, Old Field, New York. Analysis is corrected both for changing morphology with tide and for influxof different water masses. The results will be useful as a basic model for analysis in other estuaries and for determining the primary production and respiration Of Flax Pond. The analysis is computerized and gives results both as readout and as "CALCOMP" plots.

Results: Preliminary analysis of the first year's data (1971) indicates that thepondhasa sharp peak of productivity from the end of Maythroughthe end of July, with gross oxygen productivity during this period about 10 g per day. During August, high benthicnighttime metabolism during low tide created conditions of very low oxygen that waseliminated during intlow of Salt water from the Long Island Sound. During the next year's studies, the effect of this on the fishes will be investigated more thoroughly. Formulae for correcting productivity for stress are being devised.

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SIE NO.
ZPE-10087

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):

CONTRACT
AT(30-1) 16

TITLE OF PROJECT:

PRODUCTION AND ROLE OF AQUATIC BIO-DETRITUS IN A TIDAL SALT MARSH

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GM WOODWELL — BIOLOGY
ALSO WITH — ASSOC. UNIVERSITIES INC.
PH RICH

RECIPIENT INSTITUTION:

BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Production of bio-detritus, both particulate and dissolved is being measured in Flax Pond, a small tidal marsh on the north shore of Long Island. Production is measured by determining the concentrations of bio-detritus and the volumes of water entering and leaving the marsh during the twice-daily tidal cycle. Samples have been taken at the Flax Pond channel since June 1971, and have been proceeding on a weekly basis since October.

The role of bio-detritus in the marsh ecosystem (i.e. that not exported to Long Island Sound) is being investigated. in terms of benthic metabolism.

Results: Data suggest that. a major fraction of this material is oxidized in the benthos, and that the resulting metabolism has a profound effect upon both the biota and the physico-chemical environment. An incubation chamber for measuring low level benthic metabolic rates in situ has been constructed and successfully tested. A second in situ chamber of flow-through design for higher ranges of metabolism is presently being developed.

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ZPE-10085

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S)

CONTRACT
AT(30-1) 16

QUALITATIVE VALUE OF DIFFERENT FORMS OF ENERGY IN MICROCOSMS AND A SALT POND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT SPECIALTY

GM WOODWELL — BIOLOGY
ALSO WITH — ASSOC. UNIVERSITIES INC.
CA HALL

RECIPIENT INSTITUTION

BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

An automatically monitored series of aquatic microcosms have been designed and built. These receive similar levels of different forms of energy (light, heat, sugar, stirring) to determine the effects of each type of energy on the primary production and respiration of the aquatic communities.

Results: Preliminary results Indicate that different forms of energy are used quite differently by ecosystems. Field data of metabolism for Flax Pond, a tide pond on the north shore of Long Island, will be analyzed for possible correlations of metabolic levels with monthly tidal variations, sunlight intensity changes, and changes in available dissolved and particulate carbon.

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SIE No.
ZPE-10093

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):
CONTRACT
AT(30-1) 16

TITLE OF PROJECT:
THERMAL COMBUSTION FOR ANALYSIS OF DISSOLVED ORGANIC CARBON IN SEAWATER

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
GM WOODWELL BIOLOGY
ALSO WITH ASSOC. UNIVERSITIES INC.
P RICH

RECIPIENT INSTITUTION:
BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Thermal combustion of seawater samples at 590 degrees C with subsequent analysis of CO2 by IR spectrophotometry is presently being used to measure dissolved organic carbon exchanges between a small salt marsh and Long Island Sound. Samples (100 ml of water previously acidified and stripped with N2 gas are injected into a quartz combustion tube containing O2 gas and cobaltocobaltic oxide catalyst. The products of combustion then enter a dry-ice trap for removal of water, a second combustion tube containing silver metal for removal of chlorides, and then an MSA IR analyzer. The analysis is standardized against injections of pure CO2 gas.

Results: Values between 6 and 12 mg C/l have been found in water entering the marsh from Long Island Sound, while water leaving the marsh has values consistently between 3 and 5 mg C/l.

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SIE NO.
GBP-1244

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
OFFICE OF COASTAL ENVIRONMENT

AGENCY'S NUMBER(S):

TITLE OF PROJECT

OUTER HUDSON CANYON STUDY USING DSV ALVIN AND R/V LULU

PRINCIPAL INVESTIGATOR, ASSOCIATES AND Department/SPEctALTy

WO FAINNIE
GH KELLER U. S. DEPT. OF COMMERCE

RECIPIENT INSTITUTION

WOODS HOLE OCEANOGRAPHIC INST.
WOODS HOLE, MASSACHUSETTS 02543

PERIOD FOR THIS NRP:

9/72 TO 6/73
FY73 FUNDS UNKNOWN

The Hudson Canyon investigation is the first in a series of studies of bottom dynamics (sedimentary processes) in the submarine canyons of the Mid-Atlantic Bight. The prime purpose of this program is to study the dynamic processes presently active in these canyons. There is good reason to believe that some, if not all, of the canyons may serve as a "pipeline" for the movement of sediment and "sinkable" pollutants from the continental shelf to the abyssal depths.

This study in the Hudson Canyon is directly related to the New York Bight studies of sediment transport by Dr. Donald Swift of A.O.M.L., which deal with the area adjacent to the outer part of the canyon. The initial phases of the outer Hudson Canyon project will be to study the sedimentary processes taking place within the canyon by the measurement of bottom currents and sediments transport This will be accomplished by photographically recording the dimensions and lineation of bottom features such as ripples and scour pockets, in situ surface sediment density measurements, laboratory analysis of sediment cores for their mass physical properties, placement of stakes in the bottom and adjacent canyon walls, as well as reccrding bottom currents and suspender sediment concentrate.ons~

Another aspect of this project will be the study of benthic biota and their influence on sediment stability.

The third portion of this project will be the stratigraphic sampling of the canyon walls in order to develop the geological history of the canyon.

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SIE No.
ZPE-8697-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,

ATOMIC ENERGY COMMISSION
BIOMEDICAL & ENV. RES. DIV.

AGENCY'S NUMBER(S):

AT(30-2)-16

TITLE OF PROJECT:

THE CARBON CYCLE OF AN ESTUARY

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY:

GM WOODWELL — BIOLOGY
ALSO WITH — ASSOC. UNIVERSITIES INC.
CA HALL
J? RICH

RECIPIENT INSTITUTION

BROOKHAVEN NATL. LAB.
UPTON, NEW YORK 11973

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

The objective is to measure net ecosystem production of a small Long Island estuary, using carbon as the criterion of production. The work is important because, although the broad functions of estuaries are commonly known, details of their functions are frequently poorly known, especially with respect to net fluxes of organic matter and nutrients. The carbon cycle is fundamental to all other cycles in estuaries and is being used here as the basis of appraising the total function of a single, comparatively simple, intensively studied estuary on the north shore of Long Island, Flax Pond.

Results: Work has included development of an infra-red absorption technique for measurement of dissolved organic matter and small particulate carbon. Other techniques include methods of measurement of gaseous exchanges between the atmosphere and the waters of the estuary. Results show that the estuary is a net user (or storer) of carbon! water leaving the estuary contains less dissolved carbon than that entering from Long Island Sound. ISG

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SIE NO

GBP-1091

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
SEA GRANT OFFICE

AGENCYS NUMBER(51

NG-18-72

TITLE OF PROJECT:

DEVELOPMENT OF METHODOLOGIES FOR PLANNING FOR THE OPTIMUM USE OF THE MARINE RESOURCES OF THE COASTAL ZONE

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

DR C WILLIAMS
D DAVIES

RECIPIENT INSTITUTION.

NASSAU SUFFOLK REG. PLANN. BD.
SMITHTOWN, NEW YORK 11787

PERIOD FOR THIS NRP.

9/72 TO 8/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

Objectives: The objectives of this project are: 1. to adopt a Marine Resources Council (MRC) Research Program; 2. to adopt MRC guidelines for marine resources planning and decision-making; 3. to utilize 1 and 2 above to provide priority-oriented guidance to the research community; 4. to monitor research and data collection efforts, and suggest possible revisions consistent with MRC objectives; and 5. to transfer important research findings to the planning, policy and action programs of the MRC and to incorporate such findings into the Management Information System.

How information will be applied: 1. Information will improve relevance of research projects to policy and planning decisions on Long Island's marine environment, 2. Planning guidelines will be the first step in the development of an action program for marine resources utilization and conservation.

Accomplishments during the past twelve months: 1. Completed final report on water supply arid waste water disposal on Long Island. 2. Completed final report on dredging on *Long* Island. 3. Completed final report on beach protection and stabilization on Long Island. 4. Completed final report onwetlandson Long Island. 5. Completed final report on the design of a Management Information System for coastal resources planning. 6. Completed final report on the state-of-the-art for selected marine resources problems on Long Island, 7. Completed final report on a proposed problem-oriented research program. 8. Completed final report on a proposed set of guidelines for marine resources planning.

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SIE NO.
AM-99

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
QUIRK LAWLER & MATUSKY

AGENCY, S NUMBER(S):

TITLE OF PROJECT:
SALINITY INTRUSION IN THE HUDSON RIVER ESTUARY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
PROF DR HARLEMAN CIVIL ENGINEERING

RECIPIENT INSTITUTION,
MASS.INST. OF TECHNOLOGY
SCHOOL OF ENGINEERING
CAMBRIDGE, MASSACHUSETTS 02139

PERIOD FOR THIS NRP:
7/.72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

Application of the unsteady salinity intrusion model developed under the Sea Grant Program to the Hudson River Estuary.

Transient salinity distributions have been computed for two different periods in the Hudson. Input data includes daily variations in tidal range and salinity at the Battery and the fresh water inflow hydrograph at the head of tide at Troy. Good agreement with field measurements was obtained.

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SIE NO
ZUI-72-8

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
433.9A

NATURAL HISTORY OF PREDATORS AND COMPETITORS (PREDATOR CONTROL PROGRAM)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT, SPECIALTY

CL MACKENZIE BIOLOGICAL LABORATORY
JJ MANZI

RECIPIENT INSTITUTION:

U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
MILFORD, CONNECTICUT 06460

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS UNKNOWN

Because of a scarcity of seed oysters in Long Island Sound, more efficient control of predators and competitors becomes imperative.

Control of oyster drills and starfish has been achieved. To make control methods more efficient, however, we are presently studying various aspects of the biology of both predators. Particular emphasis has been placed on studying feeding rates of each at various salinities and temperatures, and also on the behavior of these and other enemies on oyster beds as observed by SCUBA divers.

Divers have observed that young starfish hid underneath shells during the day. We are presently attempting to determine the reason they do this.

To better equip the shellfish producer to apply more efficient control methods for Stylochus, Crepidula and barnacles, the principal competitors of oysters, we plan to study various stages of their life cycles.

ISG

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SIE NO.
ZBP-467

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
281890

TITLE OF PROJECT:
ECOSYSTEMS INVESTIGATIONS - BIOLOGICAL OCEANOGRAPHY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR J THOMAS
R REID

RECIPIENT INSTITUTION
U.S. DEPT. OF COMMERCE
MIDDLE ATL. FISHERIES CENTER
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: A) To establish baselines in regard to the areal and temporal distribution of benthic, natatory and planktonic invertebrates. We are particularly interested in correlating areal and temporal (either seasonal or long-term fluctuations) distributions with observed physical conditions and man-induced changes. We are also interested in establishing these baselines within the Hudson Shelf Valley and Hudson Canyon and at stations on the continental shelf, especially in areas designated or proposed for alternative dumping sites. In addition, we wish to assess the benthic invertebrate stocks present in embayments and estuaries such as Raritan Bay, Jamaica Bay, Great South Bay and the East River and western Long Island Sound, and waters directly connected to and affected by conditions in the New York Bight. B) To determine the life histories and ecology of invertebrate species found to be of unusual importance in particular marine and estuarine food chains. Studies of most individual species or ecological groups; i.e., the meiofauna, would be done through contract or cooperative studies with academic organizations. C) To establish the relationship between invertebrate species found in gut contents of finfish and invertebrate species diversity and standing crops in areas habituated by the finfish from which the gut contents were removed. This information will enable us to determine those species used as forage by finfishes and the action-reaction phenomena within particular marine exosystems. D) To obtain sufficient samples of tissue and living animals for analyses for heavy metal and microbial contamination as well as experimental manipulation to determine the effects of lethal and sublethal doses of toxins and pathogens.

Approach: We have developed a grid of sampling stations which will encompass the New York Bight and western Long Island Sound, including adjunct embayments and estuaries. Initially, grab, dredge and epibenthic samples were taken at 2.5 mile intervals over the shelf, except within the Hudson Shelf Valley, alternative dumping sites and embayments. At these sites samples are taken at intervals necessary to obtain samples which will provide statistically or descriptively valid data. Subsequently, depending on continuity of sediment types and physical environment, samples will be taken at closer intervals throughout the grid system.

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SIE NO
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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC L ATM, ADMIN.
ENVIRONMENTAL RE SE ARCH LABS.

AGENCY'S NUMBER(S)

SEDIMENTS AND TOPOGRAPHY OF THE BRIGANTINE SECT(?)N OF THE INNER NEW JERSEY SHELF

PRINCIPAL INVESTIGATOR ASSOCIATES AND DE PA RTMENT/SPECIALTY

ML DICKEN
DJ SWIFT
NK COCH

RECIPIENT INSTITUTION

CITY UNIVERSITY OF NEW YORK
GRADUATE SCHOOL
65-30 KISSENA BLVD.
FLUSHING, NEW YORK 11367

PERIOD FOR THIS NRP

7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT

The purpose of this project is to test the hypothesis that the morphology and sediment distribution in the Brigantine sector of the inner New Jersey shelf is in response to the hydraulic regime. This project is part of the Notional Oceanic and Atmospheric Administration's Marine Ecosystems Analysis Project (MESA). The study areais approximately bounded by the New Jersey coast to the west, longitude 74 degrees 10'W to the east, latitude 39 degrees 30'N to the north, and latitude 39 degrees 18'N to the south.

The field work took place aboard the research vessel VENTURE during early July 1972. The alai-a consists of 189 grab samples, 3 vibracores (approx. 2 meters in length each), side scan sonar, and sonic subsurface depth profiling.

New Jersey

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SIE NO
ZTK-17

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S)

TITLE OF PROJECT

MODEL STUDY OF BARNEGAT INLET, NEW JERSEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

RA SAGER ESTUARIES BRANCH

RECIPIENT INSTITUTION

U.S. ARMY
WATERWAYS EXPERIMENT STATION
P.O. BOX 631
VICKSBURG, MISSISSIPPI 39180

PERIOD FOR THIS NTE

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Purpose of Study/Investigation: To evaluate the effectiveness of a proposed multiphase plan of improvement for Barnegat Inlet and feasible modifications to the plan for establishing a stable navigation channel through the inlet.

Approach or Plan: Fixed- and movable-bed model tests were conducted to define the effects of the proposed plans of improvement on the hydraulic conditions and shoaling and scouring trends of the inlet, respectively.

Progress to Date: Tests in both the fixed- and movable-bed models were conducted of a basic seven-stage plan ofimprovement. The results of these tests indicated the dominant feature of the plan was a new south jetty located approximately parallel to the existing north jetty. Several tests with varying lengths and low and high north and south jetties were conducted. Preliminary results of the tests indicate that interior portions of the seven-stage plan of improvement can be eliminated and that proper modifications to the existing jetties will materially reduce instability and shoaling of the navigation channel. Testing has been completed and preparation of the final report is under way.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

DEPARTMENT OF DEFENSE
ARMY

AGENCY'S NUMBER(S):

DAOD8925

DA-ARO(D)-31-124-72-G-93

TITLE OF PROJECT:

INVESTIGATION OF THE PLANT COMMUNITY-SOIL-SOIL STRENGTH-MICROMORPHOLOGY RELATIONSHIPS IN COASTAL MARSHES 10481-EN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

EE MACNAMARA GEOLOGICAL SCIENCES

RECIPIENT INSTITUTION:

LEHIGH UNIVERSITY
SCHOOL OF ARTS
ALUMNI MEMORIAL BLDG.
BETHLEHEM, PENNSYLVANIA 18015

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $22,219

SUMMARY OF PROJECT

TO STUDY THE GEOTECHNICAL, CHEMICAL, AND MORPHOLOGICAL PROPERTIES OF SALT MARSH SOILS. RELEVANCE. THE RESULTS OF THIS STUDY ARE OBVIOUSLY APPLICABLE TO PROBLEMS IN TRAFFICABILITY AND MOBILITY. ALTHOUGH PREVIOUS INVESTIGATIONS HAVE CONCERNED THEMSELVES WITH TRAFFICABILITY OF THE MARSHES, THEY WERE NOT SPECIFICALLY CONCERNED WITH PLANT COMMUNITIES, THE EFFECT OF ROOT STRUCTURES, DECAY PATTERNS, ETC. ON THE STRENGTH OF THE SURFICIAL SOILS. THE APPLICATION OF THIS STUDY TO ECOLOGICAL PROBLEMS IN THE TENUOUS ENVIRONMENT OF THE MARSH MAY BE EQUALLY RELEVANT.

TYPICAL SALT MARSHES ON THE NEW JERSEY COAST WILL BE INVESTIGATED. DATA WILL BE OBTAINED ON THE DYNAMICS OF TIDAL SALT MARSH SOILS SYSTEMS AS THEY AFFECT SOIL STRENGTH THROUGHOUT THE TIDAL CYCLE AND ON THE RELATIONSHIP OF THE PLANT COMMUNITY TO SOIL STRENGTH. A STUDY OF PARTICLE REARRANGEMENT OF THESE SOILS DURING THE REMOLDING AND SHEAR PROCESSES WILL BE MADE.

SUPPORTING AGENCY ADDRESS INFORMATION: OCRD RESEARCH OFFICE DURHAM DURHAM NC 27706

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SIE NO
ZUH-3269-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER S.

FR 2518-1

TITLE OF PROJECT

EFFECTS OF SEWAGE SLUDGE ON FINFISH AND BENTHIC AND PLANKTONIC COMMUNITIES

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

JB PEARCE SANDY HOOK MARINE LAB
CI GIBSON

RECIPIENT INSTITUTION

U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Currently 5 million cubic yards of sewage sludge per annum are dumped at a site 4.5 nautical miles SE of Ambrose light. This practice has been continuous for the past 4 decades. Effects of sewage sludge on benthic and planktonic organisms important to the economy of sport and commercial finfishes is not known. From a grid of collecting stations bounded by longitudes 73 degrees 15' W and 74 degrees 0' W and latitudes 40 degrees 10' N and 40 degrees 32' N, we are: 1) using species diversity and community stability as indices for environmental well being, 2) studying movements of the sludge to determine increase in area effected, and 3) measuring viral, bacterial, and heavy metal contamination of shellfish and sediments near the center of the sewage sludge dump area. ISG

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SIE NO.
ZUH-1966-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):
FR 2543-05

TITLE OF PROJECT:
DESIGN, CONSTRUCTION AND LONGEVITY OF ARTIFICIAL FISHING REEFS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RB STONE

RECIPIENT INSTITUTION:
U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Design and install artificial fishing reefs of junk cars, concrete materials and scrap tires on approved reef sites off Monmouth Beach, N. J., Atlantic Beach, N.Y., Charleston, S.C., Jacksonville, Fla., Palm Beach, Fla, and in Biscayne Bay, Miami, Fla. Arrange these to provide comparative data on the design and type of materials used in relation to the effectiveness and longevity of fishing reefs. Make periodic underwater observations on condition of materials, encrusting organisms and population of fish attracted to reefs. Conduct laboratory tests on reef models of the action of currents, tides and other environmental factors.

ISG

Miscellaneous

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SIE NO.
ZUH-3270-3

NOTICE RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY NUMBER(S):

FR 2518-02

TITLE OF PROJECT:

BIOLOGICAL EFFECTS OF DREDGE SPOIL AND WASTE ACID DISPOSAL PRACTICES

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY.

JB PEARCE SANDY HOOK MARINE LAB
CI GIBSON

RECIPIENT INSTITUTION:

U.S. DEPT. OF COMMERCE
NATL. MARINE FISHERIES SERVICE
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Since 1948, 2.5 million cubic yards/year of dilute acid and iron industrial wastes have been disposed of approximately 10 nautical miles SE of Ambrose Light. The peculiar yellow stain from these wastes can extend for over 20 miles in a north-south direction and up to 5 miles in width. The area provides excellent catches of pelagic sport fishes. We are studying planktonic communities to determine effects of these wastes on components of the food chain.

Collections obtained at various depths are to be compared with organisms from surrounding natural waters. Preliminary findings indicate smaller zooplankton populations exist inside the polluted water masses. We will determine experimentally lethal and sublethal effects of acid wastes. We will study a dredge spoil dump site 4.5 miles south of Ambrose Light employing techniques similar to the Sewer Sludge Study.
ISG

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SIE NO.
GBP-1297

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S)

TITLE OF PROJECT

A PRELIMINARY ECOLOGICAL SURVEY OF SPECIES OF MARINE AMOEBAEIN THE ATLANTIC COASTAL WATERS FROM MARYLAND TO MASSACHUSETTS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

DR EC BOVEE PHYSIOLOGY & CELL BIOLOGY

RECIPIENT INSTITUTION

UNIV. OF KANSAS
SCHOOL OF LIBERAL ARTS
249 SNOW HALL
LAWRENCE, KANSAS 66044

PERIOD FOR THIS NRP:

5/73 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The purpose of this investigation is to make a Preliminary survey of the diversity of and distribution of marine protozoa, especially amoebae, along the Atlantic Coast of the United States from Maryland to Massachusetts, working through facilities of the National Marine Fisheries Services at Oxford, Md.; Sandy Hook, N.J. and Wood's Hole, Mass., spending 4 to 5 working days at each locale in collecting, observing, sketching and recording frequencies of incidence and locales for already known and any newly observed species.

It is thus expected to provide for the National Marine Fisheries Service and other interested parties and agencies some information applicable to the position(s) and role(s) of marine amoebae in the ecosystem of the marine coastal environment. It may also provide information applicable to lists of coastal marine fauna and flora (since some protozoa can also be considered algae).

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SIE No
ZBP-450

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

23720133

TITLE OF PROJECT:

OCEAN BASINS - ALTANTIC

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GH KELLER

RECIPIENT INSTITUTION:

U.S. DEPT. OF COMMERCE
ENVIRON. RESEARCH LABORATORIES
BOULDER, COLORADO 80302

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $529,000

SUMMARY OF PROJECT:

Technical Objective: The basic objective of this program is to define and interpret the tectonic framework, nature and evolution, and global relationship of major crustal features comprising the ocean basin and its margins by means of marine geophysical-geological investigations. Secondarily, to develop a clearer understanding of the environmental factors, particularly sediment fluxes and depositional processes, associated with continental margins by examining submarine sediment character, monitoring the hydraulic regime, and analyzing the mass physical and chemical properties of sea floor samples. The overall objective of this project is to provide environmental data, be it on a global or local scale, needed by users to effectively evaluate and utilize the potential of the sea floor and its resources.

Approach: As a basis for studies of plate tectonics and continental margin sedimentation, the following investigations will be conducted: (1) complete two geophysical sections of the Trans-Atlantic Geotraverse and two series of seismic refraction stations along the SW African continental margin; (2) detailed survey of Mid-Atlantic ridge in TAG corridor; (3) geophysical survey and heat flow measurements between the Lesser Antilles and the Mid-Atlantic Ridge (EQUAP): (4) analysis and synthesis of tectonic plate motions in the world oceans; (5) geophysical survey, bottom sediment sampling; current meter measurements, and bottom photography in the New York bight area, (COMSED): (6) analysis of physical and chemical properties of sediments.

Progress: Geophysical data and sea floor samples from the North Atlantic indicate that abyssal hill structure is related to stresses imposed on new crust formed at the Mid-Atlantic Ridge and that major fracture zones may be sites of high concentrations of manganese minerals. Sedimentation studies along the U.S. east coast continental margin suggest a multiple-imprint of sedimentary forms developed during the Holocene. Analysis of mass physical properties of selected deep drilling samples from Pacific Ocean JOIDES Program has been completed. Structural lineations between the Lesser Antilles and Mid-Atlantic Ridge are emerging from analysis of initial data from the EQUAP project.

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SIE NO.
GSS-5178

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF SOCIAL SCIENCES

AGENCY'S NUMBER(S):
GS-41241

TITLE OF PROJECT
TECHNICAL ASSISTANCE IN OCEANOGRAPHIC SCIENCES TO THE COMMONWEALTH CARIBBEAN - DOCTORAL DISSERTATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RE MEUNIER
JF MCCAMANT

RECIPIENT INSTITUTION
UNIV. OF DENVER
GRADUATE SCHOOL
2115 S. UNIVERSITY BLVD.
DENVER, COLORADO 80210

PERIOD FOR THIS NRP
12/73 TO 2/74
FY74 FUNDS $4,500

SUMMARY OF PROJECT

This is a study of the relationship between technical aid as an instrument for economic development and the surrounding political, economic, and organizational environments which shape the scope and effect of such programs. Specifically, the islands of the Commonwealth Caribbean will comprise a comparative arena for analyzing programs undertaken by all donors in fields related to Marine Sciences or resource management during the decade of 1962-1972. This grant will assist research in Washington, New York, London and the Caribbean [illegible].

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SIE NO.
GY-56969-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
AGRICULTURE DEPARTMENT
COOPERATIVE STATE RES. SERVICE
MARYLAND

AGENCY'S NUMBER(S):
0056969
MD-A-026-CF

TITLE OF PROJECT:
IMPACT OF PRODUCTION, HARVESTING AND PROCUREMENT ON MARKET STRUCTURE OF THE N.E. FISHING INDUSTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RJ MARASCO AGRICULTURAL ECONOMICS

RECIPIENT INSTITUTION:
UNIV. OF MARYLAND
AGRICULTURAL EXPERIMENT STA.
COLLEGE PARK, MARYLAND 20740

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT.SUPPORT
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Objective: Evaluate pricing practices and arrangements that characterize the fishing industry.

Approach: Interviewing schedules will be developed to assess the role of : Auctions and other exchanges, Broker and other merchant middlemen, Contractual arrangements, Basing points in the price system, and private sales.

Progress: During 1972, 24 of the 105 firms that shucked oysters in Virginia were interviewed to isolate the out-of-state flow of oyster products. Collectively, the firms contacted processed over 750,000 of the 2 million gallons of oysters shucked in Virginia during the 1971-72 season. Over 60 percent of Virginia's 1971-72 production of shucked oysters was shipped within the South-Atlantic States region. Roughly 80 percent of the 60 percent stayed in the Maryland-Virginia area. The second highest receiving region was the Mid-West with 20 percent, followed by the Mid-Atlantic States which accounted for approximately 10 percent. The West-Coast, Canada, and the New England region accounted for 4, 2, and 2 percent, respectively. 133 interviews were conducted to obtain socio-economic data on oystermen located in four Maryland communities. The information collected and employment opportunity data were used to assess the economic impact limiting the entry of watermen into the oyster fishery would have on the four communities. Work was also completed on an economic profile of the fisheries of the Chesapeake Bay.

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SIE NO.
ZBP-450-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S).
23330334

OCEAN BASINS - ATLANTIC

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
GH KELLER

RECIPIENT INSTITUTION,
U.S. DEPT. OF COMMERCE
ENVIRON. RESEARCH LABORATORIES
BOULDER, COLORADO 80302

PERIOD FOR THIS NRP
7/73 TO 6/74
FY74 FUNDS $53)3,(200

SUMMARY OF PROJECT

Research/service objective: The basic objective of this program is to develop a clearer understanding of the environmental factors, particularly sediment fluxes and depositional processes, associated with continental margins by examining submarine sediment characteristics, monitoring the hydraulic regime, and analyzing the mass physical and chemical properties of the sea floor. On a broader scale, this program is designed to define and interpret the tectonic framework, nature and evolution, and global relationship of major crustal features comprising the ocean basin and its margins by means of marine geological-geophysical investigations.

The overall objective of this program is to provide environmental data, be it on a global or local scale, needed by users to effectively evaluate and utilize the sea floor and its resources

Research/service plan: As a basis for studies of continental margin sedimentation and plate tectonics, the following investigations will be conducted: (1) A complete geophysical section along the Transatlantic Geotraverse (TAG) and a series of bathymetric and seismic reflection profiles along the Cape Hatteras continental margin; (2) A detailed sampling and survey program of potential mineral resources at the Mid-Atlantic Ridge in the TAG' corridor; (3) Geophysical survey, bottom sediment sampling, current meter measurements and bottom photography in submarine canyons along the eastern continental margin of the U.S.; (4) Comprehensive analysis of the mass physical and chemical properties of sea floor sediment.

Progress report: Initial bottom current measurements were made in the Hudson submarine canyon; bathymetry and substrata mapping of the Great Abaco canyon were completed. Evidence for rapid deposition of hydrothermal manganese was discovered during the TAG expedition to the Mid-Atlantic Ridge rift valley. Initial development of a 1000 Hz seismic profiling system was completed under contract. FY'74 will see bottom current measurements made in Hudson, Hatteras, Oceanographer and Gilbert submarine canyons. Detailed geological and geophysical observations will be made in and around Hudson, Hatteras, and Pamlico submarine canyons and in the rift valley of the Mid-Atlantic Ridge.

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SIE NO.
GSV-3985-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NATL. SCIENCE FOUNDATION
DIV. OF ENVIRONMENTAL SCIENCES

AGENCY'S NUMBER(S):
GA-35819

TITLE OF PROJECT:
BIOLOGICAL CHARACTERISTICS OF THE MARINE SEDIMENT-WATER INTERFACE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RG JOHNSON GEOPHYSICAL SCIENCES

RECIPIENT INSTITUTION
UNIV. OF CHICAGO
SCHOOL OF PHYSICAL SCIENCES
5801 S. ELLIS AVE.
CHICAGO, ILLINOIS 60637

PERIOD FOR THIS NRP:
9/73 TO 8/74
FY74 FUNDS $29,100

SUMMARY OF PROJECT:

Part of the spatial and temporal variations in the diversity of benthic marine communities can be explained as the consequence of local disturbances of the sediment-water interface. The immediate objective of the proposed study is to determine the biological characteristics of the sediment water interface. Special emphasis will be given to determine the amount and distribution of organic matter which is potentially available to the benthos. The ultimate objective is to attempt to relate variations in the character of the sediment-water interface to variations in the diversity of benthic communities.

Destructive analyses of total carbon, nitrogen or of particular compounds do not measure the amount of organic matter that is biologically utilizable as food for the benthos. It is proposed that a mixture of several enzymes be used as the basis of evaluating potential food resources and their variation in natural sediments. Synoptic studies will be made in shallow and deep water environments in the region of Woods Hole, Massachusetts and Pigeon Key, Florida. In addition, an attempt will be made to correlate the variation in food resources with variation in species composition and diversity within a community in the environs of Woods Hole. The results of this study could have broad ecological implications and be of use in understanding the effects of pollution in the sea. ISG

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SIE NO.
20F-255730

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
AIR FORCE

AGENCY'S NUMBER(S):
DF255730

GEOMORPHOLOGY AND GEOTECTONICS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
RS WILLIAMS

U.S. AIR FORCE
CAMBRIDGE RESEARCH LABS,
HANSCOM FIELD
BEDFORD, MASSACHUSETTS

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

AF FUNCTION - WEAPONS AND AIRFIELD SITING, MAPPING, AND RECONNAISSANCE. DEFICIENCY - PROBLEMS IN SITING AIRFIELDS AND MISSILE SILOS. POOR DATA INTERPRETATION FROM AIRBORNE REMOTE SENSORS. RESEARCH - AIRBORNE, FIELD, AND LABORATORY STUDIES OF TERRESTRIAL FEATURES. HOW RESEARCH CONTRIBUTES - INCREASED INFORMATION FROM AIRBORNE REMOTE SENSORS. OPTIMUM LOCATION OF HARD-ROCK MISSILE SILOS. THIS EFFORT IS CONCERNED WITH GEOMORPHOLOGY AND GEOTECTONICS OF SELECTED GEOLOGIC TEST SITES IN ARID, TROPICAL, AND TEMPERATE AREAS. SPECIFIC AREAS ARE COASTAL AND KARST AREAS OF PUERTO RICO, COASTAL AREAS IN NORTHEASTERN U.S., AND THE ADIRONDACK MOUNTAINS. EMPHASIS IS GIVEN TO LOW-RELIEF LANDFORMS AS POTENTIAL AIRCRAFT LANDING SITES AND TO HARD ROCK AREAS FOR MISSILE SITES. THE GEOMORPHOLOGY RESEARCH INCLUDES ANALYSIS OF AERIAL REMOTE SENSOR DATA AND FIELD WORK. THE GEOTECTONIC RESEARCH INCLUDES GEOLOGIC FIELD MAPPING AND LABORATORY ANALYSES OF ROCK SPECIMENS.

SUPPORTING AGENCY ADDRESS INFORMATION: AF CAMBRIDGE RESEARCH LABORATORIES LW L G HANSCOM FIELD, BEDFORD, MASS 01730

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SIE NO.
NPS-111

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
PENNSYLVANIA STATE UNIVERSITY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
OPTIMIZING WATER RESOURCES SYSTEMS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR TM RACHFORD

RECIPIENT INSTITUTION:
PENN. STATE UNIVERSITY
INST. RES. LAND & WTR. RESOUR.
LAND & WATER RES. BLDG.
UNIVERSITY PARK, PENNSYLVANIA 16802

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The objective of this project is to develop and test procedures for optimizing water management systems, particularly within Pennsylvania. The principal focus of these studies is toward models and techniques dealing with water quantity as opposed to water quality. Deterministic models, including the Stanford Watershed Model, and stochastic models, including the Fiering Model are being utilized. These, and other models, are being acquired from various sources, modified or augmented for use with the Penn State IBM 370, tested and calibrated with Pennsylvania data, and will be applied to problem areas within Pennsylvania and the Northeast.

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SIE NO.
ZUA-1721-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
959000883-B

TITLE OF PROJECT
HOLOCENE OSTRACODA ATLANTIC CONTINENTAL MARGIN

PRINCIPAL INVESTIGATOR, ASSOCIATES ANDDEPARTMENT/SPECIALTY:
JE HAZEL

RECIPIENT INSTITUTION:
U.S.DEPT.OF THE INTERIOR
. GEOLOGICAL SURVEY
18TH & F STS. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20242

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

States to which project pertains: Massachucetts, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida.

This project entails the study of the ostracodes from several hundred Holocene bottom grab samples taken from the continental shelf and slope. In addition, memberous pre-Holocene rock samples have been dredged from the shelf and submarine canyons and have been analyzed paleontologically.

The distribution of sublittoral Holocene ostracodes along the Atlantic Coast are poorly known. The Holocene samples are being used to document the limits of the species and biofacies and determine the environmental factors controlling their distributions. Patterns of diversity and their controlling factors are also being studied. This will establish a Holocene grid to which fossil assemblages along the Atlantic Coast can be compared. Paleobiogeography and, from that, paleoenvironment are the ultimate goals. Multivariate analytical techniques are being emphasized.

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SIE NO.
ZBP-454

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
ENVIRONMENTAL RESEARCH LABS.

AGENCY'S NUMBER(S):

123830200

TITLE OF PROJECT:

NEW ENGLAND OFFSHORE MINING ENVIRONMENTAL STUDY (NOMES)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

WN HESS

RECIPIENT INSTITUTION:

U.S. DEPT. OF COMMERCE
ENVIRON. RESEARCH LABORATORIES
BOULDER, COLORADO 80302

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $476,000

SUMMARYOF PROJECT:

Technical Objective: Developing the capability to predict the ecological effects of marine sand and gravel mining is the central objective of NOMES. In determining the probable environmental impact of mining at a study site off the coast of Massachusetts, techniques and data requirements will be developed to permit valid determinations in varied physical and biological settings.

Approach: The approach used in Project NOMES will involve a synthesis of theoretical, observational and experimental tasks. Initially the proposed experimental dredge site and projected impact area will be described in terms of geologic, oceanographic and biologic characteristics. These preliminary observations will influence the detailed design of subsequent laboratory and field experiments. Theoretical determinations of the dispersion of suspended sediments discharged from the dredge will, in conjunction with experimental testing of organisms, provide the basis for modeling the degree of stress associated with high sediment levels. If preliminary predictions based on fundamental biological, physical and chemical research indicate that the proposed dredging operation is unlikely to cause extensive environmental damage, models describing the projected ecological impact will be verified in an experimental dredging operation. Following the dredging period, the reestablishment of affected biologic communities and general stability of the redeposited fines will be monitored.

Progress: Project NOMES is scheduled to officially start in the spring of 1973 with dredging operations commencing in May the following year. Project planning and start up activities were the major tasks accomplished in FY 1973.

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SIE NO.
ZTK-46

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

DEPARTMENT OF DEFENSE
ARMY
CORPS OF ENGINEERS

AGENCY'S NUMBER(S)

TITLE OF PROJECT:

COASTAL ECULOGY STUDIES

UNKNOWN

RECIPIENT INSTITUTION:

U.S. ARMY
COASTAL ENGIN. RES. CENTER
5201 LITTLE FALLS RD. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20016

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT.

Purpose Of Study/Investigation: To determine ways in which engineering activities can be modified to result *in* preservation or creation of certain ecological conditions deemed by the Corps of Engineers to have value.

Approach Or Plan: The expected, ecological consequence of several types of engineering activities are being considered and listed. When this is finished, research studies will be developed to investigate certain selected effects considered to be of importance to the Corps.

Progress To hate? The presently recognized elements (projects) under the CERC coastal ecology program are: ecology research program development, ecological effects of offshore dredging, vegetation studies, ecological effects of offshore construction, and ecological effects of dredge spoil disposition. Final report is in preparation on one of three field studies monitoring the ecological effects of beach nourishment utilizing offshore dredging. One contract is under negotiation for studies on ecology of live species of clams (one Atlantic, one Pacific) likely to be affected by dredging. Literature surveys and preparation of planning documents for the elements dealing with offshore dredging and construction were completed. The first two Years of study on the stabilization and productive use of dredge spoil (establishment of salt marsh using marsh grass) were completed and indicated the feasibility of this type of activity, developed techniques, demonstrated that marsh grass has a long transplanting season, can be transported and successfully transplanted and can be established by direct machine planting of seed. Study is to be continued and expanded to investigate the large-scale operational feasibility of the techniques. The Texas and Massachusetts dune studies were continued, as was monitoring of the North Carolina dunes. A report on Texas dune study is being reviewed, and a contract was negotiated for another year's work. A low level of coordination was maintained on studies by others on the ecological effects of dredge soil deposition but work on this element was suspended pending completion of WES efforts to develop a comprehensive program on dredge spoil deposition and subsequent assignment of specific items of research from the CERC program.

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SIE NO.
ZTR-94-5

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DEPARTMENT OF DEFENSE
ARMY

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
DEVELOPMENT OF OFFSHORE SOURCES OF SAND SUITABLE FOR BEACH RESTORATION AND NOURISHMENT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

GM WATTS	ENGINEERING DEV DIVISION
DB DUANE	GEOLOGY

RECIPIENT INSTITUTION:
U.S. ARMY
COASTAL ENGIN. RES. CENTER
5201 LITTLE FALLS RD. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20016

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This study is to locate and quantitatively assess those offshore deposits which contain sediments suitable for beach restoration and/or nourishment. The present geographical limits of the study are from New Hampshire to the Florida Keys along the Atlantic Coast in water depths of 15 to 100 feet below low water datum. The method of exploration is twofold: (1) Geophysical (acoustic) surveys of the bottom and shallow subsurface strata in selected areas; and (2) The extraction of short (10-15 feet) cores of the unconsolidated sediments. These data are analyzed to develop two and three dimensional maps delineating areas of usable sediments which may be exploited economically. Concurrent studies are in progress to develop and refine methods of offshore dredging and delivery of the material from the dredge to the shore. ISG

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SIE NO.
GBP-1230

NOTICE IIF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC &ATM.ADMIN.
NATL.MARINEFISHERIES SERVICE

AGENCY'S NuMBERIS)

CONTRACT
281890

TITLE OF PROJECT:

ECOSYSTEMS INVESTIGATIONS - SEDIMENT ANALYSES OF BOTTOM GRAB SAMPLES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DRJM PARKS GEOLOGICAL SCIENCES

LEHIGH UNIVERSITY
SCHOOL OF ARTS
ALUMNI MEMORIAL BLDG.
BETHLEHEM, PENNSYLVANIA 18015

7/72 TO 6/73
FY73 FUNDS $19,800

SUMMARY OF PROJECT

Technical Objective: Provide computer-drawn charts of Long Island Sound bottom sediments (grain size, silts, clays, organic carbon, etc.); Frequency versus size. Determine temporal and spatial differentiations.

Approach: Coordinate work with macrobenthic studies (LISS) underway at Sandy Hook Laboratory MACFC and NOAA-MESA. Samples to be obtained by grab or gravity corer by Sandy Hook Laboratory and supplied to contractor.

Progress: Detailed planning developed as a TDP.

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SIE NO.
ZBP-445

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. ENVIRON. SATELLITE SERV.

AGENCY'S NUMBER(S):

TITLE OF PROJECT:

SEA STATE AND OCEAN COLOR STUDIES FROM SATELLITES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

DR AE STRONG ENVIRONMENTAL SCIENCES GROUP

RECIPIENT INSTITUTION:

U.S. DEPT. OF COMMERCE
NATL. ENVIRON. SATELLITE SERV.
WASHINGTON, DISTRICT OF COLUMBIA 20230

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

Technical Objective: This task has three primary objectives: (1) to obtain ocean roughness and wind information from sun glitter patterns detected from space; (2) to obtain ocean roughness and wind information from space-derived microwave observations; and (3) to relate ocean color patterns detected from satellites to circulation features.

Approach: The approaches being followed to exploit these objectives are: (1) the utilization of time-lapse photography from geosynchronous satellites to detect reflectance variations in sunglint patterns, and the utilization of north-south strips of visible SR data; (2) modelling the emission from the ocean's surface to procure wind stress information and also accounting for emissions other than from roughness alone; (3) mapping VHRR visible and ERTS imagery. Considerable information exists at low levels of reflectance that provide nearshore current information. These colors are generally related to suspended sediment load and algae and act as current tracers.

Progress: Due to lack of computer resources little progress has been made in area #1 over the previous year. Progress in area #2 has been mainly confined to contract work by Radiometric Technology, Inc. Roughness effects are now being modelled within the accuracy of the field measurements, where foam and white caps are not a severe problem. Using ERTS-1 imagery (area #3) a considerable amount of water color is available to satellite sensors especially when the data is enhanced digitally. Several coastal areas have been under study including: the Great Lakes, Rhode Island Sound, Cape Hatteras, the Mississippi Delta and Monterey Bay on the West Coast.

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SIE NO
ZUA-2576

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER (S,

9810-00512

TITLE OF PROJECT

ATLANTIC OUTER CONTINENTAL SHELF RESOURCES PROJECT

RO FOOTE GEOLOGIC DIVISION

RECIPIENTINSTITUTION

U.S.DEPT. OF TH E INT ERIOR
GEOLOGICA L SURVEY
18TH & F STS. N.W.
WA SHINGTON, DISTRICT OF CO LUMBIA 20242

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

States to which project pertains: North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Rhode Island, New Hampshire and Maine.

Coordinated geological and geophysical studies are being conducted on the area from Cape Hatteras to the northeastern edge of Georges Bank, in order to assess the petroleum potential of the northeastern Atlantic Outer Continental Shelf (OCS). The geology of the sedimentary wedge is being determined using outcrop and well data from the emerged coastal plain and offshore seafloor outcrops. Geophysical interpretations of the offshore sedimentary section and basement complex depend on (a) purchased proprietary reflection seismic gravity and magnetics data and (b) U.S. Naval Oceanographic office gravity and magnetic data. Preliminary interpretations suggest that the sediment wedge is (1) thick (e.g. more than 10 km in the Baltimore Canyon area and 8 km on Georges Bank), (2) complicated by angular unconformities, and (3) lateral changes in thickness and lithology (i.e. marine sands associated with deltaic sequences and clastics interfingering with carbonates). A linear ridge, large folds and faults are present. The hydrocarbon potential may he significant. A Preliminary report, to be completed by June 30, 1973, will describe the results of the study and recommend additional project objectives, Since most of the geophysical data and some of the geological information are proprietary, this report will be classified as Official Use Only.

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SIE NO.

ZUA-2686

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY,

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGE NC Y-S NUMBER(S),

NR 70-048

TITLE OF PROJECT

TEMPERATURE PATTERNS OF SELECTED EAST COAST STREAMS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

UNKNOWN WATER RESOURCES I)IVI,S1ON

RECIPIENT INSTITUTION:

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
ARLINGTON, VIRGINIA 22209

PERIOD FOR THIS NRP,

7/72 TO 4/73
FY73 FUNDS $11,000

SUMMARY OF PROJECT:

Such factors as increased street runoff, pondage, clearcutting of vegetation, and changes in ground-water levels can have a profound effect on temperatures at any particular point in a stream. Man-induced alterations of temperature patterns usually have a detrimental effect on stream ecology. Little has been done to identify the subtle changes on the heat budget of a streamstemming from man's activities.

To isolate and evaluate the effect of man-imposed environmental changes on the temperature patterns of streams. This project attempts to identify the principal energy fluxes affected by man. Alteration of these energy sources is the major factor in creating stream-temperature anomalies. Another objective is to identify temperature patterns under a wide variety of climateregimens.

Pairs of streams consisting of a "control" stream (one under natural conditions) and another that has been altered by man's activities will be instrumented bimonthly over 7- to 10-day periods. The time samplewill, as a minimum, encompass a single year to provide information on seasonal temperature fluctuations. The paired streams will include a variety of geologic, topographic, and climatic regimes along the east coast. Comparisons between an "altered" stream and its control should reveal the effect of environmental changes on temperature patterns.

For comparativesiteanalyses, least-square curves were 'fitted to all stream-temperature data obtained to date. These curvesyield estimated normal temperatures based on sampled temperature runs over a period of one year. Thus, with the aid of a computer, unbiased site comparisons are feasible.

Temperature patterns obtained from computerized curve-fitting techniques will be analyzed to help detect differences stemming from man's activities. Reports covering Vermont and Long Island will be inaugurated.

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SIE NO
ZUA-1863-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
GEOLOGIC DIVISION

AGENCY'S NUMBER(S):
96140.7

TITLE OF PROJECT:

STRATIGRAPHIC STUDIES OF THE MIOCENE, ATLANTIC COASTAL PLAIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

TG GIBSON

RECIPIENT INSTITUTION

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
18TH & F STS. N.W.
WASHINGTON, DISTRICT OF COLUMBIA 20242

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

States to which project pertains: New Jersey, Maryland, Virginia, North Carolina.

Distribution, paleoenvironmental relationships, stratigraphic significance, and taxonomy of the Foraminifera and several groups of Mollusca are being studies in the Miocene of the Atlantic Coastal Plain. From the combination of stratigraphic intervals and environmental interpretations, the paleogeography is being reconstructed. Using the paleoenvironments and paleogeography from a succession of time intervals allows the determination of the tectonic history.

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SIE No.

ZTA-343-6

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

SMITHSONIAN INSTITUTION
MUSEUM OF NATURAL HISTORY

AGENCY'S NUMBER(S):

6800-069

MARINE POLYCHAETE WORMS OF THE NEW ENGLAND REGION (GULF OF ST. LAWRENCE TO CHESAPEAKE BAY)

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

MH PETTIBONE DIV OF WORMS

RECIPIENT INSTITUTION:

SMITHSONIAN INSTITUTION
WASHINGTON, DISTRICT OF COLUMBIA 20560

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

The polychaete worms of the New England region (or Gulf of St. Lawrence to Chesapeake Bay) are being worked up by families, including synopses of the families, keys to the families, genera and species. Included for each species are a brief description, figures, notes on its biology, known geographic and bathymetric distribution, and selected synonymies and references. The first half of the study has been completed. Work continues on completion of the project. New species and revisions are worked up separately. ISG

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SIE NO.
ZUA-1060-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NJ64-035-C

TITLE OF PROJECT
WATER-QUALITY AND STREAMFLOW CHARACTERISTICS, RARITAN RIVER BASIN

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
PW ANDERSON

RECIPIENT INSTITUTION
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
TRENTON, NEW JERSEY 08607

PERIOD FOR THIS NRP
7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

This research is part of the program of water resources investigations conducted by the U.S. Geological Survey in cooperation with the State of New Jersey.

-purpose: To obtain information on the long-term, and present knowledge of water quality variations and streamflow characteristics of the Raritan River for the efficient management of the water resources of the area by action agencies.

Methods: Water records of state agencies and private water suppliers will be used to make an appraisal of the existence and magnitude of long-term trends in water quality. Data is being collected at locations established in 1966 to provide additional information necessary to "better understand the causative effects and relationships existing between water quality, streamflow, and environmental development in the basin's hydrologic system.

ISG

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SIE NO.
ZUA-2726

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMBER(S):
NJ 57-032

TITLE OF PROJECT:
GEOLOGY AND WATER RESOURCES OF THE WHARTON TRACT AND MULLICA RIVER BASIN IN SOUTHERN NEW JERSEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN WATER RESOURCES DIVISION

RECIPIENT INSTITUTION,
U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
TRENTON, NEW JERSEY 08607

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $12,390

SUMMARY OF PROJECT.

To evaluate the geology and hydrology of the tract to determine the degree of hydraulic continuity between the aquifer and the Mullica River.

To determine the feasibility of developing the total water resources of the tract by wells.

Test drilling and pumping tests were used to define aquifer boundaries and conditions. The aquifer test was conducted to provide the aquifer's hydraulic characteristics and the interaction between stream and ground water systems.

Final report was completed and approved by the director for publication by the New Jersey Division of Water Resources.

Revision and submittal of report for approval for publication.

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SIE NO
GY-59280-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
NEW JERSEY NEW BRUNSWICK

AGENCY NUMBERS
0059280
NJ00291
SUBGROUP H
CSRSNJ. 0000000000

TITLE OF PROJECT
PROCESSES OF ADJUSTMENT TO THE NATURAL ENVIRONMENT AMONG IN-MIGRANT POPU LATIONS.

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY
MITCHELL J K

KIND ?, AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION
RUTGERS UNIV
ENVIRONMENTAL RESOURCES
AGRICULTURAL EXPER. STATION
NEW BRUNSWICK NEW JERSEY 08903

PERIOD (YR. NR.)
BEG 710401 END 730630
FY 74 FUNDS 00C00000
50512629 Sub

SUMMARY OF PROJECT

OBJECTIVE: Identify types of disposition to the natural environmentamong in-migrant populations of Ocean County, N.J., determine patterns of adjustment to selected environmental phencmena made by these groups, measure perceptual and adjustment differences between new and lcng-term residents, assess rates of convergence with respect tc length cf residence and examine the practical consequences cf different orientations to the environment in terms of demands on selected public natural resource management programs.

APPROACH: Locate areas cf ccuntry which hcst newly arrived populations. Select study sites from areas of environmental disruption. Draw a stratified randcm populatien sample from each of the population subgroups and use personal interview with approximately 200 families. The interview will seek socio-economic backgrounds, environmental characteristics of previous residence area and preference for and attitudes toward nature. An attempt will be made to project the consequences of the information in terms of selected public natural resource management programs.

PROGRESS: A search of the literature on the growth and development of Ocean County, N.J. has been undertaker. A catalcg of major changes in the area's physical environmentisbeingmaintained using local newspaper reports, data drawnfrominterviews with governmental and resource management personnel and sequentialanalyses of aerial photographs. Maps showing the spread of occupance between 1955, 1963 and 1970 have been outlined. In addition, with the aid of data obtained from the U.S. Army Corps of Engineers, zones of potential hazard from coastal and riverine floods have been identified and mapped. Similar maps of coastal erosion, forest fire and gypsy moth hazards are also being developed. A sequence of field trips to acquire photographs which are representative of the range of ecosystems in the county is in progress. These will be used in assessing residents' environmental preferences. Several measures of attitude to environment and tests of social adjustment have been selected and evaluatefor use in subsequent interviews. An outline questionnaire whichincludestheseitemshas been developed and field tested. This document is now being revised for use during thesummerof 1972.

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SIE NO.
ZUA-1012-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY.

INTERIOR DEPARTMENT
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

AGENCY'S NUMB ER(SI

NJ63-011-C0

TITLE OF PROJECT:

TIDAL DISCHARGE RESEARCH, NEW JERSEY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

AC LENDO

RECIPIE NT INSTITUTION.

U.S. DEPT. OF THE INTERIOR
GEOLOGICAL SURVEY
TRENTON, NEW JERSEY 08607

PERIODFOR THIS NRP

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This research is part of the program of water resources investigations conducted by the U. S. Geological Survey in cooperation with the State of New Jersey, the Corps of Engineers, and the Federal Water Pollution Control Administration.

Purpose: To develop and improve techniques for the collection of tidal stage, discharge, quality of water, and sediment data.

Methods: Synchronous records of tidal stage have been collected by digital recorders at estuary stations. Computer programs are used to compile these records. Discharge equations have also been programmed and calibration has been based on observed discharge by diographs and other parameters by field measurement. Suspended-sediment, particle size, and other water-quality information is collected during discharge calibration measurements to define changes during tidal cycles. ISG

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SIE NO.
ZMA-560

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

E NV IRON MENTAL PROTECT. AGENCY
OFFICE OF WATER PROGRAMS

AGENCY'S NUMBER(S)

15080 FHW

TITLE OF PROJECT:

IDENTIFICATION OF SOURCE OF OIL SLICKS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/sPECIALTY:

UNKNOWN

RECIPIENT INSTITUTION

U.S. ENVIRON. PROTECTION AGCY.
EDISON WATER QUALITY RES. LAB.
EDISON, NEW JERSEY 08817

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS $47>700

No summary has been provided to the Smithsonian Science Information Exchange.

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GY-55237-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
NEW JERSEY NEW BRUNSWICK

ACCESSION NUMBERS:
0055237
NJ00862
SUBGROUP H
CSRSNJ. 0000000000

TITLE OF PROJECT:
ECONOMIC ANALYSIS OF ENVIRONMENTAL QUALITY EFFECTS ASSOCIATED WITH SEASONAL HOMES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DERR D

KIND A AWARD
DATE SP01 DISTR

RECIPIENT INSTITUTION:
RUTGERS UNIV
AGRI ECONOMICS & MARKETING DEPT.
AGRICULTURAL EXPER. STATION
NEW BRUNSWICK NEW JERSEY 08903

PERIOD FOR THIS RPP
BEG 690701 END 730630
FY 74 FUNDS 00000000
50512629 SUB

SUMMARY OF PROJECT:

OBJECTIVE: Determine the environmental situation associated with seasonal homes and analyze the attitudes, interests, and goals of people for a quality seasonal home environment and assess current and alternative institutional arrangements intended to correct inefficiencies and inequities in resource use in seasonal home communities.

APPROACH: Identify shore areas developed for seasonal homes in last 5 years. Determine environmental factors that influenced the location and these that were modified to permit the development. cost of improvements and selling price of properties will be determined and related to environmental factors. A regional questionnaire will be used to survey home owners. The Tocks Island National Recreation Area in New Jersey and Pennsylvania will be studied in detail to determine regulations and variances in regulating development. Master plans will be evaluated in relation to possible demands on the environment.

PROGRESS: In the northeast, a pressing environmental problem is the intensive use of lakeshore home developments. An acute shortage of adequate housing and rising real estate taxes has increased the use of unconventional housing. Lakeshore communities typically are not designed for year-round housing. Many lack adequate solid waste collection and sewage facilities. Permanent residents were younger than seasonal occupants, indicating that younger families were forming their primary home in the lake community. People per household was the same for lake homes and all homes in the county. Eighty-two percent of the households contained two adults only; thus the communities were not causing a rise in enrollments as anticipated by township officials. On site septic tanks with drainfields and overflows accounted for most sewage disposal systems. Private community water supplies served six of ten homes and the balance by on site supplies. Seasonal occupants tended to show more concern for lot size and trash than permanent residents. All respondents did agree that their property values were related to the quality of the surrounding environment. The respondents were willing to impose additional controls in order to retain the original charm and beauty of the [illegible]

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SIE NO.
ZBP-471

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S)

781786

RESOURCE ASSESSMENT INVESTIGATIONS - ICHTHYOPLANKTON INVESTIGATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

WG SMITH

RECIPIENT INSTITUTION

U. S. DEPT. OF COMMERCE
MIDDLE ATL. FISHERIES CENTER
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Technical Objective: The ichthyoplankton investigation team studies the early life histories of coastal fishes by: (1) establishing spawning seasons; (2) determining distributional patterns; (3) investigating environmental factors influencing the distribution of eggs, larvae and juveniles; (4) studying diel movements of larvae and the consequent effects on bath active and passive transport; (5) evaluating the important% of the estuarine zone as a nursery ground for juvenile fishes; (6) participating in MARMAP Survey I cruises to develop a functioning capability for a nationally coordinated sampling program that conforms with standards set forth in the Program Planning Document.

Approach: Seasonal cruises are scheduled to Study the diel movements of larvae found in continental shelf waters of the Middle Atlantic Bight. By using results of our previous coastal surveys, we have been able to locate concentrations of larvae which we sample for uninterrupted periods Of 48 to 72 hours. Several nets are fished in unison, being placed along the towing wire to sample at depths which correspond to the existing vertical temperature regime. Pertinent environment observations are recorded before each tow.

For MARMAP we conducted a survey to collect ichthyoplankton between Massachusetts and Florida, while other NMFS vessels were sampling the Caribbean Seaand in the region of the Antilles Current. Collecting techniques for all vessels are standardized,

Progress: We completed field work on two experiments designed to study the diel movements of fish larvae. During the first, we followed a drifting drogue. The second involved sampling at fixed stations. Sorting of samples from the first experiment is nearly complete and we are identifying, counting and measuring the fish larvae. Atlantic mackerel and yellowtail flounder were most abundant. Larvae taken around the drogue appeared morehomogenousin both size and number than those collected at fixed stations, Larvae were more abundant near the surface at night than during the day.

On the first MARMAP survey We sampled at 146 stations between Cape Cod and Daytona Beach. Only cross examination of plankton and neuston

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SIE NO.
ZMA-649

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
ENVIRONMENTAL PROTECT. AGENCY
OFFICE OF RESEARCH & DEV.

AGENCY'S NUMBER(S):
21APU-02

TITLE OF PROJECT:
DEVELOPMENT AND USE OF A SALT MARSH MICROCOSM AS AN OIL POLLUTION RESEARCH TOOL

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
DR RJ NADEAU — OIL SPILLS BRANCH
ALSO WITH — U.S. ENVIRON. PROTECTION AGCY.

RECIPIENT INSTITUTION:
U.S. ENVIRON. PROTECTION AGCY.
EDISON WATER QUALITY RES. LAB.
EDISON, NEW JERSEY 08817

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $2,000

SUMMARY OF PROJECT:

A salt marsh microcosm consisting of marsh sod excised from a nearby native salt marsh (Cheesequake State Park) was established at the EWQRL. Plant growth and fauna development were monitored for six weeks, followed by contamination with low level concentrations of oil. Immediate fate of oil was monitored through chemical analysis and characterization of the hydrocarbon types found in the water column and sediments. Further monitoring during Phase II of the study will delineate chronic impact of the oil to the indigenous biota. The project itself will determine the feasibility of using microcosms to assess potential damage to natural ecological domains.

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SIE NO.
ZBP-465

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. oCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S)

281890

ECOSYSTEMS INVESTIGATIONS-ENVIRONMENTAL REHABILITATION

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

F STEIMLE

RECIPIENT INSTITUTION

U.S. DEPT. OF COMMERCE
MIDDLE ATL. F ISHERIES CENTER
P.O. BOX 428
HIGHLANDS, NEW JERSEY 07732

PERIOD FOR THIS NRP.

7/72 TO 6/73
FY73 FUNDS UNKNOWN

SUMMARY OF PROJECT

Technical Objective: A) To determine the spatial effect of reef distribution on finfish abundance, particularly in heavily polluted environments. Information on fish inhabiting reef sites throughout the months of April-November is of special interest since it will provide answers to questions concerning seasonal fish mobility and reef interaction during the prime sportfishing months. B) To compare primary and secondary productivity on reefs and non-reef areas of Raritan Bay. Invertebrates and algae utilized as food for finfish is of particular interest since their seasonal settlement and abundance influence the resident finfish population. Using a bioenergetic approach, details on the rate of utilization by fish will be obtained through laboratory experiments and the effect of predation on the reef communities will be examined in the field. C) To examine the effect of an experimental reef on the behavior of finfish. Diving observations indicate that finfish utilize a reef for "cover" in addition to obtaining food. Coordination of field and laboratory experiments together with a record of the physical parameters will elucidate the Importance of this phenomena relative to reef productivity.

Approach: Small artificial reefs, made of tires bound together into units and anchored to wooden pallets, are being randomly placed on the sampling stations, and monitored for finfish activity at monthly intervals. In addition, invertebrate and algal food species are being collected and measured quantitatively, either directly from the tire units or from rubber test panels. The sampling design includes comparisons within and between habitat types. The bioenergetic approach (using bomb calorimetry) will be adopted in examining reef productivity. In addition to their growth anti settling rates, the caloric value of the important food species will be determined. Certain aspects of the study, such as Identification and sorting of epibenthic samples and morphometric analysis of finfish, are, in part, being completed through contract or cooperative studies.

Progress: Sandy Hook Laboratory has been investigating the development of artificial habitats in relatively unpolluted waters from Gloucester, Massachusetts to St. Thomas, Virgin Islands (1967-72). The studies have been principally concerned with measuring increases in the

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP:

SUMMARY OF PROJECT:

ZBP-471 (CONTINUED)

samples were possible at sea. A concentration of juvenile bluefish was found 40 miles east of Chesapeake Bay. Surface temperature was 27.3 degrees C, salinity 26.3 ppt.

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SIE NO.
QY-1804

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
FORD FOUNDATION

AGENCY'S NUMBER(S)

SUPPORT AN ECOLOGICAL AND ECONOMIC STUDY OF NEWARK'S WATERSHED LANDS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION.
RUTGERS THE STATE UNIVERSITY
GRADUATE SCHOOL
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS $85,000

SUMMARY OF PROJECT

To help support an ecological and economic study of Newark's watershed lands. The city's ownership of 32,000 nearby acres, largely unused, is a rare urban asset, and the study is aimed at developing recommendations for optimum use within environmental safeguards and rational land-use policies.

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NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

AGENCY'S NUMBER(S):

TITLE OF PROJECT

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

RECIPIENT INSTITUTION:

PERIOD FOR THIS NRP,

SUMMARY OF PROJECT:

ZBP-465 (CONTINUED)

standing crops of epibenthic forage organisms and fin fish predators.

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SIE NO.
GUW-1868-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S)

A-030-NJ

DISTRIBUTION OF' AUTOTROPHIC NITRIFYING BACTERIA IN A POLLUTER S'I'REAP!

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

PROF MS FINSTEIN ENVIRONMENTAL SCIENCE

RECIPIENT INSTITUTION

RUTGERS THESTATEUNIVERSITY
SCHOOLOF ARTS
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP

7/71 TO 6/72
FY72 FUNDS $6,570

SUMMARYOF PROJECT

It is proposed to investigate the distribution of autotrophic nitrifying bacteria in parts of the Passaic River.

The densities of ammonia and nitrite oxidizing autographs will be determined in the following environments! water, suspended particulate matter, mud-waterinterfaces, slimes onrocksandotherprojecting surfaces. It willbe determined if nitrifying bacteria are present as singlecells orin multi-cell aggregate in the water phase. Field sampling will be scheduled during different seasons to evaluate the effect oftemperature. Samplingsiteswillbeat various distances from outfalls. Ancillary chemical data collected will include - organic nitrogen (tentative), protein, ammonia, nitrite, nitrate arid PH; water temperatures will be recorded. ISG

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SIE NO.
GUW-3325-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-040-NJ

EVALUATION OF ESTUARINE SITE DEVELOPMENT LAGOONS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY,

PROF GF WALT(IN
GH NIESWAND
CW STILLMAN
SJ TOTH

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
GRADUATE SCHOOL
OLD QUEENS BLDG,
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/72 TO 6/73 MULT,SUPPOR
FY73 FUNDS $14,090

SUMMARY OF PROJECT:

A comprehensive study and evaluation will be made of estuarine site development lagoons constructed along the New Jersey shore and their impact on the existing natural estuarine system. Specific objectives of the project are: 1. To determine the present status (numbers, ages, sizes, locations and types of development) of existing lagoons along the New Jersey shore. 2. To investigate the demand for lagoon building sites, the people who buy them, the uses to which they are put, the needs that are satisfied and the economics of the system. 3. To define the characteristics of the lagoon system in relation to the existing natural esturarine system including the determination of geologic, hydrologic and hydraulic properties and comparative studies of water quality, bottom sediments, fish life and benthic fauna in lagoons and "undisturbed" estuarine waters. 4. To develop models of the lagoon system based on the integration of the data collected in 3 above with emphasis on cause and effect relationships. 5. To answer questions related to the future of the lagoon system including: a) What is the form of the stabilized system (if indeed one exists)? b) How can a desirable system be maintained? c) Can the lagoon system function? d) What are the alternatives to the lagoon system? and e) What are the optimal forms of development for the New Jersey shore? Optimal with respect to what?

ISG

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SIE NO.
GUW-1837-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S)
B-037-NJ

OYSTER SETTING AND SPAT SURVIVAL AT CRITICAL SALINITY LEVELS ON NATURAL SEED OYSTER BEDS OF DELAWARE BAY

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY
PROF HH HASKIN ZOOLOGY
D KUNKLE

RECIPIENT INSTITUTION
RUTGERS THE STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STA.
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $11,420

SUMMARY OF PROJECT

Several major natural seed beds in New Jersey waters of Delaware Bay are now depleted, Immediately up-bay are other seed beds that are still productive. Studies over the past 17 years have shown that the setting of oyster larvae on test surfaces on the depleted beds is, on the average, equal to that on the nearest producing beds. Slightly lower salinities reduce the natural pressures on the oyster Population through greater control of competitors and predators. It is now proposed to compare test shells and other experimentally Placed surfaces on producing and. non-producing beds to determine precisely why the failures in survival occur. With such determinations it may prove possible to improve survival of oyster spat on the lower beds by means other than major control of river flows. ISG

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SIE NO.
GUW-1854-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY'S NUMBER(S):
B-027-NJ

INSTREAM AERATION AND PARAMETERS OF NITROGENOUS BIOCHEMICAL OXYGEN DEMAND

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

W WHIPPLE
JV HUNTER
MS FINSTEIN
SL YU

RECIPIENT INSTITUTION.
RUTGERS THE STATE UNIVERSITY
WATER RESOURCES RESEARCH INST.
OLD QUEENS BLDG,
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/72 TO 6/73
FY73 FUNDS $9,107

SUMMARY OF PROJECT:

The proposed investigation involves laboratory and field investigations to determine the explanation for the very high deoxygenation parameter observed downstream of artificial aerators installed in polluted rivers. This effect has been noted in a previous research and demonstration program involving the same principal investigators and others at the N.J. Water Resources Research Institute. Field tests will be made with mechanical aerator and oxygen diffuser equipment in the Passaic River, New Jersey, and samples and data will be obtained from other sites. Laboratory tests will be made, with and without nitrifying inhibitors, to determine the part played by dissolved oxygen level and turbulence in the reaction. Observations of nitrifying populations will be made by a microbiologist. The objective is to determine appropriate parameters for systems analysis for location of instream aeration stations.

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GUN-11038

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)

F-15-R-15-7-1

REVIEW OF RIPARIAN GRANTS AND PERMITS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

PJ FESTA

RECIPIENT INSTITUTION

STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:

4/73 TO 3/74
FY73 FUNDS $3,000

SUMMARY OF PROJECT

Objectives: To review applications for riparian grants and permits to erect structures, dredge, fill, and utilize the waters of the estuarine and marine areas of New Jersey and to make recommendations and comments on the possible impact of such alterations on our marine fisheries resources and their environment"

Procedures: Project personnel will, review grant and permit applications Preliminary investigations, using available charts and maps, will be made at the Nacote Creek Research Station followed by on-site inspection of the area involved. When necessary fish and invertebrate populations will be sampled. Recommendations for approval of disapproval of applications along with pertinent comments and biologcal descriptions will be prepared and submitted through the Director of Division of Fish, Game and Shellfisheries. Involved personnel will also serve on state and interstate task forces and committees which review research relate to the development of marine and estuarine areas.

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SIE NO.
GUW-1589-3

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
OFFICE OF WATER RESOURCES RES.

AGENCY, S NUMBER(S):
A-025-NJ

TITLE OF PROJECT:
DYNAMICS OF BIOCHEMICAL OXYGEN DEMAND

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
BGEN W WHIPPLE
JV HUNTER
SL YU

RECIPIENT INSTITUTION.
RUTGERS THE STATE UNIVERSITY
WATER RESOURCES RESEARCH INST.
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/72 TO 1/73
FY73 FUNDS $7,000

SUMMARY OF PROJECT:

A quantitative evaluation of biochemical oxygen demand in the rivers of Northern New Jersey. Preliminary studies have indicated that the pollution in these rivers is much larger than can be accounted for by BOD of known effluents. Further research will be conducted into various aspects which might affect this relationship including sedimentation and scour, benthal effects, temperature variation of parameters, nitrogenous BOD, the reliability of 5-day BOD's, and the mathematical variation of carbonaceous BOD with time. Results obtained should be of scientific interest, and also important from planning viewpoints.

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SIE NO.
GUN-9490

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S)

1-G

MARSH DESTRUCTION

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

F FERRIGNO

RECIPIENT INSTITUTION

STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP

3/72 TO 6/73
FY72 FUNDS $3,213

SUMMARY OF PROJECT

Objectives: To determine the forces at work destroying wetlands in New Jersey. To determine the extent of damage; the agencies responsible; and make recommendations to prevent future loss.

procedures: Surveys will be made of the area, location and kinds of tidal marsh losses (developments, ditching, diking). These areas will be plotted on a map, acreage will be computed and remedies will be suggested to reduce damage. Appropriate statistical procedures and analysis will be conducted in conjunction with Rutgers University.

Justification: This job is essential if this valuable resources the tidal marsh, is to be saved. It should be continued until all tidal marshes in the state have been surveyed. Thereafter, field checks should be made every five years to determine the rate of loss. Location of previously filled in marshes and an appraisal Of their value will be useful in the selection of spoil sites while dredging the Intra-Coastal Waterway.

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SIE NO.

GUN-9479

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):

4-C

ECOLOGY AND MANAGEMENT OF CRANBERRY BOGS

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

F FERRIGNO

RECIPIENT INSTITUTION

STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $2,700

SUMMARY OF PROJECT:

Objectives: To provide proper spillways and management for the series of old cranberry bogs on the Tuckahoe River and to determine the effects of this management on waterfowl, plants, anadromous fish, and stream flow.

Procedures: New spillways will be installed in these state-owned cranberry bogs in a manner that will not interfere with the movements of anadromous fish. Cooperative studies between fisheries and wildlife biologist will study the movements of fish, mosquito production and the yield of waterfowl food plants. Cover-typing, mosquito larval dippings, food studies, fish and wildlife censuses will be used to evaluate management. Cooperation with Bureau of Fisheries Management is essential. Appropriate statistical procedures and analysis will be conducted in conjunction with Rutgers University.

Justification: Presently anadromous fish are blocked from free passage to spawn up the Tuckahoe River. This project will eventually lead to management that will increase production of anadromous fish and improve food and habitat for waterfowl.

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SIE NO
GUN-9267

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(s)

F-15-R-14-111-2

REVIEW OF RIPARIAN GRANTS AND PERMITS

PRINCIPAL INVESTIGATOR ASSOCIATES AND DEPARTMENT/SPECIALTY

VJ MCDERMOTT

RECIPIENT INSTITUTION

STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP

4/72 TO 3/73
FY72 FUNDS $975

SUMMARY OF PROJECT

Objectives: To review applications for riparian grants and permits to erect structures dredge, fill and utilize the waters of the estuarine and marine areas of New Jersey, and to make recommendations and comments on the possible impact of such alterations on our marine fisheries resources and their environment.

Procedures: Project personnel will review grant and permit applications. Preliminary investigations, using topographic maps, navigation charts, and reports relating to the area in question, will be made at the Nacote Creek Research Station. If it appears necessary an ecological reconnaisance will be made of the site involved, and may include sampling of fish and invertebrate populations. They also will serve on state and interstate task forces and committees which review research related to the development of marine and estuarine areas and waters. Recommendations are prepared and submitted through the Director of Fish, Game and Shellfish.

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SIE NO.
GUN-9477

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
B UREA U OF SPORTFISH.&WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S),
4-A

TITLE OF PROJECT,
ECOLOGY AND MANAGEMENT OF STREAMS

PRINCIPAL INVESTIGATOR. AssociaTes and DEPART ME NT) SPECIALTY:
F CARLSON

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
7/72 TO 5/73
FY73 FUNDS $1,950

SUMMARY OF PROJECT

Objectives: To determine the effect of stream channelization on the fish and wildlife resources of New Jersey.

Procedures: Investigation in cooperation with Fisheries biologist will be conducted to determine effects of stream channelization on fresh water fishes, waterfowl, woodcock and other wildlife. Soil sampling to determine abundance of earthworms, grubs and other insects, and fish and wildlife censuses will be conducted. Vegetational changes, water conditions and mosquito production will also be determined. Appropriate statistical procedures and analysis will be conducted in conjunction with Rutgers University.

Justification: Stream channelization and other alterations of upland streams has affected fish and wildlife. Research in upland streams will improve management and benefit fish and wildlife.

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SIE NO.
GTH-2-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

DELAWARE RIVER BASIN COMN.

AGENCY'S NUMBER(S)

TITLE OF PROJECT

DELAWARE RIVER FLOW-BAY SALINITY STUDY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

HH HASKIN ZOOLOGY

RECIPIENT INSTITUTION

RUTGERS THE STATE UNIVERSITY
SCHOOL 0)? ARTS
OLD QUEENS BLDG.
NEW BRUNSWICK NEW JERSEY 08903

PERIOD FOR THIS NRP:

7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT

Empirical curves will be constructed relating river flow at Trenton, New Jersey to Delaware Bay salinities at key positions in the oyster producing areas of the Bay. These curves will be constructed from flow-salinity data obtained during the period 1953-1968. A comparison will be made of these curves with previously developed curves made from data of the 1927-1952 period. An interpretation will be made as to the nature and reason for any discrepancies which may exist between thetwo sets of curves as they relate to river flow-bay salinity.

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SIE No.
GUN-9266

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
INTERIOR DEPARTMENT
BUREAU OF SPORT FISH. & WLF.
FEDERAL AID DIVISION

AGENCY'S NUMBER(S):
F-15-R-14-111-1

TITLEOF PROJECT:
DELINEATION OF FOOD WEB RELATIONSHIPS OF RESIDENT AND MIGRATORY FINFISH" SPECIES IN BARNEGAT BAY, N. J.

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
VJ MCDERMOTT

RECIPIENT INSTITUTION:
STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP:
4/72 TO 3/73
FY72 FUNDS $15,375

SUMMARY OF PROJECT:

Objective: To plan, design, and coordinate a comprehensive study of the food web relationships in the New Jersey estuaries, including the various invertebrates, forage, gamefish, and waterfowl.

Procedures: 1) To undertake an exhaustive search of the literature concerning the food webs of estuarine organisms, including techniques and methods of study; 2) review and discussion of tentative plans with selected members of the scientific community; 3) pilot field and laboratory testing of selected techniques and methods; 4) final design. Coordination with wildlife biologists during all stages of design and planning.

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SIE NO
GTH-12-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

DELAWARE RIVER BASIN COMM.

AGENCY'S NUMBER(S,

DEEPWATER PILOT PLANT ENGINEERING AND INTERCEPTOR FEASIBILITY STUDY

PRINCIPAL INVESTIGATOR. ASSOCIATES AND DEPARTMENT/SPECIALTY

PJ WEBBER
RC KAUSCH
JF WRIGHT
HA HOWLETT
R PORGES

WATER QUALITY BRANCH

RECIPIENT INSTITUTION

DELAWARE RIVER BASIN COMM.
P.O. BOX 360
TRENTON, NEW JERSEY

PERIOD FOR THIS NRP

7/71 TO 6/72 MULT,SUPPORT
FY72 FUNDS UNKNOWN

Studies have indicated the potential economic, technical, and other advantages which can be realized from the construction of a single regional treatment facility at Deepwater, Salem County, New Jersey to solve the liquid wastewater treatment problems of 10 major industries and the adjacent municipalities in Salem and Gloucester Counties along the Delaware River Estuary. Industrial wastes include pesticides, dyes, heavy metals, plastics, solvents, phenols and other refractory chemicals.

A pilot plant is operative at the site of the regional facility to determine treatability characteristics, develop cost and design criteria for a full scale facility, test methods of secondary and advanced waste treatment and provide data to base on equitable cost apportionment system.

Wastes are being hauled by tank truck to the 50 gpm pilot plant. Currently, BOD removals are in excess of 90% and there are similar removals for heavy metals (as a result of a neutralization unit) and phenol.

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SIE NO,
GTH-6-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
DELAWARE RIVER BASIN COMM,

AGENCY'S NUMBER(S):

TITLE OF PROJECT:
THE EFFECT OF THE PHYTOPLANKTON ON THE OXYGEN BALANCE OF THE DELAWARE ESTU ARY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
C?? BAREN

RECIPIENT INSTITUTION:
DELAWARE RIVER BASIN COMM,
P.O. BOX 360
TRENTON, NEW JERSEY

PERIOD FOR THIS NRP:
7/71 TO 6/72
FY72 FUNDS UNKNOWN

SUMMARY OF PROJECT:

This is a study to determine the effect and significance of the phytosynthetic oxygen production by phytoplankton in the Delaware Estuary from Trenton, New Jersey to Philadelphia, Pennsylvania. ISG

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SIE NO
GBP-751

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
028520481

NEW JERSEY ANADROMOUS FISH lNVh'Nl'oh%

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

UNKNOWN

RECIPIENT INSTITUTION

STATE DIV. OF FISH & GAME
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

PERIOD FOR THIS NRP

7/72 TO 6/73
FY73 FUNDS $2,000

SUMMARY OF PROJECT

Objectives: To collect and organize existing information on extant and extinct anadromous clupeid spawning runs in New Jersey.

Procedures: A search of literature and records will be complimented by personal interviews with people who have first hand knowledge of existing and extinct anadromous fish runs. Information specifically sought will include the locations of exl.sting or extinct runs by species, the timing of existing runs, the extent to which they utilize or have utilized the specified waters, the magnitude of runs in standardized adjective terms, existing uses of the runs and factors that might effect or has affected them. This will be used to develop a tentative categorical inventory of these runs that can be used as a basis for subsequent detailed investigations.

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GBP-764

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

COMMERCE DEPARTMENT
NATL. OCEANIC & ATM. ADMIN.
NATL. MARINE FISHERIES SERVICE

AGENCY'S NUMBER(S):

CONTRACT
018150967

TITLE OF PROJECT:

SURF CLAM STUDIES

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

JA HAWORTH

RECIPIENT INSTITUTION:

RUTGERS THE STATE UNIVERSITY
GRADUATE SCHOOL
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $30,000

SUMMARY OF PROJECT:

Objective: To determine the density and distribution of surf clams in the inshore beds along the New Jersey coast.

Procedures: The survey will cover an area from Loran bearing 3H4-4630 (Sandy Hook) to Loran bearing 3H4-3360 (Cape May) and from shore to a depth of 60 feet. Sampling stations will be established on the basis of a two-mile grid, with some modification to obtain adequate sampling of alongshore areas; -- this plot of stations to be furnished by NMFS. Each station is to be located by Loran. At each station, a five-minute tow will be made and the distance covered will be measured by an odometer attached to the dredge--this piece of equipment to be furnished by NMFS. For each tow, the total bushels, clams per bushel, size frequency of clams, and bottom debris kinds will be recorded. In addition, temperature and salinity measurements will be made at each station on all even numbered transects; these measurements will include bottom and surface and sufficient other measurements to bracket the thermocline at those depths where it may be present. Organisms present in each tow will be recorded. Gonads will be examined on a selective basis to determine ripeness. Stations will be noted on a continual recording fathometer tape. Rutgers will approach the specific biological problems such as age and growth, changes in meat yield with season and depth, location and intensity of setting.

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GY-56969-4

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY

U. S. DEPARTMENT OF AGRICULTURE
COOPERATIVE STATE RES SER
MARYLAND COLLEGE PARK

AGENCY NUMBER(S):

0056969
MD-A-026-CF
SUBGROUP H
CSRSMD. 0000000000

TITLE OF PROJECT:

IMPACT OF PRODUCTION, HARVESTING AND PROCUREMENT ON MARKET STRUCTURE OF THE N.E. FISHING INDUSTRY

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY

MARASCO R J

KIND c AWARD
DATE SF01 DISTR

19-157-20-11

RECIPIENT INSTITUTION

UNIV OF MARYLAND
AGRI ECONOMICS dept
AGRICULTURAL EXPER. STATION
COLLEGE PARK MARYLANE 20742

PERIOD FOR THIS RPP

BEG 700701 END 740631
FY 74 FUNDS 00000000

50512103 Sub

SUMMARY OF PROJECT

OBJECTIVE: Evaluate pricing practices and arrangements that characterize the fishing industry.

APPROACH: Interviewing schedules will be develcped to assess the role of : Auctions and other exchanges, Bicker and ether merchant middlemen, Contractual arrangements, Basing points in the price system, and Private sales.

PROGRESS: During 1972, 24 of the 105 firms that shucked oysters in Virginia were interviewed to isolate the out-of-state flow of oyster products. Collectively, the firms contacted, processed over 750,000 of the 2 million gallons of oysters shucked in Virginia during the 1971-72 season. Over 60% of Virginiats 1971-72 production of shucked oysters was shipped within the South-Atlantic States region. Roughly 80% of the 60% stayed in the Maryland-Virginia area. The second highest receiving region was the Mid-West with 20%, followed by the Mid-Atlantic States which accounted for approximately 10%. The Nest-Coast, Canada, and the New England region accounted for 4, 2, and 2%, respectively. 133 interviews were conducted to obtain socio-economic data on oystermen located in four Maryland communities. The information collected and employment opportunity data were used to assess the economic impact limiting the entry of watermen into the oyster fishery would have on the four communities. Work was also completed on an economic profile of the fisheries of the Chesapeake Bay.

016010
PRICING MARKET-STRUCTURE FISH PRODUCTION FISHERIES PRICES PROCUREMENT ST
016010 RUCTURE MARKET-ANALYSIS HARVESTING ECONOMICS
021001 00000000

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SIE NO.

GB-220218-1

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:

NEW JERSEY STATE GOVERNMENT

AGENCY'S NUMBER(S):

2R27220218 (HRB NO.)

TITLE OF PROJECT:

EVALUATION OF CURVED GIRDER BRIDGE

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:

J WIESENFELD
B COSABOOM RUTGERS THE STATE UNIVERSITY

RECIPIENT INSTITUTION:

STAT I DEPT. OF T RANSPORTATION
TREN TON, NEW JERSEY 08625

PERIOD FOR THIS NRP:

7/72 TO 6/73
FY73 FUNDS $23,923

SUMMARY OF PROJECT

THE PRINCIPAL AIM IS TO OBTAIN, VERIFY AND MEASURE THE STRESS BEHAVIOR OF CURVED GIRDER BRIDGES, SPECIFICALLY THE PROPOSED ROUTE 18 BRIDGE OVER THE RARITAN RIVER AT NEW BRUNSWICK; AND TO RELATE THESE MEASUREMENTS WITH THEORIES OF DESIGN.

Document provided to S.S.I.E. by the H.R.I.S. Information Service

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SE NO
GY-58340-2

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENC | AGENCY'S NUMBER (S,

NEW JERSEY STATE GOVERNMENT | 0058340

NJ00289

TITLE OF PROJECT

FACTORS AFFECTING THE FISHERY RESOURCES OF NEW JERSEY

PRINCIPAL INVESTIGATOR(S) ASSOCIATES AND DEPARTMENT SPECIALTY

JR WESTMAN ENVIRONMENTAL RESOURCES

RECIPIENT INSTITUTION | PERIOD FOR THIS NRP

RUTGERS THE STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STA.
OLD QUEENS BLDG.
NEW BRUNSWICK NEW JERSEY 08903

7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT

OBJECTIVE: Study the effects of the use of Barnegat Bay waters by New Jersey Central Power and Light Company, in its nuclear plant at Forked River on the aquatic life of Barnegat Bay.

APPROACH: The procedure includes laboratory studies of thermal tolerances and avoidance reactions of 17 species of marine fishes and field collections and population studies of fishes in the project area and in the adjacent control areas before and after operation of the plant. The before operation phase has been completed in an unreported project.

PROGRESS: ITEM 1: Regular seining collections at six stations in the Barnegat reactor project area, and in immediately adjacent waters, were continued on a monthly basis in winter and a semi-monthly schedule during the warmer months. The data continued to show that thermal addition can attract certain species at particular times of year and water temperature ranges, and repel certain species at certain other times of year, ITEM 2: laboratory experiments have been conducted to measure the responses of several marine fishes to drops in temperature of different speeds that might be encountered from nuclear plant shutdown. These experiments have revealed that fish may go into "practical death" (loss of equilibrium) and "ecological death" (loss of equilibrium and ultimate death) for an hour or more before physiological death. ITEM 3: Laboratory experiments were conducted to measure the responses of four marine fishes to HCL-fluoride wastes of Allied Chemical Corporation. Fluoride per se had no noticeable effects up to 180 ppm. Lowering of pH to 5.6 resulted in practical death for an hour or more for all species. The final report to Allied Chemical Corporation has been completed and is available.

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SIE NO.
GY-56005

NOTICE OF RESEARCH PROJECT

SUPPORTING AGENCY:
NEW JERSEY STATE GOVERNMENT

AGENCY'S NUMBER(S):
0056005
NJ00785

TITLE OF PROJECT:
RED TIDES IN THE SANDY HOOK AREA

PRINCIPAL INVESTIGATOR, ASSOCIATES AND DEPARTMENT/SPECIALTY:
UNKNOWN

RECIPIENT INSTITUTION:
RUTGERS THE STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STA.
OLD QUEENS BLDG.
NEW BRUNSWICK, NEW JERSEY 08903

PERIOD FOR THIS NRP:
7/73 TO 6/74
FY74 FUNDS UNKNOWN

SUMMARY OF PROJECT:

OBJECTIVE: To Be Determined.

APPROACH: To Be Determined.

PROGRESS:

New England Aquarium

The dollar volume of research committed to the N. E. Aquariums in the neighborhood of $200, 000 to $250, 000 per year with the following projects currently being undertaken:

(1) An analysis of the water quality of Boston Harbor and Massachusetts Bay, supported by Division of Water Pollution Control of the State of Massachusetts. This program, initiated in 1970, has the following objectives: (a) to develop a water quality monitoring program for Boston Harbor; (b) to develop a data storage and retrieval system for common water quality parameters; and (c) to develop analytical methodology for measurement of the concentration, form, and accumulation of certain toxic elements in the sediments of Boston Harbor and Massachusetts Bay.

(2) We are working closely with the U.S. Army Corps of Engineers to attempt to design criteria for site selection of dredge spoils. The purpose of this study is to attempt to define the criteria which will aid in site selection for disposal of dredge spoils such areas as Fairhaven Harbor or from larger embayments along the coast.

In addition to these studies we have ongoing work supported by the National Science Foundation to initiate investigations of the biochemical mechanisms of toxicity in marine phytoplankton, and a cooperative program with Brandeis and the National Science Foundation to look at the mechanism of uptake of certain metals in tunic ates.

Finally, we are undertaking a major program with the support of foundations of the state of Massachusetts, U.S. Army Corps of Engineers and National Science Foundation to look at the sorption and resorption of metallic ions in the sediments of Boston Harbor and Massachusetts Bay. The rationale for this study is that we feel that an understanding of pollution of bodies of water must take into account the reservoir of heavy metals at the bottom.

G. C. McLeod
Director of Research
New England Aquarium

ATTACHMENT 2

APPENDIX C-4

COASTAL RESEARCH PROGRAMS, FUNDED OR PROPOSED

WHICH WOULD USE NECCRF

Name of institution: TRIGOM

Title of Project: The development of biomedical procedures for water quality studies on marine fish

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: Environmental Protection Agency

cost :

Duration: one year

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of Institution: TRIGOM

Title of Project: Establishing safe discharge temperatures from power plants for Northern New England coastal fish

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: Atomic Energy commission ,

cost :

Duration :

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Institution:

The Research Institute of the Gulf of Maine (TRIGOM)
96 Falmouth Street, Portland, Maine 04103

Title:

Feasibility of Identifying Mystery Oil Spills

The objective of the Project is to determine the feasibility of combining existing analytical technology with the "Oil Sampling and Storage Procedures" provision of the State of Maine Oil Conveyance Law (Title 38, section 546, 1970) to achieve an effective system for the identification of the source of mystery oil spills. The large marine petroleum traffic (at least 150,000,000 barrels annually) in the Portland Harbor-Casco Bay (Maine) region provides an outstanding, readily available model to work on. The project is a cooperative effort between the enforcement agency of the Oil Conveyance Law (State of Maine Department of Environmental Protection), The Research Institute of the Gulf of Maine (TRIGOM), and the Chemistry Department of Bowdoin College.

Grant Director: Gardner Hunt
Maine Department of Environmental Protection

Principal Investigators: Dana W. Mayo, Bowdoin College and
Donald B. Horton, TRIGOM

Granting Agency: Environmental Protection Agency

Duration of Support: June 1, 1973 - September 30, 1974

Level of Support: $100,360

Anticipated Use of a NECCRF Vessel: Only occasionally to retrieve samples for analysis after an oil spill.

Title:

The Development of Biomedical Procedures for Establishing Water Quality Criteria for Marine Fish.

The purpose of this study is to combine advanced biomedical technology with marine biology to gain

Presently fundedprojects which could make use of the proposed NECCRF system

INSTITUTION

Marine Science Institute
Northeastern University
Nahant, Mass. 01908

TITLE OF PROJECT

A Study of the Effects of Disposal of Dredged Material in Massachusetts Bay

BRIEF DESCRIPTION OF PROJECT

Physical, chemical, biological and oceanographic factors relating to the disposal of dredged material in Massachusetts Bay.

GRANTING AGENCY

Corps of Engineers, Dept. of the Army

PRINCIPAL INVESTIGATOR

N. W. Riser

DURATION OF SUPPORT

From 1973 to 1974 (Phase I), Phase II, 1974 to indefinite date.

LEVEL OF SUPPORT

$43,000 (1973 - 1974)

POTENTIAL USE OF NECCRF VESSEL

Winter months when Institute vessel cannot be safely used.

Title:

To Evaluate the Biological Effects of an Artificial Tire Reef in Casco Bay, Maine

The objective of the project will be to evaluate the environmental effects of tires submerged in a Maine coastal area and to determine the usefulness of tires submerged as an artificial *reef as* a habitat for lobsters.

Principal Investigator: Donald B. Horton

Granting Agency: New England Regional Commission

Duration of Support: For *one year* with continuation expected

Level of Support: $35,000

Anticipated Use of a NECCRF Vessel: During second and third year of project (1973-1975), to provide logistic support for divers and cameras underwater, possibly submergibles, and lobster tagging work. Anticipated use would be two days per month.

Title: A socio-economic and environmental inventory of the outer continental shelf and adjacent waters of the North Atlantic (Sandy Hook, New Jersey, to the Bay ofFundy)

Objective: To develop a comprehensive inventory of the marine environmental and socio-economic data for the coastal zone for possible use in the preparation of environmental impact assessments of the development of offshore energy resources.

Project Manager: Edward H. Shenton

Fund ing Agency: Bureau of Land Management

Duration of Support: 13 months

Level of Support: .$163,000

Anticipated use of NECCRF vessel: only occasionally to verify published data.

knowledge of physiological disorders of marine organisms caused by sublethal concentrations of waterborne contaminants.

The research team will evaluate, adopt or modify methods currently employed in medical research in the fields of cardiovascular physiology, protein chemistry, immunology and biophysics for use in marine water quality research. They will join in collaborative projects designed to investigate the same basic, physiologic parameters under study in humans as well as to compare these parameters to more traditional methods for determining environmental stress on marine organisms.

Grant Director: Donald B. Horton

Principal Investigator: David W. Bridges

Granting Agency: Environmental Protection Agency

Duration of Support: June 15, 1973 - June 14, 1975

Level of Support: $78,140/year

Anticipated Use of a NECCRF Vessel: Opportunities to collect samples incidentally to other research. Samples of fish, particularly winter flounder and Atlantic herring are desired as often as twice each month. On board facilities needed will include tanks and continuously running seawater.

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Determination of Budgets of Heavy Metal Wastes in Long Island Sound.

Abstract:

Chemical and physical examination of eastern Long Island Sound with specific emphasis on heavy metal wastes. Monitoring and determination of these elements in oysters located in selected sites.

Principal Investigator:

Dr. Peter Dehlinger

Funding Agency:

NOAA-Sea Grant

Cost:

Total $147,000 (Contract award $85,000).

Duration:

1 year

Boat use:

35 days

Proposals Planned which Would Make Use of a NECCRF Vessel

Institution:

The Research Institute of the Gulf of Maine
96 Falmouth Street, Portland, Maine 04103

Title:

A Study of the Behavior and Fate of Introduced Contaminants in the Gulf of Maine

This project will entail a number of separate investigations concerning the effects of manes activity on the Gulf of Maine.

Approximately one years lead time will be necessary to plan this study for coherence and compatibility of measured parameters, stations and use of available vessels within the Gulf of Maine. Preliminary planning has identified seven or eight proposals {abstracts will be included) which are compatible with the objectives of the project.

Name of Institution

Marine Sciences Institute
The University of Connecticut
AveryPoint,Groton, Connecticut 06340

Title of Project:

Geophysical Survey of the Offshore Area Adjacent to Silver Sands State Park and Mumford Cove

Principal Investigator:

Or. J. J. Dowling

Funding Agency:

State Department of Public Works, and
General Dynamics

cost:

$8,400

Duration:

6 months

Boat use:

10 days

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Engineering and Geophysical Studies of Local Areas in Long Island Sound.

Principal Investigator:

Dr. J. J. Dowling

Funding Agency:

General Dynamics

cost:

$900

Duration:

1 year

Boat use:

2 days

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Research on Oceanographic Factors Relating to Disposal of Dredged Material in Long Island Sound

Abstract:

Investigation of dredged materials primarily in New Haven Harbor with parallel emphasis on physical and chemical parameters which could affect the condition of the relocation of dredged materials.

Principal Investigator:

Dr. A. J. Nalwalk; Co-Investigator, Dr.W. F. Bohlen

Funding Agency:

U. S. Army Corps of Engineers

cost:

$69,000

Duration:

1 year

Boat use:

52 days

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Upwelling Studies

Abstract:

Coastal upwelling studies of Continental United States

Principal investigator:

Dr. R. W. Garvine

Funding Agency:

National Science Foundation

Cost:

$12,700

Duration:

1 year

Boat use:

None

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Marine Geophysical Studies

Abstract:

Marine geophysical studies to determine crustal and sub-crustal structures in the Bering, Beaufort, and Chukchi Seas in the North Pacific Ocean, using gravity, magnetics and continuous seismic profiling techniques.

Principal Investigator:

Dr. P. Dehlinger; Co-Investigator, Dr. E. F. Chiburis

Funding Agency:

Office of Naval Research

cost:

$50,000

Duration:

1 year

Ship use:

Aboard Coast Guard ice breakers

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Atmospheric pollution transport and deposition on the sea surface.

Abstract:

Speciation of (Pb, Cd, Hg) certain elements in 'the northern Atlantic open ocean and shoreline with special emphasisin thoseareasthatpertainto trade wind contributions.

'Principal Investigator:

Dr. W. F. Fitzgerald

Funding Agency:

National Science Foundation
International Decade of Ocean Exploration

Cost:

$14,566

Duration:

2 years

Ship use:

Aboard WHOI R/V Knorr, URI R/V Trident, and MSI boats

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Basic Oceanographic Studies in Block Island Sound

Abstract:

Periodic sampling and analysis of water current speed and direction, oxygen and salinity content at various locations in Block Island Sound. Meteorological sea surface information is also collected and analyzed.

Principal Investigator:

Dr. A. J. Nalwalk; Co-Investigator, Dr. D. F. Paskausky

Funding Agency:

Office of Naval Research

cost:

$47,715

Duration:

1 year

Boat use:

30 days

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Theoretical Studies of Physical Dynamics of Coastal Upwelling ., Ecosystem Analysis

Abstract:

Various data collected over the years being incorporated in Project CUEA and analyzed using dynamic techniques to determine certain aspects of upwelling phenomena,

Principal Investigator:

Dr. R. W. Garvine

Funding Agency:

University of Washington

cost:

$56,000

Duration:

2 years

Boat use:

None

Name: University of Maine

Title: Pleistocene and recent sediments in the Gulf of Maine

Abstract: Shallow sesimic profiling of unconsolidated sediment sequence. Tracing of Pleistocene glacial events and recent sediment distribution dynamics.

P.I. : Detmar Schnitker

Funding: Open (N.S.F., O.N.R., Petroleum Resource Foundation)

cost: Approximately $30.000 for 3 years exclusive of ship costs.

Duration: three years

Ship Use: Fourteen days per year; principal user. 3.5 Khz precision profiling, and small air gun low frequency profiling. Piston and gravity coring at selected stations.

Name of Institution

Marine Sciences Institute
The University of Connecticut
Avery Point, Groton, Connecticut 06340

Title of Project:

Determination of Budgets of Heavy Metal Wastes in Long Island Sound.

Abstract:

Chemical and physical examination of eastern Long Island Sound with specific emphasis on heavy metal wastes. Monitoring and determination of these elements in oysters located in selected sites.

Principal Investigator:

Dr. Peter Dehlinger

Funding Agency:

NOAA- Sea Grant

cost:

Total $147,000 (Contract award $85,000).

Duration:

1 year

Boat use:

35 days

Name: University of Maine

Title: Recent Foraminifera, indicators of the health of the marine environment.

Abstract: The abundant and diverse foraminiferal faunas are very delicately adapted to their environment. Any change of this environment, either through natural or man-made causes elicits a response of the microfauna that can be detected.

P.I.: Detmar Schnitker

Funding: open (NSF, State of Maine)

cost : $15,000 - 2 years

Duration: 2 years

Ship use: 3 weeks first year, 2 weeks second year. Hitchhiking possible

'Name: University of Maine

Title: Late Quarternary paleo - climate and paleo hydrography in the Gulf of Maine.

Abstract: Microfaunal (foraminifera) analysis of piston and" vibra cores from-the Gulf of Maine and the upper continental slope off the Gulf of Maine should reveal the history of marine late Pleistocene" and Recent incursion and the changes in climate that accompanied it.

P.I. Detmar Schnitker

Funding: Open (NSF, ONR)

Cost: Approx. $30,000 for 3 years

Duration: 3 years

Ship use: 14 days for first two years, 4 days last year. Hitchhiking possible.

Name of Institution:	University of Maine Department of Oceanography Walpole, Maine
Title of Project:	Development and Distribution of " Lauval fishes in the Gulf of Maine and Adjacent Waters of the North Atlantic
Abstract or Brief Description:	Investigation of the seasonal distributional patterns of lauval fishes as influenced by current patterns, breeding patterns and possible yearly fluctuations in climate as affecting Gulf of Maine waters. Gear would be 1/2 m or 1 -meter Bongo nets (metered), or open-closing Tucker Trawls (metered). Vertical distribution and daily migration patterns will be investigated through clay-night sampling sequences. The cruises will be coordinated with existing MARMAP cruises so that MARMAP material can be used together with that obtained during our cruises.
Principal Investigator (s}	Hugh H. DeWitt
Funding Agency:	NSF or National Marine Fisheries Service
cost:	$5,000 per year and expendable supplies. No salaries if the program could fit into the MARMAP program we have now; does not include ship time.
Duration:	Three Years

Ship Use per Year -- as principal user:
-- as hitch-hiker:

Hugh H. DeWitt and Joanne M. Lyczkowski - four IO day cruises, at the four seasons of the year; cruises would consist of four transects (E-W) from near shore out to beyond the shelf edge of the Gulf of Maine.

Name of Institution: University of Maine at Orono

Title of Project: Ecology and taxonomy of selected echinoderms in the Gulf of Maine

Abstract or Brief Description: Ecological studies of feeding and reproduction in crinoids and ophiuroids, especially the genus Ophiura, are proposed for the Georges Basin area over a two year period.

Principal Investigator (s): John H. Dearborn, assoc. prof. of zoology and oceanography

Funding Agency: NSF initially, other federal or state agencies if the original proposal is unsuccessful

Cost : *$30,000*

Duration: two years -- would apply for continuing support if program successful.

Ship Use per Year -- as principal user: 4 to 8 days per trip, six trips per year

-- as hitch-hiker: could be combined. with other benthic sampling programs if appropriate gear is used.

Name of Institution: U. of Mass. Marine Station

Title of Project: Distribution of non-conservative propertied in estuaries or related to the flushing characteristics of the Merrimack Estuary

Abstract or
Brief Description:

Principal Investigator (s) :

Funding Agency: Water Resources WR-58

cost : $5,000

Duration : one year

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of Institution: University of Maine at Portland, ~~Oregon~~

Title of Project: Sediment distribution in the Gulf of Maine

Abstract or Brief Description: Twofold purpose: More detailed analysis of the distribtuion of 's ediment then hereto-for undertaken; student training cruises.

Principal Investigator: Irwin Novak

Funding Agency:

cost:

Duration:

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Can be done in part as hitch-hiker; training portion would require one week cruise each spring our two week cruise each summer.

Name of Institution: U. of Mass. Marine Station

Title of Project: Sea surface observations in support of NASA CV-990 ocean color remote sensing experiment

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: NASA NAS-5-21813

Cost: $16,500

Duration:

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of institution: U. of Mass. Marine Station

Title of Project: Nitrogen uptake by Fucus spiralis L. and other selected marine macroalgae

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: NSF GA 33495

Cost: $39,728

Duration: two years

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of Institution: U. of Mass. *Marine* Station

Title of Project: Fate and behavior of crude oil on marine life.

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: U.S.Coast Guard DOT-CG-13992A

Cost : *$40,000*

Duration: one year

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Name of Institution: U. of Mass. Marine Station

Title of Project: Interrelationship between temperature and photosynthesis of marine phytoplankton

Abstract or Brief Description:

Principal Investigator(s):

Funding Agency: NSF GA 29501

Cost: $84,000

Duration: two years

Ship use per Year -- as principal user:

-- as hitch-hiker:

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

Some Implications of Solid Waste Disposal in Coastal Basins

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

An investigation in both the laboratory and field of the chemical and biological effects of placing solid wastes in ocean water.

GRANTING AGENCY

Sea Grant

PRINCIPAL INVESTIGATORS

Professor Theodore Loder and Professor Franz Anderson

DUHATION OF SUPPORT

1971-1975

LEVEL OF SUPPORT

$75,000/year

POTENTIAL USE OF NECCRF VESSEL

Survey of coastal basins using T. V. cameras and standard chemical, biological and geological survey equipment.

Name of Institution: U. of Mass. Marine Station

Title of Project: The interrelationship of hydrodynamic processes and organic production in the ocean.

Abstract or
Brief Description:

Principal Investigator(s):

Funding Agency: Atomic Energy Commission AT(11-1)3024

Cost: $37,000

Duration: one year

Ship Use per Year -- as principal user:

-- as hitch-hiker:

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

Hydromechanical Aspects of Arrays

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

Analysis and field testing of buoyant structures including both static and dynamic analysis and testing plus instrumentation - both radio telemetry and hard wire.

GRANTING AGENCY

Office of Naval Research

PRINCIPAL INVESTIGATORS

Professor Godfrey H. Savage

DURATION OF SUPPORT

From 1963 to undefined future date

LEVEL OF SUPPORT

Varying from $50 - $75,000/year (possibly larger next year)

POTENTIAL USE OF NECCRF VESSEL

To lay cable, plant buoys and conduct detailed bottom surveys. Weight handling requirements - to 3 tons static load.

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

'I'he University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

Student Ocean Engineering Projects Course

BRIEF DESCRIPTION 0% PROJECT OR PROGRAM

purpose is to have students build devices that work and serve a purpose in ocean research programs. Students in groups of 2 to 6 take interdisciplinary approach in solving problems related to project. They have budgets of $200 - $4000 to accomplish task. Usually 25-30 students involved in these projects in one course.

GRANTING AGENCY

Sea Grant

PRINCIPAL INVESTIGATORS

Professor Joseph Murdock and Professor Donald Melvin

DURATION OF SUPPORT

Continuous since 1968

LEVEL OF SUP??(3RT

$20,000/year

POTENTIAL USE OF NECCRF VESSEL

Each project requires 2 or 3 days of ship time for ocean tests.

Note: This activity is considered to be more than "educational" in nature since devices designed, built and tested "are utilized in research activity.

Presently funded projects which could make use of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

The Science and Technology of Utilizing the Bottom Resources of the Continental Shelf

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

This university/industry cooperative research and development project seeks to develop both an effective technology to classify and assess acoustically the coastal sea floor and sub-bottom sediment for both physical and engineering properties and to study from a broad perspective the technical, ecological, legal and economic understandings essential to a responsible exploration and utilization of a country's continental shelf bottom resources.

GRANTING AGENCY

Sea Grant

PRINCIPAL INVESTIGATORS

Dr. R. W. Corell, Co-Principal Investigator; Dr. A. Yildiz, Co-Principal Investigator; and numerous faculty at UNH and staff of the Raytheon

DUMTION OF SUPPORT

Three years completed of a five year project

LEVEL OF SUPPORT

Approximately $500,000/year

POTENTIAL USE OF NECCRF VESSEL

As a research platform for both acoustic data acquisition and for coring to obtain soil. mechanical/geological samples. Had the vessel been available, we undoubtedly would have used it rather than leasing vessels from other institutions. Some work also found on this project for NOMES.

Presently funded projects which could make usc of the proposed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

Coastal Engineering - Sea Grant

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

To analyze wave action in the Gulf of Maine using computer models and real wave data collected from a UNH wave buoy system.

GRANTING AGENCY

Sea Grant

PRINCIPAL INVESTIGATORS

Professor Godfrey H. Savage and Professor Alden Winn

DURATION OF SUPPORT

1971 to 1974 or 1975

LEVEL OF SUPPORT

$50 -$60,000/year

POTENTIAL USE OF NECCRF VESSEL

To set buoys and to make bottom surveys to determine effect. of wave action on transport of sand and other bottom sediments.

ACTIVE COASTAL RESEARCH PROJECTS

WOODS HOLE OCEANOGRAPHIC INSTITUTION

Ecology of Submarine Canyons - Gilbert Rowe and Richard Ha edrich

Research involves a quantitative description of benthic fauna, analysis of specie associations, charting and understanding specie distributions, comparing patterns of biomass, density and diversity as a function of depth, sediments and bottom currents, and determining life strategies of dominant canyon species.

NSF
4457500

Carboniferous and Mesozoic Rift Structures of the Gulf of Maine - Elazar Uchupi and Robert Ballard

NS -

A study to determine the geologic and tectonic framework of the Gulf of Maine using seismic reflection and oblique-reflection profiling, , magnetic. and sampling techniques (the latter using ALVIN).

21,500

Study of Solid Waste Disposal - Gilbert Rowe

SEAMAN CORP
16,000
N E Regional Comm
48 000

Involved is the deployment and subsequent study of bales of shredded, compressed refuse in order to determine the effects on marine biota.

Study of Chemical Communication by Marine Animals - Jelle Atema

NSF
13 000

A multi-disciplinary investigation of sensory and behavioral phenomena in marine animals, including effects of pollutants. Subjects include the sex pheromone of the lobster and home stream recognition of alewives.

Sediment-Fauna Relationships on the Deep Ocean Floor - Gilbert Rowe

NSF
14 000

An invesitgation of the effects of benthic fauna on the physical properties of seafloor sediments. Much of this work is done in the Gulf of Maine and on the New England continental slope.

Organic Chemistry of the Marine Environment - Max Blumer

NSF
65,000

A long-term study of the sources, variability, interaction and eventual fate of organic compounds in the sea. This includes petroleum, hydrocarbons and their ingestion by marine organisms. Much of this work is coastal in nature.

Presently funded projects which could make use of the pro-posed NECCRF system

INSTITUTION

The University of New Hampshire
Durham, New Hampshire 03824

TITLE OF PROJECT OR PROGRAM

New England Offshore Mining Environmental Study (NOMES) - University of New Hampshire Phase of Activity

BRIEF DESCRIPTION OF PROJECT OR PROGRAM

The New England Offshore Mining Environmental Study (Project NOMES) is an experiment designed to evaluate the direct and indirect ecological effects of offshore sand and gravel mining. The experiment involves carefully controlled, short duration dredging conducted in connection with an extensive program of environmental monitoring and laboratory analysis. The study is intended to provide a scientific basis for the establishment of realistic environmental safeguards over potential future offshore mining operations.

GRANTING AGENCY

NOAA

PRINCIPAL INVESTIGATORS

Dr. Larry Harris, Dr. Arthur Mathieson, Dr. Hugh Mulligan, Dr. Victor Azzi, and Dr. C. L.. Grant

DURATION OF SUPPORT

Into first full year, with program projected to 1975

LEVEL OF SUPPORT

Approximately $600,000/year at UNH

POTENTIAL USE OF NECCRF VESSEL

As a research platform for:

1) Diving scientific studies of Benthic communities , both invertebrates and plants
2) Sampling phytoplankton and zooplankton
3) Fin fish population studies
4) Core sample acquisition for soil mechanical analysis and sedimentary chemistry

Name of Institution: Woods Hole Oceanographic Institution

Total funding presently committed to coastal research: $1,006,000

Ship time requirements per year from those answering questionnaire 26 weeks

46 members of scientific and technical staffs have expressed interest in using proposed vessel

Pilot Plant for Tertiary Sewage Treatment - John Ryther

This program involves a medium-scale operation involving the growth of marine plankton algae from effluent from a secondary sewage treatment plant, **and the subsequent continuous culturing of shellfish with the product..**

NSF $286,000

Currents at the Edge of the Continental Shelf South of Cape Cod-W. R. Wright

An investigation of the frontal region separating the coastal water on the shelf from the slope water offshore. It involves initially an analysis of existing data to determine the long-term and seasonal changes in position and character of the interface. Field work is anticipated later.

'NSF 1 year $40,000

Development of Drift Buoy Location System - D. F. Bumpus

Development of a "talking drift bottle" system in which drifting buoys are located by triangulation from shore stations, with range determined by accurate crystal clocks.

National Marine Fisheries Service
National Data Buoy Center **1 year** *$50,000*

Carbon, Nitrogen and Phosphorus Cycles on the Sea Floor of an Upwelling Region -- Gilbert T. Rowe

NSF $61, ooo "

Biological Equipment Development - **John Teal, Peter Wiebe, Holger Jannasch** ONR

Involved is the development of various bottom-sited experimental apparatus (e. g. , bell-jar biological respirometer) designed to do quantitative experiments in the sea. #30,000

Marine Biological Noise - William Schevill ONR

A long-term study of sounds from marine mammals. Some of this work is done off the New England coast. 56,000

Sublethal Temperatures on the Social Behavior of Fishes - John Todd REC

A study to examine the effects on social behavior of fishes as a result of elevated temperatures as might be caused by thermal pollution from power plants. 35,000

A **Membrane Salinometer for Monitoring Estuaries** - **Paul Mangelsdorf** EPA

The development of a salinometer capable of providing continuous records" of salinity change in depth or time, for studies of estuarine circulation patterns and biological micro- environments. 24,000

Oil Pollution Source Identification - **Oliver Zafiriou** EPA

The development of techniques to provide methods for analytical identification of the origins of s pilled "oil. 60,000

Collaborative Research in Structure, Function and Export of a Salt Marsh Ecosystem - **John Teal** NSF

A **study of the consequences of nutrient enrichment on the main** components of a salt marsh. The work deals with gas exchange in marsh grass, production of benthic diatoms, population of soil animals, and growth of fish. 40,000

Biological Recovery Following an Oil Spill - Howard Sanders EPA

A continuing study of the ecological consequences of a major oil **spill** which occurred in Buzzards Bay. 103,000