

STUDY TITLE: Compendium of Alaskan OCS Cultural Resources Studies.

REPORT TITLE: Cultural Resource Compendium.

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SPONSORING OCS REGION: Alaska.

APPLICABLE PLANNING AREA(S): Gulf of Alaska; Kodiak; Cook Inlet; Shumagin; Aleutian Arc; North Aleutian Basin; St. George Basin; St. Matthew Hall; Bowers Basin; Aleutian Basin; Navarin Basin; Norton Basin; Hope Basin; Chukchi Sea; Beaufort Sea.

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KEY WORDS: Gulf of Alaska; Kodiak; Cook Inlet; Shumagin; Aleutian Arc; North Aleutian Basin; St. George Basin; St. Matthew Hall; Bowers Basin; Aleutian Basin; Navarin Basin; Norton Basin; Hope Basin; Chukchi Sea; Beaufort Sea; Alaska; cultural resources; synthesis; literature review; archeology; Bering Sea; survey; Pribilof Islands; St. Matthew Island; Chinitna Bay; Kodiak Island; Shelikof Island; model.

BACKGROUND: The Alaska Outer Continental Shelf (OCS) Cultural Resource Compendium was prepared by the University of Alaska Museum to synthesize a series of analyses of the Bering, Chukchi, and Gulf of Alaska OCS. The study was conducted to determine potential for occurrence and preservation of prehistoric archeological sites in these areas. Results of several field research efforts funded previously by the Bureau of Land Management (BLM) were included in the synthesis.

OBJECTIVES: (1) To synthesize existing data, research, and analyses on potential occurrence and preservation of archeological sites on the Alaska OCS, particularly in the Beaufort, Chukchi, and Bering Seas.

DESCRIPTION: The study area encompassed all of the U.S. portions of the continental shelves of the Beaufort, Chukchi, and Bering Seas, and that of the North Pacific from Umnak Island in the Aleutians to Cape Suckling east of Prince William Sound. The BLM-funded field research efforts included in this volume consisted of a submarine archeological survey undertaken in the area of the Pribilof Islands in 1976, an archeological survey of St. Matthew Island in 1976, an archeological and geologic assessment of Chinitna Bay in 1978, an archeological reconnaissance of caves in the vicinity of the Porcupine River in 1978, and an analysis of sediment cores and subbottom profile data collected by National Oceanographic and Atmospheric Administration research vessels in the vicinity of Kodiak Island and Shelikof Island. Based on results of this field research and evaluation of published and unpublished data, a paleoenvironmental history of the Alaska OCS was presented for the late Wisconsin and early Holocene marine transgression. Major factors considered included climatic history, rate of sea-level rise, possible standstills, extent of glaciation, marine circulation patterns, productivity and distribution of faunal resources, terrestrial ecology, transgressive and post-transgressive physical perturbation of the continental shelf, and the potential of site survival. Through integration of these data, a paleoecological history was developed for the last marine transgression and potential for prehistoric archeological site occurrence on the Alaska OCS was assessed.

SIGNIFICANT CONCLUSIONS: This study integrated diverse evidence supporting human occupation of the Bering Sea land bridge into a comprehensive model for Pleistocene settlement patterns. It presented a human settlement pattern model which was integrated in terms of geographic specificity. This model included three levels of spatial analysis directed to facilitate marine archeological surveys: (1) Continental--a reconstruction of the paleogeography of Beringia (i.e., the OCS stretching between Asia and North America, presently including the floors of the Bering and Chukchi Seas) and adjacent terrestrial areas; (2) Regional--an analysis of specific areas within Beringia, based on paleogeographic reconstruction and including probable seasonal distribution patterns of terrestrial and marine mammal populations; and (3) Sectional--a one square mile survey area equivalent to a U.S. Geological Survey (USGS) section. The end result was USGS protraction diagrams which ranked potential lease blocks on the Alaska OCS in order of high, moderate, and low archeological potential.

STUDY RESULTS: The range of present ecological conditions encountered over the study area was diverse. During the marine transgression following the Late Wisconsin glacial maximum, conditions over the shelf were different than today, probably more ecologically diverse.

Based on bathymetric and geologic data, six possible stillstands or significant temporal pauses in sea level rise (from -125 m to present sea level) during the last major marine transgression were documented. These were correlated to global and North Pacific temperature curves for that interval. Within this time, Alaska's continental shelves were exposed to subaerial conditions.

The most drastic ecological changes probably occurred on the Alaskan North Slope, including the continental shelves of the Beaufort, Bering, and Chukchi Seas. The coast and continental shelf of the North Pacific also experienced ecological fluctuations during this period, with primary variables being species composition and resource distribution determined by temperature, precipitation, and extent of glaciation.

During and shortly following the culmination of the final Wisconsin glaciation, northern and central Beringia were probably dryer than today. Abiotic factors resulted in vegetation, referred to as "tundra-steppe," which supported grazing mammals such as mammoth, horse, and bison. Sometime after the Late Wisconsin glacial maximum, this ecological community declined and became extinct probably shortly after 15,000 years BP. A transition in vegetation occurred from tundra-steppe to mesic herb-tundra, and moose and caribou became the predominant large mammals.

Following the paleogeographic and paleoenvironmental reconstructions, a model of human settlement patterns was presented based on synthesis of anthropological literature defining the ecological basis for settlement patterns of northern hunters and gathers. Literature indicated that settlements were largely dependent on faunal resource distributions. Based on ecological criteria identified as responsible for contemporary distributions of modern land mammals, sea mammals, and fish, areas of past high faunal productivity were identified from paleoenvironmental and paleogeographic reconstructions. These areas were identified as locales of high potential for occurrence of prehistoric archeological sites occurring on the Alaska OCS. The axiom that nonagricultural hunters and gathers must have settled where faunal resources were concentrated was presented. The model was applied to northern and central Beringia and its littoral margins during land bridge times as well as the sequence of successive stillstands. These locales were transferred to a series of USGS protraction diagrams for the study area, and were defined as areas of high, moderate, and low potential for occurrence of prehistoric archeological sites.

STUDY PRODUCT(S): Dixon, E. J., S. Stoker, and G. Sharma. 1986. Cultural Resource Compendium. A final report by the University of Alaska for the U.S. Department of the Interior, Minerals Management Service Alaska OCS Region, Anchorage, AK. NTIS No. PB87-204657. Social and Economic Studies Program Technical Report No. 119. MMS Report 86-0018. Contract No. 14-12-0001-29008. 387 pp.

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