



# Archeology Program

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## Cape Krusenstern Beach Ridge Complex Survey

The Cape Krusenstern beach ridge complex is one of the premier archaeological sites in the North American Arctic. It is the focal point of the Cape Krusenstern NHL, which encompasses the entire 560,000 acre [Cape Krusenstern NM](#). The beach ridge complex is composed of 114 ancient beach ridges containing every known cultural tradition in northwest Alaska from the last 5,500 years.

Archeological sites on the beach ridges were first investigated in the 1950s and 1960s by pioneering Arctic archaeologist J. Louis Giddings, Jr. and his student, Douglas Anderson.



Chris Young (NPS) and U Washington graduate student Shelby Anderson record a previously excavated housepit. (NPS photo)

This year, the monument began a project to survey and inventory the entire 10 mile long 2.5 mile wide Cape Krusenstern beach ridge complex. The goal of the project is to integrate the cultural resource and environmental data into a comprehensive management plan that will help NPS address coastal erosion; cultural resources documentation, preservation, and protection; and various local access land use issues in Cape Krusenstern NM. The 2006 field season focused on cultural resource inventory; subsequent years will also include cultural anthropological, geomorphological, and paleoenvironmental components. This is a 2007-2009 International Polar Year project.

### Methods used

Project personnel included three permanent Western Arctic Parklands NPP cultural resource staff; two undergraduate students and one graduate student from the University of Alaska, Anchorage; two graduate students from the University of Alaska, Fairbanks; and two University of Washington graduate students. The project also received invaluable support from the Alaska Regional Office GIS team.

Accupoint Inc.'s Anchorage office supplied equipment and services worth more than \$15,000 in order to establish a GPS continuously operating reference station (CORS) in Kotzebue. This station enables the project to have decimeter accuracy for all GPS data collected within the project area and sub meter accuracy for GPS data collected within several hundred miles of Kotzebue. The general public can access the CORS data via the internet at Accupoint's web site.

### Results of the first season

In three weeks, two teams recorded 43,997 GPS positions mapping 4,161 modern, historic, and prehistoric cultural features and artifacts. Eighty-eight percent of the GPS locations have a horizontal accuracy between 0-15 cm with 95% between 0-30 cm. The teams used a Trimble GeoXH handheld and a Trimble Ranger/ProXH with Zephyr dual-frequency antennas. Site and feature data and artifact attributes were recorded and stored in the GPS data loggers. All photos taken in the field were processed using GeoSpatial Experts GPS-Photo Link software. This program watermarks photographs with ID and GPS derived location information.



Approximately 16,768 acres were surveyed using transect intervals between 10 and 20 meters and 1,874 shovel test probes were placed at irregular intervals and within cultural features. Sixty-five charcoal samples and six structural wood samples were recovered for radiocarbon and wood identification analyses and 13 seal bones for isotopic analysis. Only 14 artifacts were curated for further analysis and study. Because of the hyper accuracy of the GPS positions recorded, all other artifacts were documented and left where found.

Long sections of coastline were also recorded using GPS in order to establish baseline data to better monitor increasing coastal erosion, which has intensified throughout northwest Alaska over the last decade. Erosion at the villages of Shishmaref (surrounded by Bering Land Bridge National Preserve) and Kivalina (on the northern boundary of Cape Krusenstern National monument) is an annual event and both villages are planning to relocate. The same forces acting upon the villages are also affecting nearly 200 miles of culturally rich NPS administered coastline.

**University of Alaska, Fairbanks graduate student Cody Strathe examines a historic period cold cellar. (NPS photo)**

The first year data has yet to be completely analyzed, but preliminary work indicates that about 200 new sites were identified and recorded and more than 50 previously known sites were located and updated. Sites attributed to Denbigh, Choris, Ipiutak, Birnirk and Thule cultures were identified, as well as historic whaling period sites and modern Inupiaq camps.

**Suggested Reading:**

Anderson, D. D.  
1984 Prehistory of North Alaska. In *Arctic*, edited by D. Damas, pp. 80-93. Handbook of North American Indians, vol. 5, W. C. Sturtevant, general editor, Smithsonian Institution, Washington, D.C.

Giddings, J. L.  
1967 *Ancient Men of the Arctic*. Knopf, New York.

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1986 *Beach Ridge Archaeology of Cape Krusenstern: Eskimo and Pre-Eskimo Settlements Around Kotzebue Sound, Alaska*. Publications in Archaeology 20. National Park Service, U.S. Department of the Interior, Washington, D.C.

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