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Integrating Natural and Cultural Resource Management in Katmai National Park and Preserve

Recent archeological investigations in Katmai National Park and Preserve (Katmai) in Southwestern Alaska have produced new information illuminating the lifeways of the region's native inhabitants for seven millennia.

The southern border of Katmai is defined by the exposed coastline of the Gulf of Alaska. Unlike the often protected waterways of the Pacific Northwest coast to the south, the coastal peoples of the Upper Alaska Peninsula regularly endured agitated seas and strong prolonged winds. The region's native inhabitants tempered the less-than-accommodating environment with innovative technological adaptations like the highly maneuverable skin-covered boat and well-insulated semi-subterranean homes.

The Katmai area is continually being transformed by a combination of vigorous natural agents, such as tectonic movements, volcanic eruptions, sustained winds, regular precipitation, and an incessant pounding surf.. The Aleutian Megathrust Fault parallels the Alaska Peninsula offshore to the south in an arcuate fashion. The formidable Aleutian Mountain range rises to a height of 7600 feet within the park boundaries, a result of the Pacific Plate colliding with the North American Plate. The seismic events generated as a result have caused measurable, sometimes catastrophic deformation in coastline morphology. The 1964 Alaskan Earthquake is only the most recent example in a long history of tectonic activity.

Katmai National Park coastal topography.

Tectonic instability is responsible for the formation of over 40 historically active volcanoes on the Alaska Peninsula, 15 of which are located within Katmai. The eruption of Novarupta in 1912 deposited an estimated six cubic miles of ash across the nearby landscape. Since that time water, winds, and gravity have redistributed the ash to distant areas well beyond their original location following the blast. Although the Gulf coast of the park was leeward of prevailing winds when Novarupta exploded, the 1912 ash deposit is often a visible horizon indicator to archeologists.

Inhabitants of the Katmai coast had to cope with the immediate effects of large ash accumulations on the flora and fauna of the region after the more significant volcanic events. The long-term stress those events placed on the natives was also significant as they were forced to abandon and relocate settlements when increased sediment budgets overloaded streams and longshore currents transformed coastline morphology filling bays and estuaries. Since 1912, for example, Katmai Bay has been transformed from a large bay to an overloaded braided outwash causing the abandonment of a sizable village located near the mouth of the bay.

Glaciation is believed to have played only a limited role in the formation of the Katmai coastal landscape since the arrival of the first humans. In contrast to the dynamic glacial reconstructions proposed for Southeastern Alaska and British Columbia, the degree of glacial activity during the last 10,000 years in Southwestern Alaska is believed to have been significantly less. With the exception of isostatic rebound in the first half of the Holocene the effects of glaciation have been substantially less than that of volcanism and tectonism.

Katmai can be divided into three major topographic zones: the coastal zone bordering the Gulf of Alaska, the Aleutian Mountain range, and a lake

region to the north of the mountains. Several transportation corridors cross the Aleutian range, but glaciers, snow, and steep terrain discouraged settlements in this more hostile zone. The inland lake region, although heavily utilized by the Katmai natives, remains outside the scope of this summary. The modern coastal zone on the southern border of Katmai is almost devoid of forest although limited stands of spruce and several deciduous species are slowly establishing themselves in isolated areas of the park. Alder and willow dominate the coastal shrubland. The remainder of the vegetation is composed of grasses, sedges and a colorful array of seasonal flowers.

Current archeological evidence suggests there was a human presence in the Upper Alaska Peninsula region for the past 7000 years. Several settlements in Southeastern Alaska have been assigned dates in the 10,000 year range and sites older than 8,000 years are documented to the southwest of Katmai on the Aleutian Island chain. The lack of well-documented older sites on the Upper Peninsula is commonly attributed to changes in relative sea level which have displaced and/or destroyed the older material evidence.

The native inhabitants of the Gulf coast were traditionally a marine oriented society. Seldom is evidence found of settlements located more than a short hike from what is now, or once was, the coastal beach. The few exceptions are normally distributed near freshwater streams which support anadromous fish migrations. Fauna assemblages recovered in archeological contexts are commonly dominated by saltwater fish species and sea mammals such as pinnipeds and whale. The remains of avian species and terrestrial mammals are often represented, but in limited numbers.

Archeological excavation was first initiated at the Mink Island site (49-XMK-030) in the summer of 1997. The site was targeted for data recovery for several reasons. The small exposed island upon which the site is located is highly vulnerable to prolonged winds, a pounding diurnal surf, heavy annual precipitation, and winter frost damage. The combined effects have proven devastating to the site, significant as the oldest dated site along the Katmai coast. The highly visible shell midden and lithic material found scattered across the steep slopes composing the perimeter of the site acted as a red flag to vandals.

In addition to the destruction caused by natural weathering and looting, representatives of local native groups voiced concern regarding human skeletal remains which had been reported to be eroding. The NPS initiated consultation with 31 potentially affiliated groups regarding treatment of the exposed human remains at the site. The Council of Katmai Descendants is currently writing a plan of action for treatment of the human remains and participated directly in the 1997 actions to protect the human remains at the site.

The Mink Island site is a deeply stratified multi-component site located 1.5 miles offshore of the Katmai mainland. The treeless island is approximately 10 hectares in size, but the site itself only occupies a small well-defined peninsula encompassing less than 0.2 acres. The site consists of two separate loci of disparate ages. The top of the deposits capping the site are more than 7 meters above the mean high tide. The younger components are located in this upper area. Eleven radiocarbon samples have been analyzed from the younger locus producing calendar dates between AD 370 and AD 1400. The bottom of the younger deposits has not yet been dated.

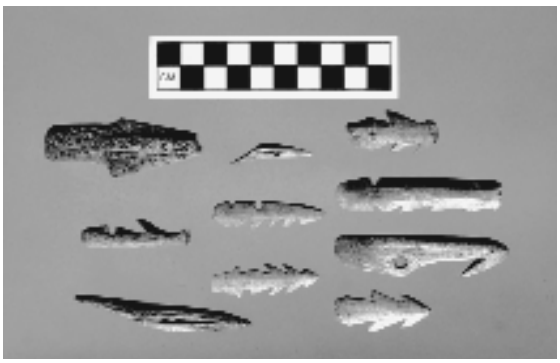
The older locus is separated both horizontally and vertically from the younger deposits above. Four radiocarbon dates indicate that the older locus was occupied sometime between 5200 BC and 3100 BC (2 sigma calibrated range). Presently situated approximately two meters above mean high tide, the older deposits are dangerously susceptible to high-energy storms, particularly in the winter months.

Excellent organic preservation at Mink Island may ultimately prove to be one of the site's more important contributions to the region's prehistory. Well-preserved bone will facilitate studies of diet, seasonality, and subsistence strategies. A thorough analysis of the large faunal collection is planned in the near future, but the occupants' preference for fish, sea mammal, and intertidal invertebrates is unquestionable. Sections of at least one whale had also been hauled up the slope and processed on site.

A formal study of the invertebrate collection recovered at Mink Island has resulted in the identification of 28 different species of shellfish. The inventory includes mussel, clam, chiton, limpet, sea urchin and several gastropods. Such a rich collection of fauna attests not only to the inhabitant's broad dietary tastes but also to the rich diversity of the Katmai coastal waters.

The Mink Island assemblage spans more than 7000 years and can be used to support paleoecological reconstructions leading to an understanding of past climate change and marine implications. Intertidal species as well as specific fish and sea mammals tend to favor particular environmental systems sensitive to climate change.

An equally important aspect of the younger locus of the Mink Island site is the well-preserved organic tool assemblage present. Sea mammal bone was the primary material type employed to forge the numerous implements found, with bird bone and antler a distant second. Ivory is not read-



Bone harpoon points from Late Katchemak Period recovered during the first season of excavation at Mink Island.

ily accessible along this section of the Alaskan coast and constitutes a negligible percentage of the 2700 artifacts recovered during the 1997 season.

The majority of the material so far recovered from the younger locus corresponds to the Late Kachemak culture proposed for the region covering the period between 500 BC and AD 1200. The technological and artistic accomplishments of the Late Kachemak people are often considered the zenith of precontact cultures of the Upper Alaska Peninsula. Items of personal adornment recovered at Mink Island include a nose ring and bead of a soft reddish stone, decorated pins and facial labrets of different styles and materials. Lithic implements include both ground and flaked stone technologies. Oil lamps of pecked stone were also found, one of which contained decorative grooves.

At the time of this writing a second season of excavation at Mink Island, focused on the older deposits is underway. At the same time, a number of promising research questions will again be addressed at the younger locus. Household areas will be targeted for excavation and spatial distributions will be studied to recognize any patterns which may exist between the artifacts discarded outside the home versus those abandoned inside the structures.

Site formation processes at XMK-030 may become one of the more interesting studies generated by the project. More than 6 vertical meters of deposits have accumulated since the site was first occupied. The dynamic natural agents already summarized impacted the site's occupants and rearranged postdeposition deposits. Cultural factors appear to be equally important in the formation of Mink Island site stratigraphy. During excavation the first year very thin repeating sequences of shell, fish bone, and sea urchin were noted in several units of the block excavation. Team members in 1998 hope to extract an undisturbed section of the layered deposits using resins to cement a column sample in situ. The mold of the deposits can then be cross sectioned and the micromorphology studied in the laboratory to determine if each sequence represents a series of individual processing episodes from a single year or an annual cycle based on seasonal availability and/or dietary preferences.

Careful recovery of subsurface deposits on Mink Island are providing data with which to reconstruct the inhabitant's dietary preferences, subsistence strategies, technological innovations and economies. The site's well-defined boundaries will facilitate estimates of site population densities and carrying capacities. The shifting emphasis placed on artistic expression and personal adornment can be tracked through time at Mink Island due to its multi-component composition. Equally encouraging is the site's potential to contain material from the poorly documented Early Kachemak culture dating before 500 BC.

Recent archeological investigations are shedding new light on traditional native lifeways along the coast of Katmai. At the same time the efforts have fostered an improved working relationship between the National Park Service and local communities. Most importantly, the Mink Island deposits are shedding new light on the rich cultural and natural history of Katmai by illuminating economies, technologies, and traditions within a paleoecological context.

References

1 Gerald H. Clark, "Archaeology on the Alaska Peninsula: The Coast of Shelikof Strait, 1963-1965," *Anthropological Papers of the University of Oregon* (Eugene, OR), 13.

2 Wilbur A. Davis, "Archaeological Investigations of Inland and Coastal Sites of the Katmai National Monument, Alaska: Report to the National Park Service." *Archives of Archaeology* (University of Wisconsin Press, Madison, 1960), 4.

3 Albert A. Jr., Dekin, Mark A. Cassell, James I. Ebert, Eileen Camilli, Janet M. Kerley, Michael R. Yarborough, Peter A. Stahl, Beth L. Turcy. "Exxon Valdez Oil Spill Archaeological Damage Assessment." Final Report under Contract No: 53-0109-1-00325 submitted to the USDA Forest Service, Juneau, AK.

4 Nora R. Foster, "Fauna Remains from the Mink Island XMK-030 Shell Midden." Manuscript on file, Katmai National Park Office of Cultural Resources, Anchorage, AK.

5 Wendall H. Oswalt, "Prehistoric Sea Mammal Hunters at Kaflia, Alaska." *Anthropological Papers of the University of Alaska* 1:1(1955), 47-91.

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Photos by the author.