Exxon Valdez Oil Spill
Restoration Project Final Report

Archaeological Index Site Monitoring: Final Report

Restoration Project 99007A
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July, 2000

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Study History: The Archaeological Index Site Monitoring project was designed to allow monitoring of vandalism and other site injury through the time since *Exxon Valdez* oil spill. A representative group of sites injured from vandalism or from oiling was identified to provide a gauge of the level of continued injury to all sites in the area. The large number of sites potentially susceptible to injury is so large, that not all sites can be reasonably monitored. The strategy of monitoring index sites began after the FY93 project. One aim of the project was to monitor the index sites on a ten year period as a minimum time to detect trends in vandal activity. The other goal of the project was to assess the damage from oil on cultural deposits. Beach sediments were tested for oil over a short period.

Abstract: The Index Site Monitoring project sought to gauge levels of vandalism injury to archaeological sites in the *Exxon Valdez* oil spill area. Selected sites were visited on alternate years and some annually. Over the life of the project, vandalism continued at sites that also suffered from natural erosion, thereby exposing cultural deposits to ready identification. Several sites were actively mined by looters and other affected sites were looted on a more opportunistic level. At the latter sites, artifacts seem to have been collected from exposed surfaces rather than excavated. Overall, vandalism remains a continuing problem but has not been a problem of major proportions. The other aim of monitoring oil damage to sites has not been a continuing issue. Oil continued to be present at one site but the effect of oil on deposits and processes appears to be negligible.

Key Words: Archaeology, *Exxon Valdez*, index sites, monitoring, vandalism

Project Data: Project data has been provided in narrative form in annual reports and summarized in the final report. Artifact catalogs are recorded in dBase III+ and will be deposited with the collections at the University of Alaska Museum. Availability will be subject to Museum policy.

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ARCHAEOLOGICAL INDEX SITE MONITORING: FINAL REPORT

INTRODUCTION

The Exxon Valdez Oil Spill (EVOS) on March 24, 1989, began a new experience in Alaskan archaeology. Impact of the spill and subsequent response to clean up the mess forced land managers and spill response agencies to view archaeological sites from a new perspective. The EVOS was the first major man-made Alaskan disaster in which archaeology was taken to be a resource at risk. Previous large projects such as construction of the Trans-Alaska Pipeline also considered impact on sites but adverse impacts could be avoided by modifying planned actions. Movement of oil on the ocean currents could not be controlled and required a new way of responding to impacts.

Inclusion of archaeology as a resource under oil spill legislation was not a forgone conclusion. Legal opinions varied with the land managing agencies more sympathetic to including archaeological sites than were non-managers. Ultimately, cleanup activities were viewed as under-takings subject to the provisions of Section 106 of the National Historic Preservation Act. The lead federal agency, the U. S. Coast Guard, entered into an agreement that recognized the need to consider impacts on archaeological sites by the response and cleanup program. Archaeological protection also was provided by tidelands permits issued by the Alaska Department of Natural Resources. In the specific instance of the Exxon Valdez Oil Spill, the Agreement and Consent Decree filed in 1991 included archaeological resources. That removed from debate any question about application of settlement funds for archaeological restoration.

The EVOS agency program was structured in three different activities: Response, Damage Assessment, and Restoration. The response phase included site identification, evaluation of significance, and consideration of impacts mainly from cleanup activities. Agency procedures were devised in cooperation with the Exxon archaeological program to accomplish protection needs during the response phase of the spill. The Exxon program was the primary agent of response archaeology. Agencies maintained oversight of the Exxon program to assure adequacy of the effort.

Damage assessment included documentation of site conditions, before oiling or cleanup when possible, and after impact as a gauge of damage. Response and damage assessment activities were concurrently pursued in the first several years after the spill. However, a coordinated agency assessment did not begin until two years after the spill because some agencies did not agree that spill legislation applied to archaeological resources. A legal need was perceived for an estimate of damage to the resource as a whole. Major gaps in knowledge of site locations created need for predictive modeling to extrapolate known sites and damage to the entire spill area. Thus, a predictive model was made part of the damage assessment project. A large damage assessment contract was granted in 1991 and field assessment was begun (Dekin, et al. 1993). Various other studies to determine damage were also pursued. One project studied effect of oiling on the radiocarbon dating process in a laboratory setting (Mifflin and Associates, 1991).

Another project was a field study that partially paralleled the large damage assessment contract (Reger, et al., 1992).

The Restoration phase of the agency archaeological program began in 1993. Archaeological sites are a finite resource and damaged site cannot be restored in the same sense as a biological resource. Restoration of damage to archaeology is defined for the purposes of the EVOS damage to be return to pre-spill levels of vandalism and cessation of direct oiling. Several proposals were also funded for data salvage from damaged sites in Prince William Sound (Yarborough 1997).

The methodology of monitoring a sample of archaeological sites was adopted during 1993 as a means of restoration. Termed "index sites", the sample was selected from a list of sites documented to be damaged from spill related activities (Figure 1). Most of the sites were vandalized but a few were directly oiled. The purpose of the monitoring program is to measure the vandalism at specified sites over a 10-year period. This document is the final report of the site monitoring project for the past seven years.

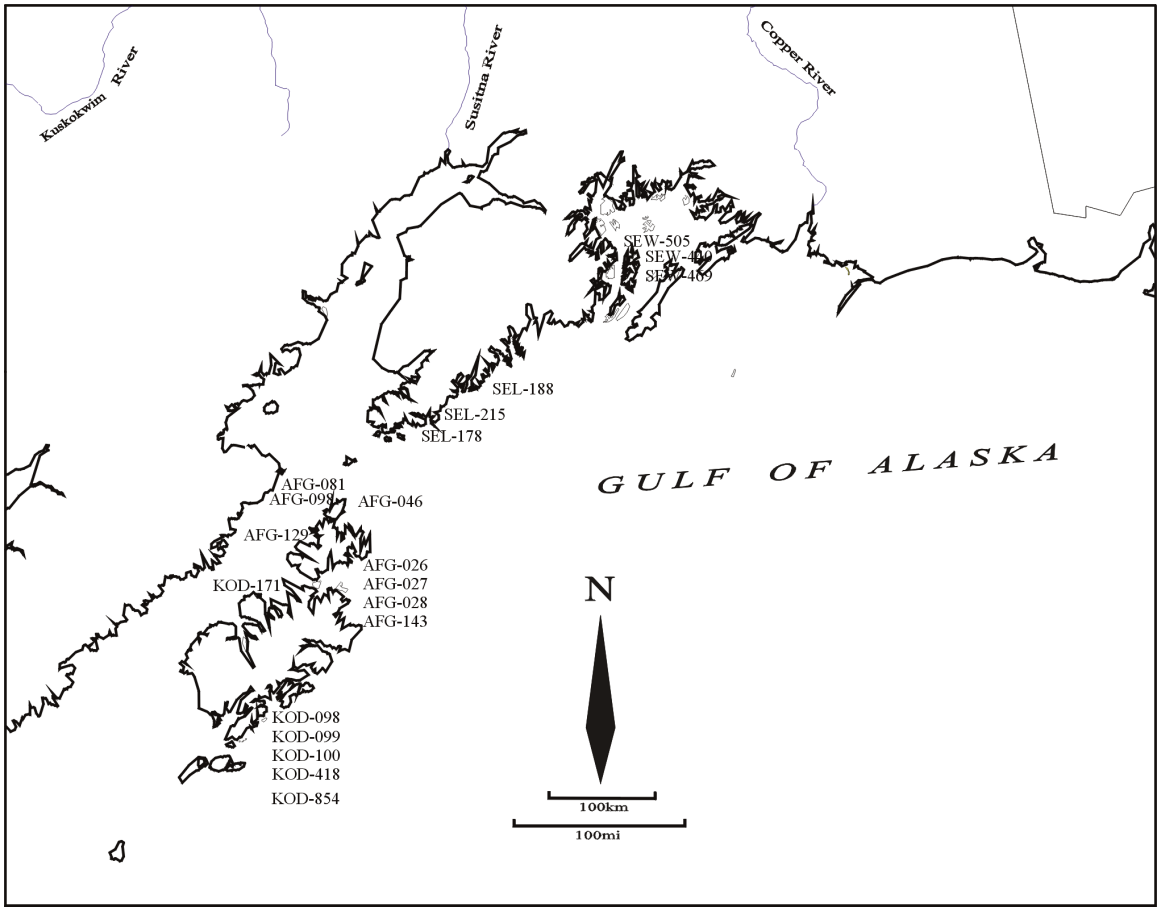

Figure 1. Index sites monitored during the project and sites newly visited during 1999.

PROJECT HISTORY

A study performed by the Alaska Department of Natural Resources and the U. S. National Park Service of available information about archaeological sites affected by the Exxon Valdez Oil Spill documented effects on 24 sites (Jesperson and Griffin 1992). The effects were from oiling of the sites, disturbance during cleanup, or vandalism. A sample of the damaged sites was identified that were to be monitored by agency archaeologists in order to track continuing effects of spill related impacts. A restriction on funding was placed on the monitoring program which limited efforts to sites on publicly owned lands. The restriction was imposed because attempts to gain legal damages from Exxon were being pursued by the major private land owners (Native corporations) separately from the government process. The first year "index site" monitoring was funded by the EVOS Trustees was during FY93. That year the National Park Service assumed the lead agency role. The Alaska Department of Natural Resources became the lead agency in subsequent years.

The list of sites selected as index sites was narrowed to 19 sites due to ownership changes or identification of the owners as private entities. In that way, site KOD-427 was dropped from the index site list after 1993. SEW-077 was eliminated for ownership reasons after 1996. The National Park Service dropped sites XMK-058 and AFG-043 from the monitor list after the first year because no evidence of vandalism or oiling was found. As sites were removed from consideration for further monitoring, new sites were identified as vandalized and added to the list. In particular, sites on Afognak Island, Kodiak Island, and one in Prince William Sound were singled out for attention. Of special note were AFG-129 and SEW-469. Those were monitored by the U.S. Fish and Wildlife Service and the U.S. Forest Service, respectively.

The matrix displayed in Table 1 illustrates which sites were monitored during each year the project was funded. Many sites were examined in the initial year when documentation of damage was combined with index site monitoring. Most sites were not re-visited on a regular basis. Ten sites (marked in italics) were selected for continued monitoring as "index sites". Other sites were visited opportunistically when crews were in the vicinity and time was available to make quick examinations. Although such sites were not specified in funding agreements, results of the visits were presented in reports so that researchers and managers could benefit from the un-scheduled opportunities.

Table 1. Spill Area Sites Monitored

Agency	Site	1993	1994	1995	1996	1997	1998	1999
DNR	*AFG-046*	X	X	X	X	X	X	X
	AFG-081	X	X	X	X	X	X	X
	AFG-082						X	
	AFG-084						X	
	AFG-092	X						
	AFG-097		X		X	X		
	AFG-098	X	X	X	X	X	X	X
	AFG-156						X	
	AFG-160						X	
	AFG-173						X	
	AFG-185	X						
	AFG-188	X						
	AFG-198	X						
	SEL-025				X			
	SEL-119	X	X					
	SEL-130	X						
	SEL-131	X						
	SEL-178	X	X	X	X	X	X	
	SEL-215	X	X			X		X
	SEL-216	X						
	SEL-217	X						
	SEL-220	X	X					
	SEW-068					X		
U.S. Fish & Wildlife	AFG-026	X				X	X	
	AFG-027	X				X	X	
	AFG-028	X				X	X	
	AFG-143	X				X	X	
	AFG-129			X	X	X	X	
	KOD-098							X
	KOD-099							X
	KOD-100							X
	KOD-171	X		X	X	X		
	KOD-418							X
	KOD-854							X
National Park Service	AFG-043	X						
	SEL-188	X		X		X		
	XMK-058	X						
U.S. Forest Service	SEW-004						X	
	SEW-077				X			
	SEW-431							X
	SEW-440		X	X		X	X	
	SEW-469			X	X	X	X	X
	SEW-488		X					
	SEW-505							X

Occasionally, site visits were not accomplished during the year proposed, usually due to weather and scheduling problems. The remote location of most sites made visits difficult at best, and travel safety was a prime consideration.

REGIONAL PREHISTORY

The aboriginal inhabitants in the area affected by the Exxon Valdez Oil Spill were speakers of the Alutiiq language. They are known in anthropological literature as Pacific Eskimo, which include the Koniag, Chugach, and a third, poorly known group on the outer Kenai Peninsula, the Unixkugmiut. Their culture was well adapted to resource harvest in the North Pacific, an adaptation reflected in prehistoric archaeology of the region. The best documented sequence has been uncovered in the Kodiak Island area, extending back approximately 6500 years (Clark 1984).

The **Ocean Bay** culture was adapted to harvest of marine resources particularly the taking of sea mammals. Remains of the early Ocean Bay culture, Ocean Bay I, are found on Kodiak Island, the Pacific Coast of the Alaska Peninsula, and in Kachemak Bay. Ocean Bay I is known on the Alaska Peninsula as Takli Alder. Radiocarbon dates for the period range from the oldest of 4270 B.C. to later dates of about 2200 B.C.

Ocean Bay I collections characteristically contain chipped stone remains although occasional ground slate does occur. The characteristic stone tool is a chipped point with a wedge-shaped stem, off-set by shoulders. The blade is typically much longer than the stem. Organic remains include bilaterally barbed darts fashioned from sea mammal bone.

Ocean Bay II (Takli Birch on the Alaska Peninsula) has similar distribution to the earlier stage but has also been found more inland on Iliamna Lake. Radiocarbon dates for Ocean Bay II and related occupations range from approximately 2200 B.C. to about 1500 B.C.. Ocean Bay II is distinguished from Ocean Bay I by a strong reliance on ground slate artifacts with only minimal chipped stone tools. Sawing and scraping of slate points with long blades is a hallmark of the period. Stone oil lamps appeared occurred during Ocean Bay II.

Ocean Bay sites have been found in locations associated with elevated shorelines. That has been presumed to indicate raising shorelines rather than past higher sea levels. That situation is found primarily on Kodiak Island. Ocean Bay sites have not yet been clearly documented in the Prince William Sound and outer Kenai Peninsula areas.

The archaeological culture that succeeded Ocean Bay in most of the spill area is the **Kachemak Tradition** or closely related cultures. On Kodiak Island, the Alaska Peninsula, Kachemak Bay in Cook Inlet, and Prince William Sound, sites of that tradition occurred from about 1500 B.C. to approximately A.D. 800-A.D. 1000. The end of Kachemak Tradition occupations varied considerably across the Pacific Eskimo region. Kachemak stages are known on Kodiak Island, from early (Old Kiavak) to later Kachemak (Three Saints). On the Alaska Peninsula, Kachemak is represented by the

Cottonwood phase. Kachemak in the Cook Inlet area is known as Kachemak I, II, and III. A Riverine variation occurs in more inland settings further north along Cook Inlet. In Prince William Sound, Kachemak is found in the lower levels of the Palugvik Site and at a few other localities.

Kachemak tradition sites (excepting more inland variations) typically contain chipped stone tools and ground slate tools. Ground slate gained in popularity during later times, particularly in the Kodiak and Kachemak Bay areas. Chipped stone artifacts included stemmed and bipointed stone projectile points, and chipped stone scrapers. Ground slate tools were typically ground slate points with stems and sharply barbed shoulders. Ground slate ulus of various forms occurred throughout the period. Also found were barbed bone points, stone oil lamps, and large numbers of notched stone net weights.

Kachemak people harvested seals, sea lion, sea birds, halibut, salmon, and large amounts of shellfish, especially clams and mussels. Kachemak sites along the coast distinctively are deep shell middens on which large pit houses have been excavated. Kachemak people also placed their dead in elaborate burials in the middens.

The period following Kachemak on Kodiak Island and the opposite mainland on the Alaska Peninsula is represented by the **Koniag Tradition** which appears to be the direct cultural antecedent of the historic Koniag people. Koniag occupations on Kodiak Island began about A.D. 1000. Koniag sites frequently contain large amounts of fire cracked rock rubble, ground slate points of various forms including distinctive end blades with facial grooves, grooved cobble weights, and multi-room house pits. Additional artifacts typical of Koniag sites are large stone oil lamps, large ground slate ulus, slate flensing blades, bone toggling harpoon points and dart heads, bone fish hook parts, slab-lined hearths and burials frequently in sealed side rooms.

Kachemak Bay area occupations during the past 1000 years are poorly documented but at some point the area became the territory of an Athapaskan speaking population. In Prince William Sound, the historic Chugach have developed out of earlier cultures over the past millennium. Chugach material culture is similar to that of Koniag but reflects adaptation to an environment where wood products are more available. House forms in the Chugach area are not well documented and middens seem not to contain as high a percentage of shellfish remains as the Kodiak Island sites.

INDEX SITE MONITORING: A Compilation

State of Alaska, Department of Natural Resources
Archaeological Monitoring 1993-1999

Douglas R. Reger
Office of History and Archaeology

AFG-081 (Segment WO-003)

This large Koniag period site, discovered by OHA in 1983, consists of six large house pits (the largest measuring 12m diameter), an eroding midden, and extensive deposits of fire-cracked rock (Figures 8, 9, 12, 13). The site is located on an isthmus between a high energy beach which faces Shelikof Strait and a protected lagoon. No cultural material has been located on or adjacent to the Shelikof Strait beach, which has a massive gravel berm and large quantities of recent storm debris. Artifacts, faunal remains, and fire-cracked rocks erode from a 3m - 4m high bluff near the house pits, on the lagoon side (Dekin, et al. 1993; McMahan 1993:65). The high visibility of the site, and use of Big Bay as an anchorage for cleanup task force vessels, caused concern that the site was an easy target for vandals. During the spring of 1989 vandals excavated a horizontal pit into the exposed midden on the lagoon side of the site. AFG-081 was monitored by State and Exxon archaeologists during 1989-1992.

1993

Restoration work at AFG-081 by State archaeologists during 1993 (Bland et al. 1998) included: (1) controlled excavation, then stabilization, of the vandalized area of the midden, and (2) mapping of data points over the site. Initial examination of the site revealed that the vandal pit, which extended horizontally into the exposed midden, had slumped and re-vegetated since visited by McMahan in July 1992 . The vandal pit, which may have been enlarged by erosion, was 3.6 m wide, 1m high, and 1+ m deep at the time of inspection. The slumped surface and vegetated scarp surrounding the vandal pit was partially removed by shovel. The face of the scarp was excavated to expose a stratigraphic profile to the base of the disturbance, identify disturbed strata, and collect sediment samples. A two-meter-wide section of the midden scarp was exposed, leaving a 1.5m back wall, the base of which was about 1m above high tide. The Office of History and Archaeology excavation did not reach the bottom of cultural deposits, and presence of fire cracked rocks prevented the use of a tube type soil probe.

Artifacts recovered during excavation of the scarp face (Table 2) include; two small fragments of ground slate, one of which appears to have been spalled from a medial-ridged projectile point; one non-retouched greenstone cobble spall; one sea-otter molar; and two sea-mammal long bone fragments, one of which has been modified. The collection was from slumped deposits and probably came from the uppermost cultural horizon. Soil samples collected from four strata were water floated to extract plant and charcoal samples. Based on the presence of spruce macrofossils in the lowest sample, all exposed strata

probably date within the last 1,000 years. After documentation the pit was back-filled with soil and boulders, then covered with driftwood.

Three charcoal samples were collected from the layers exposed in the vandal pit. Sample AFG-081-1 (Beta-70583) measured 290 ±70 years old (A.D.1640 corrected with Calib 3.0). That charcoal sample was collected from the upper limit of exposed midden. The second charcoal sample, AFG-081-2, came from the middle level of exposed midden. It (Beta-70584) measured 640 ±80 years old and gave a Calib 3.0 corrected calendar date of A.D.1360. The measurement also gave secondary calendar dates of A.D.1310 and A.D.1380. The secondary dates mark multiple intersect points on the radioactive carbon disintegration curve. The lowermost charcoal sample AFG-081-3 (Beta-70585) from the vandalized exposure provided a measurement of 600 ±90 years old. The Calib 3.0 corrected date is A.D.1330 or A.D.1400. The resulting dates support designation of the site as a Late Koniag occupation

Mapping data were collected and a primary datum, consisting of an unmarked iron spike, was established at the edge of the forested area 19m northeast of the midden exposure. Three transit stations, located on high areas of the site, were used to record house pit perimeters and depths, location of the midden excavation described above, and locations of other distinguishing landmarks.

Table 2. Artifacts From Clean-up of the AFG-081 Vandal Pit.
(All except # 7 are from slumped matrix, probably upper level)

UAF Accession #	Description
UA93.153.1	Ground slate projectile point fragment; mid-section spall with medial ridge; 4.7cm x 1.3cm x 0.3cm
UA93.153.2	Ground slate fragment; 2.7cm x 1.9cm x 0.3cm
UA93.153.3	Spall from a small greenstone cobble; non-retouched except for impact scar
UA93.153.4	Sea-mammal long bone fragment, cut at one end and possibly worked or utilized at the other end; 8.9cm x 2.2cm x 0.35cm
UA93.153.5	Sea otter molar; un-worked
UA93.153.6	Sea-mammal long bone section, un-worked; 3.2cm x 2.3cm x 1.8cm
UA93.153.7	Ground slate ulu fragment, straight blade form; 8.8cm x 5.2cm x 0.45cm; from Layer G in profile

1994

The Office of History and Archaeology crew returned to AFG-081 during 1994 to do additional mapping of the site to reconcile prior mapping data from different sources (Reger et al. 1996a). There was some confusion between the Exxon maps, the State University of New York report maps, and maps created in 1993 about which feature was assigned what identification number. The steel reinforcing rod set into the north edge of the site during 1993 as a site datum was re-located and new measurements referenced to that point. Two temporary transit stations were established during 1994, Transit Station #1 coincides with Station #1 from 1993 and Station #2 was established approximately 105 meters ESE of the site datum. The northern site limit, marked by the current tree-line, and the beach margin of the cove to the east of the site were accurately measured.

The vandalism pit, which was re-filled during 1993, was examined and no recent disturbance was noted. Vegetation had begun to grow on the fill placed in the hole. The cut wall of the 1993 test pit was discernible but stable.

Two shallow depressions in the forested area north of the site mound were located in a shallow drainage about 50m northwest of the site datum. Two test holes 0.5m in diameter were dug to depths of 1m where broken bedrock was found without encountering any cultural material. No evidence was found that AFG-081 extends into the forested area north of the obvious midden area.

1995

During 1995 the re-vegetated vandal pit surface was heavily disturbed once again (Reger et al. 1996b). Vegetation was torn loose and rolled down slope. The injury extended beyond the restored area of the mound and included much of the northeast edge of the site. The destruction probably derived from use of the site by deer. The damage was photographed from the same perspective as photos taken before and after restoration.

1996

AFG-081 was also not scheduled for monitoring during 1996 but was visited during time available on Shuyak Island due to weather delays (Reger et al. 1997). Massive vandal damage was found around the area previously impacted (Figure 2). Three new areas of disturbance were found on the Big Bay side of the site. Rocky midden just to the north of the area vandalized during 1990 was dug into and pulled down slope sometime during summer of 1996. The vandal holes were dug into the back side of the mound on either side of the rehabilitated hole from 1990. Rocky midden intermixed with clam shells, charcoal and other debris was dragged from the mound face partially onto the beach. Green vegetation from the 1996 season testified to the recency of the disturbance. Condition of the green vegetation strongly suggested disturbance at least two weeks prior to discovery. State Park Ranger Kevin Murphy visited the site during the first week of June 1996, and noted no disturbance at that time.

The largest hole is about 10m south of the 1990 hole. The volume of disturbed sediments is estimated to be 2 cubic meters. Another area of disturbance is located about 5m north of the first and is estimated to encompass 1 cubic meter of midden. The smaller

hole is at the same level of the mound as the largest hole and the 1990 disturbance. A third hole from June of 1996 is about 10m north of the other holes and incorporates approximately 0.5 cubic meter of midden. It is located where a deer trail descends to the beach and exposed midden. This smallest hole is located at the active beach level.

Figure 2. 1996 vandal damage to site AFG-081. Major damage at left side of photo. ADNR Photo, 1996.

Although considerable amounts of rocky, shelly midden were displaced, no obvious artifacts were found exposed. No remains were collected during investigation of the vandalism and no attempt was made to repair the damage. The holes were left exposed to allow any further documentation thought necessary.

The 1990 vandal hole, filled with rocks and other sediments, then covered with grass and logs during 1993. That hole appears to have re-seeded and re-vegetated with beach grass. No new evidence of vandal activity was found at the back-filled location.

1997

The 1996 vandal exposure had begun to slowly re-vegetate by the 1997 visit (Reger et al. 1998). Beach grasses and beach pea vines were encroaching onto the exposed midden. No new evidence of vandalism could be seen.

1998

The index site, AFG-081, was not slated for monitoring during 1998 but was checked. No new evidence of vandalism was found during 1998 (Reger et al. 1999). The natural re-vegetation seen in progress during 1997 continued.

1999

The final visit to AFG-081 during 1999 revealed no vandal damage. Rocky midden along the back (lagoon) edge of the site continued. A small ground slate ulu and a splitting adze fragment were collected from the back beach. They were marked with the site number and placed in the public display collection maintained by Shuyak State Park personnel.

Discussion: Vandalism at AFG-081 during 1989 and again in 1996 demonstrates that vandalism is still a concern at the site. That probably derives from its location at one end of a relatively popular beach for beach combing and camping. Kayakers routinely camp there and presence of at least two deer platform stands attest to use by hunters. Fishing boats also anchor nearby during inclement weather. The site has been identified by State Parks as an at-risk location. Rangers intend to periodically monitor the site to protect it. The hiatus between the two incidents suggest there was no demonstrable connection with the Exxon Valdez Oil Spill and the later vandal activity.

AFG-098 (Twin Creeks I; Segment NB-001)

This site, located near a gravel berm, which separates Neketa Bay from Big Bay on Shuyak Island, was first reported by Office of History and Archaeology staff in June 1989 as a small inter-tidal artifact scatter. In July 1990 Exxon archaeologists documented more extensive boundaries and located artifacts diagnostic of Ocean Bay Culture and Late Prehistoric occupations. The Office of History and Archaeology tested the site in 1991 and found buried inter-tidal midden deposits. Subsequent excavations revealed subsurface features and an assemblage of artifacts (including organic materials) important in defining the later prehistory of the area (Reger, et al. 1992:40-68). Artifact typology, stratigraphy, and a series of 10 radiocarbon dates suggest that two periods of Koniag phase occupation are represented (Reger *et al*. 1992:93). Scattered oil (mousse) was present at the site as late as August 1991.

1993

Visual inspection of the site by McMahan and Pipkin on August 18, 1993 revealed no surface oiling or evidence of disturbance since July 1992 (Bland et al. 1998). In the area of 1991 inter-tidal excavations, the beach had reclaimed its previous configuration and appearance. Excavation units were barely discernable. Black and white photographs were taken from 1991 Datum A1, and from the northeast corner of the 1991 main trench (unit N50/E51)(refer Reger et al. 1992:Figure 29)(Appendix A). Sediment samples collected from three test pits at AFG-098 were located relative to Datum A1 by use of a transit and tape (Table 3). Test Pits 1 and 2 were in sterile beach gravels but Test Pit 3 penetrated an inter-tidal midden deposit. Artifacts were not collected from any of the test pits during sampling.

Table 3. AFG-098 Test Pit Log.

TP-# & Position	From Datum	Azimuth (magnetic)	Distance (m)	Depth (cm)	Elevation (m AMSL)*
93-1 Lower ITZ	A1	26.75°	43.50	35	2.40
93-2 Middle ITZ	A1	33.00°	49.50	60	3.36
93-3 Upper ITZ	A1	42.00°	52.40	50	4.41
NE Corner 1991 trench (N50/E51)	A1	37.75°	65.40	--	--

* Approximate elevations were related to high tide on 7/11/91 pm (Reger et al. 1992:Figure 29)

Two sediment samples for flotation from the lower cultural component at AFG-098 were collected to more completely document the vegetation history of Shuyak Island. This was accomplished by re-excavating a portion of the 1991 trench, using earlier stratigraphic drawings (Reger et al. 1992:Figure 32) as a guide, and removing samples from the side wall. During 1991 fieldwork, prior to separation of the components by age, only samples from the more widespread upper component were collected and analyzed (Reger et al. 1992:Appendix 1).

1994

The Twin Creeks I Site was revisited in 1994 to monitor for possible vandalism and because damage had been reported to the site (Reger et al. 1996a). During the winter of 1993, a brown bear apparently killed a seal on the beach and tore up the surface of the site while dining on its prey. The fire cracked rocks eroding out of the inter-tidal zone, which were mapped during 1991, are now more exposed although the agent of exposure may be tidal rather than animal. No conclusive evidence was seen for vandal activity.

A drilled ivory pendant was surface collected from the inter-tidal zone among the fire cracked rocks south of the 1991 excavation area. The piece was located 19.75 meters from temporary datum B' established on the site during 1991 excavations. The pendant is 4.77 cm long, 1.49 cm wide and 0.86 cm thick. The hole was drilled from both top and bottom and is 0.34 cm in diameter.

1995

The site was examined during 1995 (Reger et al. 1996b) and no significant change from prior year condition could be seen other than continued slow erosion of the exposed deposits. Photos of the site condition from a reference point established in 1991 duplicates views taken in prior years.

Sediment samples were collected from the mid to upper inter-tidal zone and from the low to middle inter-tidal zone to detect oil encroachment. The samples were collected from two 50cm x 50cm pits excavated to a depth of about 40cm. The pit in the upper-middle intertidal zone was located at the edge of the area of exposed fire cracked rock and artifacts noted in 1991 (Reger et al. 1992: 46) The pit is very near the 1991 test pit designated N46-47\E42-43. Sediment samples from the pit were collected at depths of 10cm - 20cm and 30cm - 40cm. Midden was encountered between 10cm and 15cm below the beach surface but no artifacts were found.

The lower pit was located 9m west of the higher pit near the lower edge of the gravel beach. It was excavated to a depth of 40cm and samples were collected from the same depths as the other pit. Midden in unconsolidated beach gravels contains sea mammal bone, fire cracked rocks and fragments of ground slate. The midden occurred 30cm - 40cm below the beach surface. No oil was detected when the samples were tested with the HNU-Hanby field test kit.

A planing adze bit of hard, coarse grained stone was found on the beach surface near the northern limits of the exposed fire cracked rocks (Figure 2). It is 8.9cm long, 4.2cm wide, and 1.5cm thick. The adze bit was collected and curated with the other artifacts.

1996

A brief examination of the beach surface was made and photographs taken from the site photo station to the west (Reger et al. 1997). Erosion of the exposed cultural deposits on the beach continues. Newly exposed fire cracked rocks and a few chips of slate were located just south of Test pit 2 excavated during 1991 (Reger, et al., 1992: 46). No tools or fragments of tools were found and no remains were collected.

1997

Photos of the site condition during 1997, from a 1991 reference point duplicates views recorded in prior years (Reger et al. 1998). Two frames in a panoramic view of the site area were photographed from the 1991 secondary reference point southwest of the site. Another photograph of the site was taken along the beach at mid-inter-tidal level to the north (Figure 3).

No serious degradation of cultural remains on the beach occurred since 1996. Erosion has continued but no more than expected. Two newly exposed artifacts were noted among the fire cracked rock fragments in the upper intertidal zone. Both are hammerstones. One hammerstone is oval in shape and cross-section and measures 15.0 cm in length. The other hammerstone is square in cross-section and sub-triangular in side

view. It measures 20.0 cm in length. Both hammerstones were left in place on the beach near the center of the fire cracked rock exposure.

Locus B of AFG-098, at the southwest corner of Big Bay was also examined to see if additional artifacts have been exposed. No new finds were noted and no evidence of vandalism was seen.

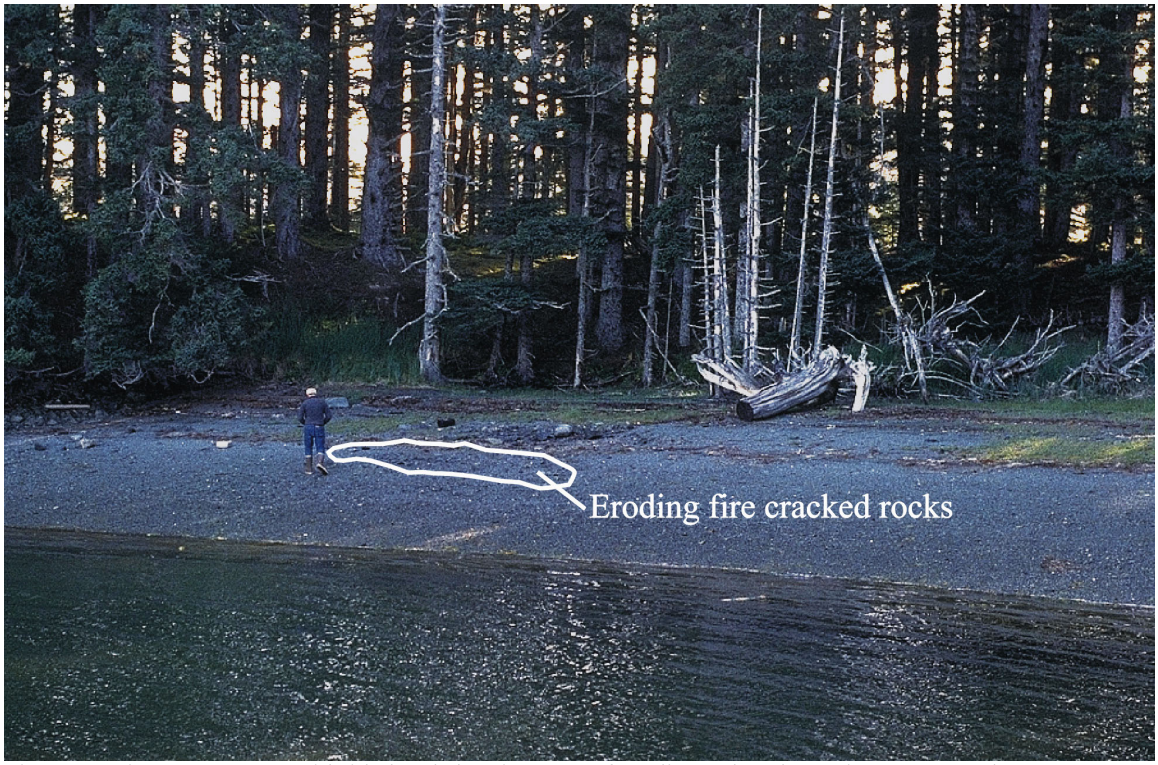

Figure 3. Site AFG-098 at mid-tide level showing area of eroding cultural remains. ADNR Photo, 1997.

1998

The AFG-098 Site was re-visited during 1998 while weather delayed scheduled visits to other sites (Reger et al. 1999). The fire cracked rock and hearth remains exposed on the beach in prior years remained exposed. The remains seemed to be moved around by storm waves but stayed in much the same area of the beach. No significant new erosion was evident nor was vandal disturbance.

1999

The site was visited for the final time during 1999 although it was not scheduled for a visit. The opportunity was once again presented by high winds on Shelikof Strait restricting visits to other areas. One piece of bone, tentatively identified as seal, and a hammerstone stone were found on the beach at the head of Neketa Bay. Both items were noted and left in place. No evidence was found for vandal activity.

Discussion: The initial concern for AFG-098 was contamination from crude oil leaked from the Exxon Valdez and secondarily from vandalism because of its location beside a popular use area. The study conducted on the site in 1991 indicated that the site had not

been contaminated by "dead carbon" in the form of crude oil. Sediment samples collected in 1993 and 1995 also tested negative for presence of petroleum hydrocarbon. The latter tests were conducted to monitor for infiltration of water borne petroleum hydrocarbons subsequent to earlier studies. The conclusion is apparent that the intertidal site was not contaminated at any time.

Evidence of disturbance at the site during 1994 was attributed to foraging activities of brown bear on a seal devoured on the beach. No significant disturbance of the buried cultural deposits occurred in the incident. No other evidence was found for vandal activity during the course of the monitoring program. Artifacts left in place on the beach and scattered site debris remained in place through the last visit during 1999. Erosion of the beach deposit has caused the primary degradation of the site. Because it is located at the head of Neketa Bay erosion will continue, however it is sheltered from direct impact of major storms and is thus somewhat protected.

AFG-098 will continue to be an important site on Shuyak Island because it has been one of the few seriously investigated. It contains remains of at least some Koniag activities and has yielded an important sequence of radiocarbon dates to go with a useful artifact collection.

AFG-046 (Perevalnie Passage; Segment SI-005a)

AFG-046 consists of three house pits and nine smaller depressions on a 2-3 m high bluff which is capped by an eroding midden up to 1.5 m thick (Figure 8). Donald Clark first reported the site (1965:30). In 1983 Steve Klingler collected slate flakes, ground slate, flaked stone, worked and cut bone, notched stones, and numerous cobble spalls from the site and made a sketch map. During 1989 Exxon archaeologists monitored cleanup of the oiled inter-tidal zone and supervised the collection of artifacts from the beach (Mobley, et al. 1990:142-143). The recovered artifacts suggested the presence of several cultural components, ranging from Ocean Bay to transitional Koniag. A series of six radiocarbon dates from the base to the top of the midden deposit ranged from approximately 4,000 to 1,300 years B.P. (Dekin, et al. 1993: 530). Due to the perceived importance of the site, and extensive oiling on the adjacent beach, Exxon and agency archaeologists made a number of monitoring visits to the site after the spring of 1989. Recent vandalism to midden deposits was noted during several of these visits.

The Perevalnie Passage Site continued to be the most seriously damaged site on Shuyak Island. Subject to significant erosion because of its location, exposed to storms driven out of the north, the site suffered continuing erosion. Offshore islands protect the site to some degree but the most severe storms heavily damage the site. Trails have been worn into the site deposits on the fragile erosion faces. The trails were made by deer traversing the slopes as well as by human visitors. The location is a good anchorage during southerly weather and a popular camping beach.

The earliest occupation at the site began prior to 4,000 years ago and culminated during the early Post-World War II era. Deposits of Kachemak Culture lay buried under

deposits dating to the Koniag Phase. House pits on the bluff behind the eroding face are most likely Koniag structures. Preservation of artifacts and faunal remains in the site has been excellent, allowing researchers a rare chance to document aboriginal life from more than just stone artifacts

1993

Office of History and Archaeology staff Reger, McMahan, and Pipkin examined AFG-046 on August 24-27, 1993 (Bland et al. 1998). Inspection of the site revealed no evidence of surface oiling or recent vandalism. However, the team did note a burial exposed in the beach scarp by recent erosion and slumping, as well as a number of artifacts and human bones in the inter-tidal zone. A few diagnostic specimens were mapped and collected of the numerous lithic and bone artifacts found within the inter-tidal zone. A house pit in cross-section was exposed in the beach scarp by erosion and slumping. Color and black and white photographs were taken from two reference photo stations within the inter-tidal zone (Figures 15, 16 and Appendix A). Important features were also individually photographed. A transit station was established off a rocky headland at the approximate center of the site in order to map artifacts, features, photo stations, and test pits. Subsurface sediment samples (Table 4) were collected in the inter-tidal zone. Testing of the samples resulted negative for presence of petroleum hydrocarbons.

Table 4. 1993 AFG-046 Test Pit Log.

TP#	Position	Azimuth (magnetic)	Distance (m)
93-1	Upper ITZ	82.00°	79.70
93-2	Middle ITZ	78.75°	73.60
93-3	Lower ITZ	70.25°	66.50

Human remains found during 1993 were: (1) an adult *in situ* burial exposed in the beach scarp; and (2) miscellaneous adult bones within the inter-tidal zone. The burial, in flexed position, was located about 1 m below the top of the scarp in a dense midden of shell, fauna, and fire-cracked rock. The position of repose appeared to have been on the right side. The left side of the cranium (including a portion of the left side of the mandible, most of the occipital, and the left parieto-squamosal area) was exposed, along with the left humerus (distal half) and left femur (proximal third). Analysis was not attempted in the field and the remains were left undisturbed.

Locations and descriptions of inter-tidal human bones are included in Table 5, along with artifacts and features. Based upon location and degree of weathering of the inter-tidal bones, they appeared to be <u>not</u> related to the exposed burial. Duplication of elements indicated that more than one individual was represented by the inter-tidal assemblage.

Analysis, other than a brief description, was not attempted. Human bones found in the intertidal zone were placed in a rocky cleft at the base of the beach scarp. Previously, Exxon and State archaeologists placed human bones in the same cleft for protection from vandals and erosion (Mobley et al. 1990:143).

Table 5. 1993 AFG-046 Map Data: Features, Artifacts, and Human Remains.
(Azimuths and distances from Transit Station 1)

Features & Landmarks	**Azimuth (magnetic)**	**Distance (m)**
Abandoned dozer, west edge of blade	61.00°	141.00
Boulder circle, west edge (intertidal feature)	78.50°	75.00
Separated rocky headland, south edge	258.00°	28.00
West Photo Station, intertidal outcrop	258.00°	18.90
East Photo Station, intertidal outcrop	119.50°	26.00
House pit, cross-section exposed in beach scarp	94.75°	71.00
Artifacts		
Stemmed projectile point, (UA93.152.1) 5.3cm x 1.8cm x 0.3 cm	67.50°	56.00
Ulu fragment, (UA93.152.2) 7.9cm x 4.3cm x 0.3 cm	108.50°	40.50
Wedge, sea-mammal bone (UA93.152.3) 11.2cm x 4.2cm x 1.7 cm	117.00°	36.10
Stone lamp fragment (UA93.152.4) 14.2cm x 13.2cm x 5.0cm	140.50°	26.00
Ground and chipped slate biface (UA93.152.5) 10.4cm x 3.2cm x 0.5 cm	136.50°	22.10
Human Remains (all adult)		
Burial, exposed in beach scarp 1 m below top	140.50°	28.00
Rocky cleft at base of beach scarp; intertidal bones removed to this location	203.75°	20.00
Occipital, right edge missing; fits with # 10 below	108.50°	40.50
Right parietal, posterior half; fits with # 07 above	120.00°	19.10
Innominate fragment, sciatic notch region, male	123.00°	11.00
Rib fragment; with # 11 above	123.00°	11.00
Lumbar vertebra, No. 2-4; moderate arthritic lipping of centrum	237.75°	21.50
Left radius, proximal end missing	252.25°	41.00
Right tibia (and fibula fragment)	125.00°	36.20

1994

The Perevalnie Passage Site was only briefly visited during 1994 because of poor weather. The site was visited August 6 and a number of artifacts and human bones were noted in the inter-tidal zone (Reger et al. 1996a). Bones were mapped in with reference to 1993 East Photo Station (Table 6).

Table 6. Inter-tidal Locations, 1994, AFG-046

Location/Item	Azimuth (magnetic)	Distance (m)
94-01 Sediment sample #1, upper ITZ	64^0	61.6
94-02 Sediment sample #2, lower ITZ	54^0	66.0
94-03 Human right femur	205^0	5.4
94-04 Human left femur	205^0	5.4
94-05 Human left tibia	200^0	8.6
94-06 Human left humerus	200^0	8.6
94-07 Human left femur, adult	235^0	6.0

A burial documented in the exposed site sediments during 1993 did not remain in place in 1994. The scattered human bones in the inter-tidal zone were probably from that burial. No evidence was found to suggest vandals were responsible for the removal. The disturbance, most likely, was from seasonal storm waves or perhaps deer walking along the exposure. The bones were collected and placed in the same fissure as those found in prior years. No artifacts were mapped or collected although a number of pieces were present in the inter-tidal zone. None of the artifacts were distinctive and out-of-context thus reducing their scientific value.

The house floor exposed near the eastern end of the site during 1993 was further exposed. Wood from the floor obviously protruded more in 1994 than in the prior year. A radiocarbon date of 1530 ±80 years old (AFG-046-1, Beta-70582) was obtained from charred wood on the exposed floor. The radiocarbon age, corrected to a calendar date of A.D. 550 with the Calib 3.0 program, placed the house floor in the appropriate time for late Kachemak Tradition.

Sediment was again tested near the locations of samples selected during 1993. The 1994 samples were beach gravel with no appearance of oiling and yielded negative results with HNU-Hanby field test.

1995

During 1995, continued erosion of the site was documented through identification of items found scattered on the beach had been *in situ* during 1994 (Reger et al. 1996b). A secondary transit station, registered with points mapped in prior years, was established and the edge of the erosion scarp was measured. Photos of the site were recorded from the transit station.

A bone dagger found on the beach near the center of the site and in danger of disappearing into the surf was collected. The dagger, carved from sea mammal bone, measured 21.8cm long. It measured 1.7cm wide and 1.0cm thick.

A sediment sample collected in the middle inter-tidal zone within a meter of previous samples (1993 and 1994) tested negative for petroleum hydrocarbons. The sample was retrieved from a depth of 30cm to 40cm below the beach surface in loosely packed fine gravel.

1996

During the 1996 visit, extensive damage was noted since the last visit. Trails across the site exposed additional human remains and artifacts and fauna remains had eroded out of the midden (Reger et al. 1997). The trails, presumably started as deer trails, probably were deepened and widened by humans.

Several large areas of midden had slumped or were pulled down onto the beach. The location of a human burial, exposed for several years, suffered extensive erosion. Various human bones on the beach appeared to originate from that burial. Only the vertebral column was still *in situ* during 1996. Displaced human bones were collected and cached in a protected bedrock fissure where they are neither obvious to visitors, nor liable to wash away.

Two more human burials were exposed since 1995. An adolescent burial, partially exposed by a trail on a grass-covered slope, was not in danger of tidal erosion yet but was in danger from foot traffic. A pre-adolescent burial was exposed when midden slumped from the area near the human spinal column. The deformed (flattened) skull was only slightly exposed during 1996.

One barbed bone dart head was recovered from the beach where it was being washed about. The point was 9.9cm long, 0.6cm wide and has two unilateral barbs. The barbs protruded 0.2cm out from the oval shaft. Incised lines marked the line of the barbs. The base ended in a tapering round point and the point end was slotted to receive a slate or other blade. One side of the slotted tip was missing. The dart head was fashioned from sea mammal bone.

A sample of inter-tidal peat was collected for petroleum hydrocarbon testing from the middle inter-tidal zone. The sample site was from the same area where past samples had been retrieved. The highly organic sample was from 40cm below the beach surface. Dark, angular gravel with small to medium pebbles overlay the peat sample. Processing of the sample for presence of petroleum hydrocarbons with a HNU-Hanby field test kit yielded a negative result.

1997

The site visit during 1997 revealed new exposures of midden in several more locations (Reger et al. 1998). Dark cultural soil, containing artifacts, was freshly exposed near the western end of the site. The fresh appearance of the disturbance derived from a

lack of vegetative and from washing by rain. The area of a deep cleft in the bedrock just south of the west photo station was filled by slumping midden. The location human bones were placed in some prior years, was buried by several meters of disturbed midden in 1997.

Heavy erosion also occurred just south of the east photo station. Human bones reported to the Office of History and Archaeology prior to the 1997 visit were found stacked at the top of the eroded bluff. They were left in place. Additional fresh exposures south and slightly east of the east photo station had evidence of fresh digging. The Perevalnie Passage Site continues to erode from the winter storms, exposing midden to exploration by visitors. No artifacts were collected during 1997.

1998

The Perevalnie Passage Site was not scheduled for a visit during 1998 but was on the route taken to visit the eastern side of Shuyak Island. Because of earlier vandal activity, the opportunity was taken to again document status of the site. Erosion took a heavy toll on the site over the winter of 1997. Several fresh exposures were found near the east end of the site. Artifacts and bones were found on the beach, washed clean by the tide. Fourteen human bones were collected from the beach and placed in a protected crevice in the bedrock. The bones were covered with rock and soil rubble for protection from further disturbance. Some bones were piled up at an earlier time by a site visitor. Origin of the bones was not known.

Human and deer tracks were found on exposed midden exposures near the center and west end of the site. The scarps were fresh exposures but could not be clearly attributed to either human or to animal activities (Figure 4).

1999

The final visit to the Perevalnie Passage Site was made during 1999. The primary intent was to check for any evidence of vandalism and to document status of site erosion. No sign of vandalism was found although midden continued to be freshly exposed. Several human bone fragments were found among the inter-tidal boulders but left uncollected.

A transit was again set up and the edge of the site measured. Erosion in the areas noted during 1998 continued to expose fresh midden. No new burials were seen.

Figure 4. Erosion face at AFG-046 near center of the site where vandalism occurs. ADNR Photo, 1998.

Discussion: The Perevalnie Passage Site remains one of the most important sites on Shuyak Island because of the age of the deposits, richness of the cultural and environmental information, and the location at most northern point in the Kodiak archipelago. Any movement of aboriginal Kodiak people to the Kenai Peninsula, Cape Douglas or areas to the east would have used Point Banks as the point of departure or arrival. The radiocarbon dates obtained from the site document its long-term importance.

Vandalism at the site appears to have been by casual visitors rather than active intentional looters digging to find artifacts. The most consistent evidence has been the piling of bones in obviously secondary concentrations. Disturbance of the deposits could result from human digging but also may have been storm wave erosion or by deer walking on the exposed midden face. Human displacing bones and collecting artifacts will probably continue as long as the site is exposed and visitors continue to use the area recreationally. The problem has been recognized by the State Parks ranger on Shuyak Island but his ability to monitor the site will be limited.

The most damage to the site, by far, will be erosion from storm waves washing the exposed deposits. During a five year period, 1994 through 1999, the site has eroded as much as 1.8m in several locations. Rocky points have protected some parts of the site, but areas between have suffered the most. The areas opposite the East Photo Station have been damaged most severely. That is also the location of the burials, deepest and richest midden, and most vandal activity. The only apparent ways to protect that area is data collection for the long term or placing protective cover on the deposits in the short term.

SEL-178 (Port Dick Cabin Site, Segment PD-004)

The Port Dick Cabin Site, SEL-178 , is a midden and house pit site near the head of the west arm of Port Dick (Figure 1). It was the location of a heli-pad and storage area for oil boom during the response phase of cleanup. Trails and the heli-pad were established on the site and caused some erosion of the site surface. Additionally, artifacts were eroding from the west edge of the site onto the beach and danger of vandalism by looters was judged to be high.

1993

The 1993 field effort was intended to establish a baseline of information about the site against which to judge future site degradation (Bland et al. 1998). Douglas Reger and Mark Pipkin examined the site on September 8-9, 1993. A search was made of the site for the datum established by the State University of New York, Binghamton, during 1991. No datum was found so a new reference point was created and marked by driving a 10" iron spike into the high point at the north end of the site. All surface features and sample locations reference that datum (Table 7). A secondary datum was created near the southwest corner of the site to calibrate future compass readings. That datum is the top of a 0.75m long iron rod driven into the site midden. The rod has a loop at the top.

Three samples were excavated in the vicinity of the heli-pad to test for spilled fuel in the site sediments (Table 7). Two 50cm x 50cm test pits were excavated along trails which cross the site to assess the amount of erosion of the site by foot traffic. No damage could be discerned. Test pit "A", partially in the trail along the base of the spit contained no identifiable cultural deposits. Test pit "B" was placed within the limits of the southernmost house depression and penetrated several buried layers interpreted as floor deposits. The multiple dark brown/black silty layers were encountered between 18cm and 40cm below ground surface. No degradation of the deposits was evident. A few ground slate fragments and fire crack rocks were found on the beach but no artifacts were collected.

Photographic stations were established at the 1993 site datum, at the secondary site datum, and on top a prominent rock at the southeast corner of the spit. Panoramic views of the site were photographed from each station to create visual references for future investigations

Table 7. SEL-178 Map Data
(Azimuths and distances from Site Datum 1)

Description & Notes	Azimuth (magnetic)	Distance (m)
Features & Landmarks		
Helipad soil sample No. 93-1/3	189.75°	21.00
Helipad soil sample No. 93-2/3	188.50°	23.20
Helipad soil sample No. 93-3/3	201.75°	22.00
Testpit "A" (Base of spit trail)	196.50°	48.50
Testpit "B" (southern house depression)	202.00°	45.50

Photo Station 93-2 (Secondary Datum, SW corner of site)	209.00°	54.00
Photo Station 93-3	151.25°	52.00
Southern House Depression (main room)		
Southwest corner	209.50°	48.50
Northwest corner	210.00°	41.50
Southeast corner	203.75°	48.70
Northeast corner	200.00°	42.00

1995

During 1995, after not monitoring for two years, the site was re-visited and additional, extensive damage was noted to the deposits in the trail (Reger et al. 1996b). Cultural deposits along the trail very near the cabin were exposed by foot traffic between the beach and the cabin. Fire cracked rock fragments and several rock spalls were evident in the trail. No evidence for digging was found either in the main site surface or in the exposed deposits of the inter-tidal area.

A sediment sample taken from just below the sod near the 1990-1991 helicopter pad yielded no oil. The 1995 sample location is the same location checked during prior monitoring. A sample location scheduled for collecting during 1995 was not tested due to the presence of sport fishermen during the brief visit.

1996

The visit to the Port Dick Cabin Site during 1996 revealed that while intentional vandalism did not occur in the period since the last visit, damage from users of the cabin did occur. Alaska Department of Fish and Game personnel staying in the cabin established a trail to the beach through one of the house depressions at the site. The well worn trail did not appear to break through the sod cover but probably further compacted the cultural layers in the house floor. No testing was attempted to document damages.

Other disturbance to the site was in the trail to the cabin immediately in front of the structure. Trail use has exposed fire cracked rocks in an area of the site, which was poorly investigated and documented although noted in earlier site visits. Although the 1996 visit came at the end of the ADF & G project, the personnel were briefed and asked to vary their travel routes to avoid the areas being impacted. State Park rangers were also familiarized with the problem so that they can monitor the damages in the future.

1997

Douglas Reger and volunteer Alan Boraas visited the Port Dick Cabin Site during September 1997 (Reger et al. 1998). The trails through the house pits on the spit during 1996 no longer were evident. No impacts were seen on the spit portion of the site. Erosion continues on the steep hill trail to the cabin from the beach. Fire cracked rocks are exposed in the same area seen in 1996.

The site was photographed from the 1993 photo station at the southeast corner of the site. The view from that station at the base of the spit did not reveal any changes to the site.

1998

Erosion of the fire cracked rock deposit in the trail to the cabin was again noted during 1998 (Reger et al. 1999)(Figure 5). The rate of disturbance has increased significantly. Areas of exposed fire cracked rock during 1996 were completely denuded and presence of the deposit could be seen only along the edges of the trail. The remaining features at SEL-178 did not appear disturbed in 1998. An examination of the beach along the northwest margin of the spit revealed no artifacts where they were found during past visits. Trails established through the south house depression in prior years were re-vegetated with a thick growth of beach grass. The route across the base of the spit was the only active trail. Photographs taken from Photo Station 93-3 at the southeast corner of the spit did not reveal any significant changes on the spit.

Figure 5. Trail from beach to cabin at SEL-178 showing eroding fire cracked rocks. ADNR Photo, 1998.

Discussion: The initial concern about the site at the mouth of Port Dick Creek was threat of vandalism because the location is the only shelter cabin in Port Dick and because the site was used as a helicopter re-fueling stop during spill response. Sediments collected during 1993 and 1995 yielded negative results for presence of petroleum hydrocarbons. The conclusion was that no contamination existed in the spit area. No further testing was considered necessary.

No evidence was found through the period of study for intentional vandalism of the site. Education and continued monitoring eliminated the damage from walking through house pits by re-routing trails outside feature limits. The sole area of continued damage is in the trail from the beach to the cabin. That trail location is the only reasonable route and the fire cracked rock deposit was destroyed by the time damage was identified. Identification of the area as part of the site and monitoring to avoid spread of trail limits was judged the reasonable solution to the problem. No vandalism was documented through the period of monitoring.

SEL-215 (Segment NK-004)

This site, discovered by Exxon archaeologists in 1990, was initially described as a mid and upper inter-tidal scatter of lithic artifacts over a 40 m x 40 m area. However, inter-tidal peat was found to contain *in situ* cultural materials. Excavations in 1991 yielded a variety of stone and wood artifacts with an averaged radiocarbon age of about 730 years ago (Reger et al. 1992:7-21, 89). Recovery of two glass trade beads from the upper peat indicated that a minor historic component was also present. Site assessment during 1991 suggested that cultural deposits continued to erode.

1993

Inspection of the site during 1993 (Bland et al. 1998) revealed no oiling or disturbance, with the exception of minor erosion, since 1991. The 1991 trench, partially filled with fine beach sediments, was clearly discernable within the peat. A few wood chips of cultural origin, as well as small fragments of fire-cracked rock (FCR), were exposed in non-excavated areas of the eroding peat. Color and black/white photographs were taken from 1991 Datum A and Datum C (Reger, et al. 1992: Figure 5) and from the 1990 Exxon Datum. Sediment samples were collected from three test pits at SEL-215 and located relative to OHA Datums A and C (Table 8). None of the test pits penetrated subsurface cultural deposits.

Table 8. SEL-215 Test Pit Log

TP-# & Position	From Datum	Azimuth (magnetic)	Distance (m)	Depth (cm)	Elevation (m AMSL)*
93-1 Upper ITZ	A	48.25°	14.85	30	3.19
93-2 Middle ITZ	A	108.75°	20.30	30	2.54
93-3 Lower ITZ	A	104.00°	29.25	30	1.60
Datum C	A	28.50°	(included for instrument calibration)		

* Approximate elevations were related to high tide on 6/12/91 pm (Reger et al. 1992:Figure 5).

1994

In July, 1994, Douglas Reger and Alan DePew visited SEL-215 in Berger Bay on Nuka Island (Reger et al. 1996a). The site was thoroughly mapped in 1991 and deposits in the inter-tidal zone tested (Reger, et al. 1992: 7ff). The site was re-visited during 1993 and additional sediment samples from the inter-tidal zone collected to test for presence of petroleum hydrocarbons. No odor of oil was noted during 1993 and the samples were not processed.

The test trench excavated during 1991 was clearly discernable in 1994 and considerable erosion of the surrounding peat had occurred. The area south of the trench facing a small cove of Berger Bay had peat removed to a depth of at least 25cm. A remnant knob of peat, thickly interlaced with cut wood chips and some fire cracked rock was sampled to test for hydrocarbon. The sample was processed using the HNU-Hanby field test kit. Negative results indicated no detectable petroleum hydrocarbons were present.

The datum point "A" established during the 1991 test excavations was re-located and the sample location was referenced to that point. Datum "A" is a piece of steel reinforcing rod driven into a crack in bedrock and topped with an aluminum cap. The sample location was measured 74^0 east of magnetic north (99^0 true azimuth) at a distance of 6.25 meters. The sample was collected from the top 5cm of exposed peat and processed after removal of wood chips and pebbles.

1997

The Berger Bay site was briefly visited in September 1997 (Reger et al. 1998). Outline of the test trench excavated into the inter-tidal peat during 1991 was still obvious because much of the gravel fill has eroded (Figure 3). Beach grass grew on gravel fill at the north end of the trench. The peat resisted erosion but some peat from the surface had been striped by tidal erosion. A newly exposed area of cultural debris, primarily wood chips, was found adjacent to the trench. The area of chips and fire cracked rocks measured 1.5m x 1.5m. The peat layer is mostly gone near the middle of the trench.

Several separate layers of peat containing wood and stone chips could be seen in the trench wall (Figure 6). They were stratigraphically below the eroding cultural deposit noted above. A chipped slate projectile point blank was found protruding from the trench wall. It protruded from the contact between two peat layers. The location was 3.85m south from the north end of the trench, at a depth of 10cm below the 1997 surface. The distance from the artifact location to Datum A, established by Exxon during 1990, was 9.78m at 38^0 west of south (magnetic). A peat sample was collected near the southeast corner of the 1991 trench although oil was not visually noticeable. Processing with the HNU-Hanby field test kit yielded negative results.

Discussion: SEL-215 was monitored because the inter-tidal peat deposits were tested extensively during 1991 as part of the State radiocarbon dating field study. The study provided good base line information for monitoring. Deposits inundated with every high

tide were a logical site for detecting water borne petroleum hydrocarbon contaminants. Samples were collected during 1993, 1994, and 1997. No odor of contaminants could be

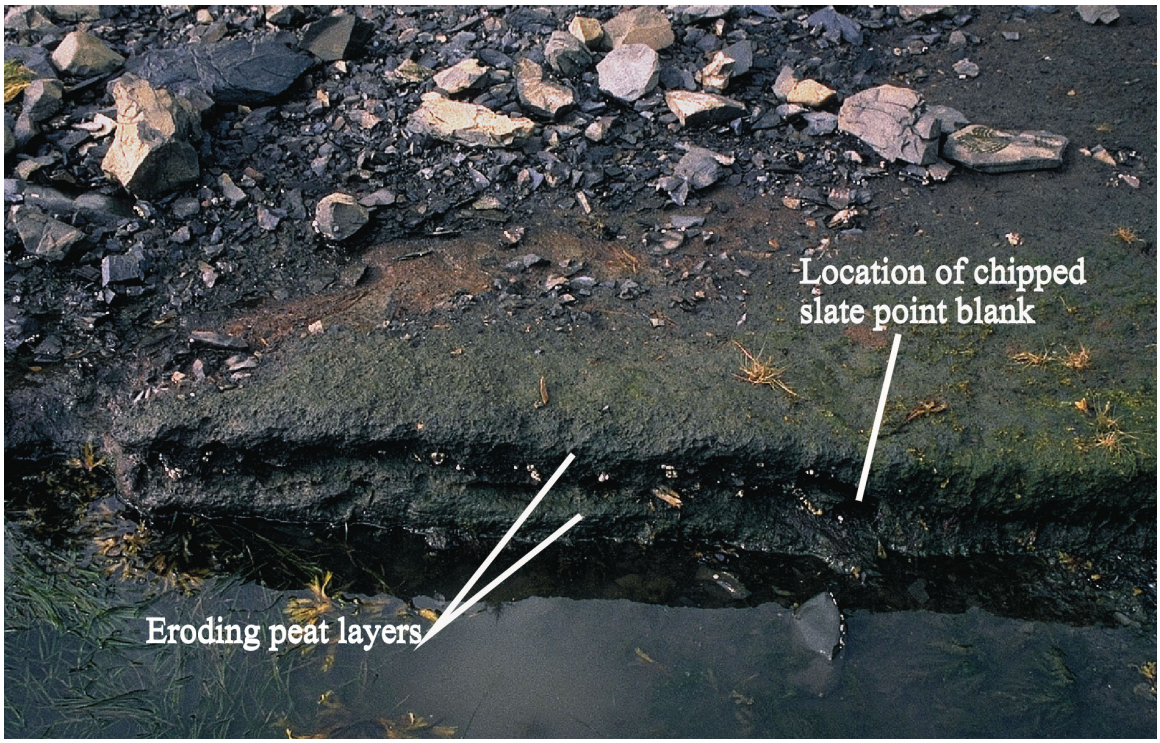

Figure 6. Eroding peat layers at SEL-215 in previously tested area. Fill removed by tidal erosion. ADNR Photo, 1997.

smelled and testing with the HNU-Hanby kit yielded negative results. No disturbance of the site was found from un-authorized excavations either.

U. S. Fish and Wildlife Service Index Site Monitoring 1993 – 1999

Debra Corbett
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The U.S. Fish and Wildlife Service began monitoring sites damaged during the cleanup of the Exxon Valdez Oil Spill in 1993 when the Trustees made funds for the monitoring program available. The sites selected for monitoring were those for which damage had been documented during the cleanup efforts. For Service lands this included four sites around Izhut Bay on the eastern coast of Afognak Island (AFG-026, AFG-027, AFG-028, and AFG-143), and one site (KOD-171) on the west coast of Kodiak Island at

[1]Alutiiq Museum and Archaeological Repository

Chief Cove at the mouth of Uyak Bay. A single site on Ban Island (AFG-129), off the western coast of Afognak, was added to the monitoring list in 1995.

The sites in Izhut Bay were monitored in 1993, 1997, and 1998. The upland portions of the sites are privately owned but all have inter-tidal components managed by the Alaska Maritime National Wildlife Refuge, which had sustained damage during cleanup. They were not scheduled for annual monitoring because there was no sign of continuing damage during the initial survey in 1993. The 1997 monitoring visit was planned as a follow-up to the 1993 visit. The sites were surveyed again in 1998 because two of the sites (AFG-027 and AFG-143) were not located in 1997 due to a mapping error.

Chief Cove (KOD-171) was visited in 1993, 1995, and 1996. The investigation in 1997 was cancelled because of deteriorating weather and poor landing conditions. It was not monitored in 1998. It was visited annual because of the continued evidence for vandalism. A small piece of the northern part of the site is within the Kodiak National Wildlife Refuge, which had built a cabin on adjacent Native Allotment land. The boundaries of the allotment were poorly defined and not surveyed until 1997/98 when we learned the bulk of the site was not refuge land. The Service had been involved in negotiations to buy the allotment but the deal fell through. The site remains in Native ownership, which precludes further monitoring by the Service.

Ban Island (AFG-129) was added to the monitoring list in 1995 because it too had sustained damage during oil spill cleanup but had somehow missed being included in the initial list. The site was checked annually in 1995, 1996, 1997, and 1998 because the initial injury was actual vandalism and digging as opposed to oiling, increased erosion or surface artifact collecting

During 1998, the Fish and Wildlife Service began a cooperative arrangement with the Alutiiq Museum and Archaeological Repository to monitor Kodiak Island sites. The program was, in part, a continuance of a site stewardship program practiced by both groups. Museum and Repository staff began conducting site visits for the Service in 1998.

KOD-171 (Chief Cove Site; Segment CK-005A)

Chief Cove, KOD-171 is located on the north shore of Spiridon Bay, the northern arm of Uyak Bay on the west coast of Kodiak Island. The majority of the upland portion of the site was managed by the Kodiak National Wildlife Refuge. Part of the eastern end was a Native allotment. The site was L-shaped; a beach ridge with house pits extended 200m north of the main midden area which extended up a bluff and 70m east. Features clustered within 25 meters of the shoreline. Midden consisting primarily of charcoal and ashy soil, with lenses of sand, shell and bone ranged from 0.5m to over 2m in depth. All reported features were pits, presumably house depressions. The site was reported to have both Paleo-Koniag (Kachemak) and Koniag components as well as historic Russian materials (Hrdlicka 1944).

In 1989 Exxon Archaeologists reported two excavations in the eroding southern face of the midden. A 1990 visit confirmed the damage but documented no new holes (Haggarty et al. 1991). The site was revisited in 1991 (Dekin et al. 1993) and two additional exposures on the bluff near the east end of the site showed clear signs of illegal excavation. Two further excavations inside features at the western end of the bluff were of apparent human origin and recent, probably from that summer. A monitoring visit by U.S. Fish and Wildlife Service archaeologists in 1993 revealed three additional potholes in the bluffs. Erosion continues, primarily at the southwestern end of the site.

1995

On September 12, 1995 U.S. Fish and Wildlife Service Archaeologists Charles Diters and Debra Corbett examined the beach scarp where the majority of past damage had occurred (Reger et al. 1996b). One area on the southern midden face has a significant slump in the vicinity of several old holes that may have contributed to the slump. However, no new excavations were evident; the old holes are re-vegetating. Minor erosion at the southwest edge of the site continues.

1996

On July 22, 1996 Debra Corbett and Biologist Danielle Jerry examine the site (Reger et al. 1997). The 1995 erosion slump had enlarged, and was approximately 4m wide and 2.5m - 3m deep. Midden thickness, along the top of the exposure was 0.3m. The vast majority of the exposure was in sterile fill under the cultural deposits. There is no evidence to suggest anything other than erosion due to natural causes.

To the east, a second exposure near the top of the bluff measured 2.8m x 2m. Midden there was 1m deep. The exposure was believed to be a fresh vandal hole because it was well above the beach, within the midden deposits, and because there was no sign of erosion on the slope below the hole.

1997

The Chief Cove site was scheduled for monitoring during 1997 but was not examined due to weather and scheduling problems. Because of deteriorating weather and high swells at the site the float plane could not safely land. Additional efforts were made to visit the site but weather and time limitations prevented an examination during 1997.

1998

KOD-171 was not monitored in 1998. A small piece of the northern part of the site was within the Kodiak National Wildlife Refuge, which had built a cabin on adjacent Native Allotment land. The boundaries of the allotment were poorly defined and not surveyed until 1997/98 when the Service learned the bulk of the site was not refuge land. Service negotiations to buy the allotment failed. Native ownership precluded further monitoring by the Service.

AFG-026 (Izhut Bay, McDonald Lagoon; Segment IB-008)

This site, thought to be one originally documented by Hrdlicka (1944) in 1931, is located in McDonald Lagoon on the west side of Izhut Bay, south of the entrance to Kitoi Bay on the southeast coast of Afognak Island. Clark (1974) documented the site, reporting trenches and pits excavated sometime before his visit. A small collection of artifacts was made from eroded context. Exxon investigators at the site in 1989 and 1990 documented "recent" vandalism (Haggarty et al. 1991). Portions of the bluff face had eroded and were disturbed by pothunters. In addition six shovel holes were previously reported in the site. Exposed debris included clam and mussel shells, mammal and bird bones, fire-cracked rock and notched or grooved pebbles. The Afognak Native Association owns the upland portion of the site and the U.S. Fish and Wildlife Service manages inter-tidal areas.

AFG-026 was a prehistoric midden site, probably Koniag phase, which dated from about A.D. 1000 to about A.D. 1800. The site consisted of two areas. Area A, a midden, measured 18m x 3m x 1m, and sat atop a small knoll at the head of a 50m wide pocket beach. Erosion revealed fire-cracked rock, clam and mussel shells and some mammal bone in a 3m to 4m wide area.

The main portion of the site, Area B, was northeast of Area A. A bedrock outcrop and forest separated the two areas. Part of Area B, which measured 80m x 20m x 1m, was on a grassy bench 5m to 6m above the beach. The grassy area sloped steeply to about 3m to 4m above the beach and extended to the north an additional 20m.

Two large depressions, probably house pits, were identified. The largest measured 20m x 15m including an entryway. It sat on the northern edge of the site, overlooking the lower terrace. The smaller, 10m x 8m, house pit dominated the lower terrace.

1993

The site was visited on 18 August 1993 by archaeologists Chuck Diters and Debra Corbett and volunteer Brigit Fahey (Bland et al. 1998). Though the U.S. Fish and Wildlife Service does not manage the upland portion of the site the crew traversed the area on foot in order to orient themselves. All cultural features and reported potholes were relocated and another pothole discovered. Videotape footage was taken of the site, features, potholes and exposed midden. Sediment samples for hydrocarbon testing were taken from the intertidal zone below Area B.

The bluff below Feature 1 exhibited fresh disturbance. Midden, exposed within the few months preceding that visit, included shell and fire-cracked rock. No artifacts were seen but a stone lined cache in the floor of Feature 1 was exposed. Two potholes had been dug into the eroding face. They lacked the re-vegetation seen in other holes on the site and probably were vandalism noted by Reanier in 1989. There were no freshly exposed artifacts on the beach.

1997

Debra Corbett and volunteer Sue Garland visited the site in late June 1997 (Reger et al. 1998). Again, Area B was traversed on foot to orient the team (Figure 7). All previously reported potholes were relocated, and all were overgrown. Large sections of the bluff face were devoid of vegetation but were weathered and dry, with no evidence of excavation since the last investigation. The stone lined cache noted in 1993 was still visible in the exposure. The beach was inspected and while bone, fire cracked rock and pieces of slate were observed no artifacts were found. The beach fronting Area A displayed bone and fire cracked rock but no artifacts. There did not appear to have been any illegal excavation at this site since that reported by Exxon archaeologists.

1998

Alutiiq Museum archaeologists noted no vandalism at the site during 1998 (Reger et al. 1999). Tidal erosion had affected the lower deposits in Area A. Natural erosion along the midden face had exposed fire cracked rock fragments, clam shells, mussel shells, and bird bones. Pitting in the upper surface of Area A, assumed to be earlier vandal damage, has re-vegetated.

Figure 7. AFG-026 during 1997 visit with fresh disturbance at center left of site. USFWS Photo, 1997.

Area B midden exposed along the bluff face has re-vegetated with horse tail, cow parsnip, grass and fireweed. Fire cracked rock and clam shells were seen in the high energy intertidal zone, but no manufactured artifacts were seen. At the extreme northeast end of Area B, tidal erosion undercut the bank and artifacts, fire cracked rock fragments, and bone pieces littered the beach.

AFG-027 (McDonald Lagoon; Segment IB-008)

AFG-027 is located in McDonald Lagoon near the southern mouth of Kitoi Bay, an arm of Izhut Bay on the eastern coast of Afognak Island. The lagoon has three lobes separated by headlands. The site, reported by Clark (1974) was a 31m long midden with a house pit on a low terrace that flooded at high tide. Extensive vandalism occurred at AFG-027 during the cleanup phase of the oil spill. Tunneling into the midden and exposure of the deposit left clam shells, fire cracked rocks and artifacts littering the beach in front of the site. In 1989, Reanier described nine areas of disturbance, at least four of which occurred that year (Haggarty et al. 1991). The house in the intertidal zone was not relocated and was presumed destroyed by erosion. Another visit by Exxon archaeologists in 1990 found no evidence of additional vandalism (Haggarty et al. 1991). The Afognak Native Association owns the upland portion of the site and the U.S. Fish and Wildlife Service manages the inter-tidal areas.

The AFG-027 midden was about 3m above current sea level and marked by a clearing dominated by grass, fireweed, wild celery (Heracleum) and devil's club. The midden deposits were about 40cm thick, and contain shell, bird, fish and sea mammal bone, and large quantities of burned and non-burned slate. A lower midden subsided about 1m as a result of the 1964 earthquake and remained in the intertidal zone. A house pit reported in the area was not relocated. Shell and fire-cracked rock fragments were abundant in the intertidal zone.

1993

The site was visited on 18 August 1993 by archaeologists Chuck Diters and Debra Corbett and volunteer Brigit Fahey (Bland et al. 1998). They traversed the area on foot in order to orient themselves and several potholes were relocated. The intertidal zone was carefully examined. Many of the artifacts and the oval stone feature reported by Exxon archaeologists were relocated and a second, possibly natural, alignment found. Videotape footage was taken of the site, features, potholes and exposed midden. Sediment samples were collected in the intertidal zone to test for presence of petroleum hydrocarbons.

1997

During the 1993 investigation an error was made in plotting the site location. The site could not be located in 1997 during the time available for the search and was not reexamined.

1998

The McDonald Lagoon Site has been incorrectly located on maps maintained in agency files. The first task accomplished during the 1998 fieldwork was re-location of the site and plotting of the accurate location (Reger et al. 1999). The major portion of the site was a midden mound, 30m long and 3m above sea level. The deposit was 40cm thick.

Modern use of the area can be seen with presence of a hunting camp in the woods above the site. There was no new evidence of vandalism along the top of the midden. Five previous holes had re-vegetated and three other holes were eroded or slumped.

The north section of the site has been vandalized. A large area, approximately 4m wide and 2m high has been dug a meter into the bank. The digging exposed fire cracked rocks, shell and fish bones, all of which litter the beach in front of the site. The vandalism further undercut a large spruce tree.

AFG-028 (Ruth Bay 1; Segment IB-008)

This site is located on the south shore of Ruth Bay, a small arm of the northern inlet of Izhut Bay, on the eastern coast of Afognak Island. The site, first reported by Clark (1974) was described as actively eroding midden. Exxon investigators visited the site in 1989 and 1990 (Haggarty et al. 1991). They reported both natural erosion and recent vandalism at the site. The Afognak Native Association owns the upland portion of the site and the U.S. Fish and Wildlife Service manage the inter-tidal areas.

Clark (1974) described an intensely overgrown midden 63m long and 23m wide. Active erosion along 90% of the front of the site exposed deposits up to 1m deep. Artifacts, including ground slate points, incised slate figurines, adzes, ulu blades, mauls. lamps, bone wedges and harpoon sockets suggested Koniag phase occupation with possible Kachemak overtones.

In 1989 Exxon described a 16m x 16m depression in the center of the midden area. That presumed house pit was eroding at the midden edge. Exxon investigators reported erosion along 35m of the midden face. The slopes were steep and unstable, vulnerable to both wind and water erosion. Several areas, including four holes inside the house pit and two on the eroding edge, were evidence that the excavations occurred in the preceding three to four months. The largest pothole, at the eastern edge of the midden, was 3m long. A second hole, outside of the house, showed freshly turned soil and trampled vegetation.

1993

On 19 August 1993, Fish and Wildlife Service archaeologists Chuck Diters, and Debra Corbett and volunteer Brigit Fahey traversed the entire area to orient themselves (Bland et al. 1998). The house pit was examined briefly and all reported potholes relocated. Videotape footage was taken of the site, features, potholes and exposed midden. Sediment samples were taken from the inter-tidal zone to test for presence of petroleum hydrocarbons.

The site appeared much as described in the Exxon reports and files. A previously unreported modern deer hunting camp was located just inland of the site. There was no new vandalism though erosion had occurred on the steep bluff face. All reported potholes are naturally re-vegetated. None of the artifacts noted by Exxon archaeologists

in 1990 were relocated and may have been missed in the slate gravel of the beach, buried, or collected by deer hunters.

1997

Debra Corbett and volunteer Sue Garland revisited the site in late June 1997 (Reger et al. 1998). The actual site location was slightly different than that reported in previous years. Four of the six previously reported potholes in the house pit and on the bluff face were re-located. All were densely overgrown with rank vegetation. The bluff face was almost completely overgrown and there was no sign of active erosion or recent vandalism (Figure 8). The beach was inspected but no artifacts were found.

There is no sign of recent damage to the site and all previously reported damage has recovered naturally. The bluff face of the site had stabilized.

Figure 8. AFG-028 during 1997 visit. Note well vegetated midden face. USFWS Photo, 1997.

1998

The Ruth Bay Site too was re-located and accurately mapped during the 1998 visit. The site consisted of heavily vegetated midden, approximately 63m long, 23m wide and 1m deep. It contained a partially eroded house depression. Artifacts found at the site in the past suggest both Kachemak and Koniag cultural affiliations.

No vandalism was evident during the 1998 visit (Reger et al. 1999). All vandal holes on the bank and in the house depression were well vegetated. Two driftwood logs embedded in the cobble beach in front of the site protect it from erosion. Slumping has occurred where the logs do not protect the deposit. A few artifacts and a slab-lined hearth were seen in the slumping area. A depression thought to be a multi-roomed house depression was noted immediately south of the midden. A modern hunting camp has been established there but does not appear to impact the feature.

AFG-143 (Cajun Point; Segment IB-008)

This site is located in McDonald Lagoon, an un-named bay at the southern mouth of Kitoi Bay, a branch of Izhut Bay on the east coast of Afognak Island. The site is across a narrow, shallow channel from AFG-027. The site was first reported by Skipper Smith and Les Proctor of the M/V Rebel during oil spill cleanup in the area. Exxon archaeologists visited and recorded the site in 1989 and updated the information in 1990 (Haggarty et al. 1991). The Afognak Native Association own the upland portion of the site and inter-tidal areas are under the jurisdiction of the U.S. Fish and Wildlife Service.

The site consisted of a shallow, 15cm-20cm thick prehistoric midden on a 1m - 1.5m high slate shelf. The midden covered an area, 50m x 30m, apparently much reduced in size by subsidence and erosion. Three, possibly four, shallow house pits occupied the center of the grassy clearing. The house pits ranged in size from 5m x 7m to 8m x 9m; all were rectangular with no evidence of side rooms. Three pocket beaches bordering the site were littered with artifacts that had eroded from the midden. Subsidence has seriously affected this site.

1993

On 18 August, archaeologists Chuck Diters, and Debra Corbett and volunteer Brigit Fahey visited the site (Bland et al. 1998). The house pits were examined briefly. All of the definite house pits contained from one to three small potholes. Six potholes reported in 1989 were weathered and had begun to re-vegetate. Peat deposits in the intertidal areas indicated subsurface deposits were partially intact. Several of the artifacts found in 1990 were relocated, others had been collected previously. Videotape footage was taken of the site, features, potholes and exposed midden. Sediment samples were collected in the intertidal zone.

1997

During the 1993 investigation an error was made in plotting the site location. The site could not be located in 1997 during the time available for the search and was not reexamined.

1998

A modern hunting camp inside the spruce forest was briefly visited (Reger et al. 1999). The camp features a fish net hammock, wooden furniture, metal, cut tree stumps and a 2 x 4 lashed between two trees. A house pit reported in this area was not relocated by either the Exxon archaeologists or during Fish and Wildlife Service investigations. Shell and fire-cracked rock fragments are scattered abundantly in the intertidal zone.

No evidence for recent vandalism was found in 1998. No change was found from the conditions seen in 1993. Vandal damage noted in 1989 continues to re-vegetate. While no active erosion occurs, the beaches around the site are littered with fire cracked rocks, clam shells, and crushed mussel shells.

AFG-129 (Ban Island House Pits; Segment BI-010)

Ban Island (AFG-129) was added to the monitoring list in 1995 because it too had sustained damage during oil spill cleanup but had somehow missed being included in the initial list. The site was checked annually in 1995, 1996, 1997, and 1998 because the initial injury was actual vandalism and digging as opposed to oiling, increased erosion or surface artifact collecting. There was no evidence of any further vandalism but some erosion continues.

Ban Island House Pit Site, AFG-129 is located on Ban Island off the southern coast of Foul Bay on the west coast of Afognak Island. Ban Island is managed by the Kodiak National Wildlife Refuge. The site was first reported in 1989 by Exxon archaeologists and revisited in 1990. The site occupied a barrier beach enclosing a lagoon on the north side of the island. The southern end of the site, on a low rise, contained at least 5 large house pits. The spit to the north has dense clusters of fire cracked rock which are certainly the eroded remains of in-situ features. The northern end of the spit is a standing, drowned forest. At least one house pit was reported in this northern area. Fire-cracked rock, shell and bone midden was exposed on the beaches at both ends of the site, in upended tree roots in the drowned forest, and in the eroded inter-tidal area. Artifacts were found in the inter-tidal zone.

During the initial survey in mid-July, investigators noted four vandal holes in the seaward edge of the southern midden and holes inside two house pits. Most of the excavations were old but one was recent. Two weeks later a cleanup vessel crew in Foul Bay was briefed on archaeological procedures. The next day a freshly excavated vandal hole was discovered on the site. Investigation failed to produce a suspect and no further damage was noted in the next several months (Mobley et al. 1990). The site was not monitored in 1993.

1995

On September 12, 1995 archaeologists Charles Diters and Debra Corbett, accompanied by a contract video crew (Stefan and Clare Dobert), flew to Ban Island. The site was thoroughly examined to locate all past reported disturbance (Reger et al. 1996b). A thick mat of decaying seaweed on the lagoon side of the southern site area precluded inspection of the inter-tidal zone but all other areas were examined. Additional concentrations of fire cracked rock and a possible hearth were noted in the inter-tidal zone. All reported vandal holes were relocated and were re-vegetating. No new excavations were evident. Erosion continued on the edges of both the north and south upland areas, and in the inter-tidal zone (Figure 9).

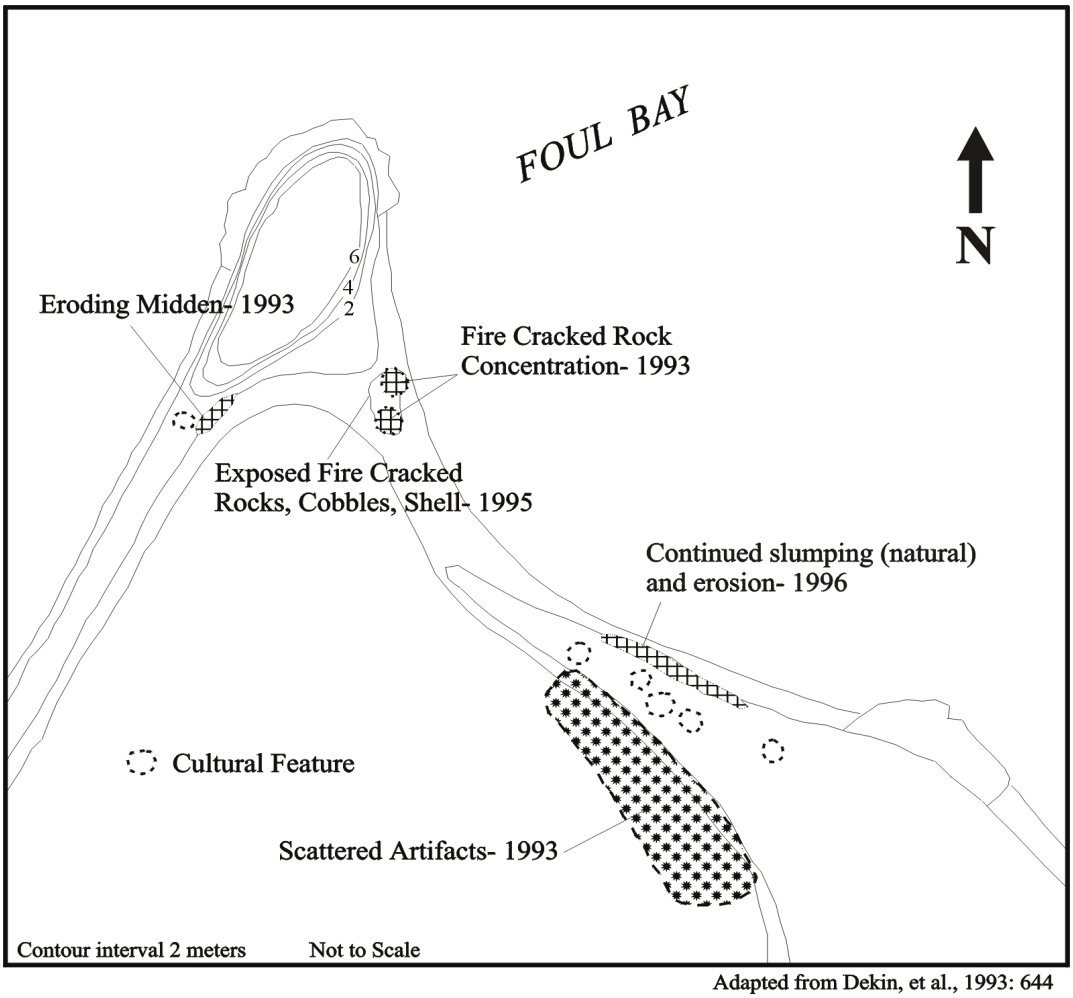


Figure 9. Map of Ban Island Site, AFG-129 showing disturbance locations.

1996

Investigation during 1996, by Debra Corbett and biologist Danielle Jerry, found no new disturbances (Reger et al. 1997). All reported potholes were re-vegetating. Erosion continued to be a problem along the west facing bluff, where much of the face was slumping onto the beach. No artifacts were noted in the inter-tidal zone but shell and bone were common on the beach. Continued erosion in the inter-tidal zone of the spit caused movement within the concentrations of fire cracked rock, mixing cultural with unmodified boulders and diffusing the clusters.

1997

Ban Island was not slated for monitoring in 1997 but because other sites on the eastern coast of Afognak could not be re-located, Ban Island was monitored (Reger et al. 1998). Archaeologist Debra Corbett and volunteer Sue Garland visited the site in late June. The site appeared much as it did in 1996 with continuing erosion along the bluff face. An eroding house pit was noted at the northwest end of the vegetated site ridge. The clusters of fire cracked rock in the inter-tidal zone were dispersing and becoming less

distinct. There had been no illegal excavation on the site since 1989. Erosion on a moderate scale continued to effect the site.

1998

The Alutiiq Museum staff archaeologists monitored AFG-129 during 1998 (Reger et al. 1999). The site was located in three loci around the lagoon at the island. There was no new vandalism noted and most of the earlier noted disturbance had re-vegetated. The exception was at the eastern-most locus of site. In that area, the seaward bank was slumped. Animal activities appear to have exacerbated erosion in the eroding areas. A fox den with multiple entrances was at the western end of the eastern locus causing considerable damage. Three slate point pre-forms were found in the slump area.

Erosion at the northern locus of the site has exposed additional midden. That erosion occurred behind a beach littered with fire cracked rocks and a stone hearth ring. Additional depressions thought to be house pits not documented in previous investigations were seen in various parts of the site.

Other sites monitored in 1999

On May 20, 1999 archaeologists from the Alutiiq Museum and Archaeological Repository under agreement with the U.S. Fish and Wildlife Service, conducted surveys at four sites near the entrance to Kiavak Bay on the southeastern shore of Kodiak Island. The survey (Steffian and Saltonstall 1999) was to assess damage from vandalism reported by local residents and document erosion. The sites included KOD-418, KOD-098, KOD-099, and KOD-100. A fifth site was newly discovered as well.

KOD-418, identified by Exxon archaeologists in 1989 (Donta 1989), was described as a 1m – 2m thick midden, 150m in length. Shell, marine mammal bones and bird bones were eroding from the exposed midden. The 1999 visit determined the deposit extended at least 15m inland, with the widest part of the site at the south end. No house pits or other structural depressions were noted. No recent vandalism was found but the site had been heavily eroding. Portions of the midden were recently slumped onto the beach and the erosional face was severely under cut.

KOD-098 is located at the south end of a small pocket beach facing Kiavak Bay. The site was reported to be a large midden, 75m to 100m long and 1m to 3m deep. Numerous indistinct house depressions occur on a low mounded part of the site abutting an actively eroding bank. Behind the mound were found two more multi-room house depressions of Koniag form. Also found in the area was a large, single room depression. South of the main midden were additional small, single room depressions associated with a small amount of midden. The site is eroding actively. An erosion face ranges from 1m to 7m in height and yielded fire cracked rocks, whale bone, sea urchin tests, fish bone, shell and charcoal. Two old holes thought to be vandal holes were found but no evidence of recent activity. The main danger to the site is erosion from winter storms.

KOD-099, the Kiavak Site, was reported to contain historic materials as well as earlier deposits. The site was located near the south side of the entrance to the Kiavak Lagoon. It was reported to have numerous large, multi-room house depressions and thick midden. The site measured in excess of 75m long and 120m wide, with the thickest deposits at the southwest end. Clear evidence of vandalism was found with a 50cm square hole, 25cm deep located behind the erosion face. Numerous other small holes scattered on the site may result from foxes digging rather than humans. The major danger to the site is again, natural erosion. An estimate was provided that about 2m had eroded since the 1964 earthquake based on measurements from excavations of that period.

KOD-100 was described as a low midden mound located on the south side of the channel draining Kiavak Lagoon. Excavations at the site during the 1960's documented historic, Koniag, Kachemak and Ocean Bay occupations. Evidence of archaeological excavations from 1963 was found but no signs of recent vandalism. The 1963 excavation pits were well vegetated and no significant erosion has occurred.

A previously unknown site, **KOD-854**, was found during the 1999 visit by the Alutiiq Museum staff. Midden deposits were located on a bluff that overlooks KOD-418. Eroding midden marked the site and several house depressions were identified on top the bluff. No evidence was noted of vandal activity.

National Park Service Index Site Monitoring 1994 - 1997

Ted Birkedal

SEL-188 (McArthur Pass Site; Segment MR-001)

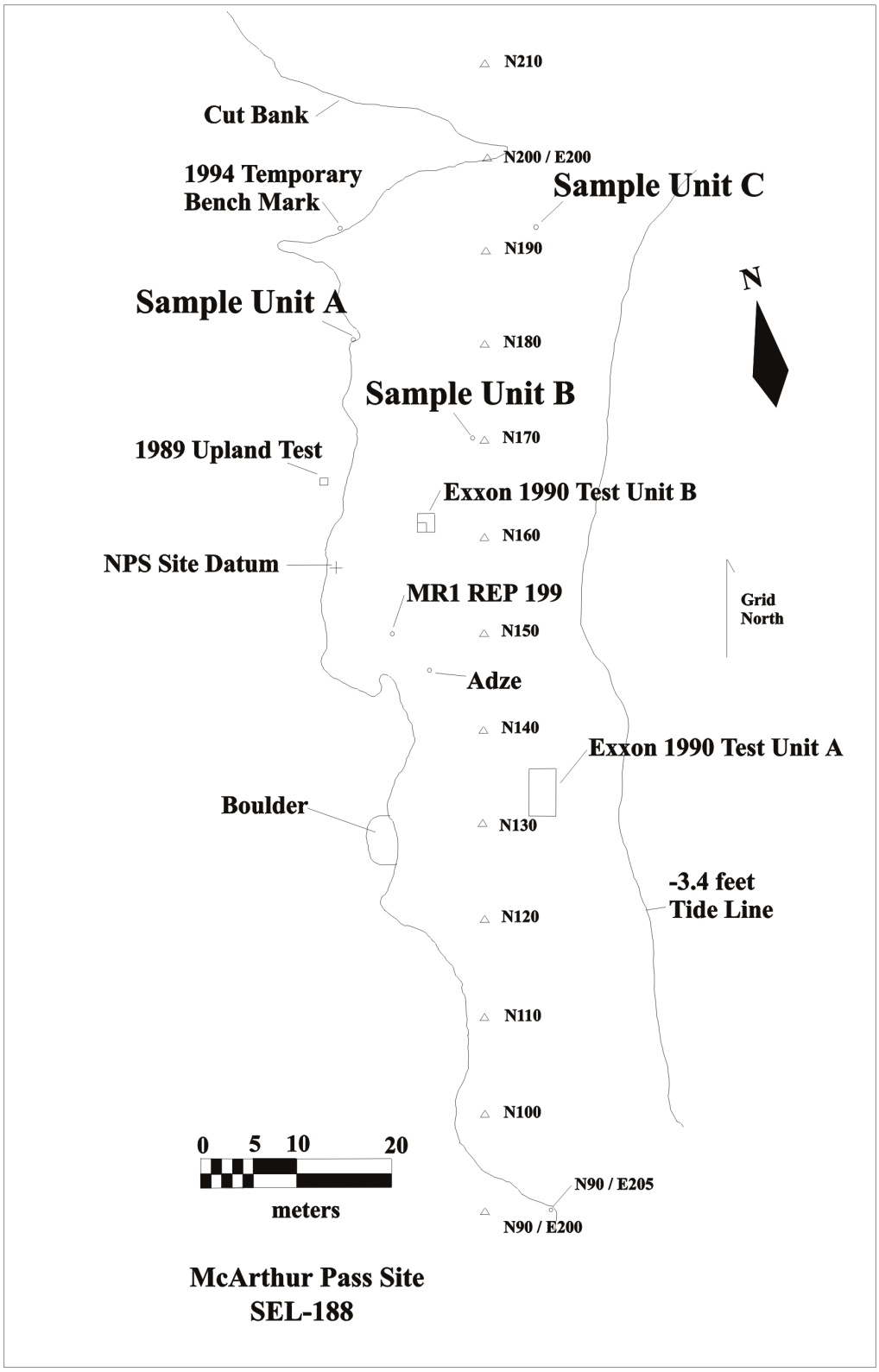
The McArthur Pass Site (SEL-188), located on the southern coast of the Kenai Peninsula, consists of a remnant prehistoric midden on a narrow wooded bench and a scatter of intertidal artifacts. The site was originally identified and investigated during the 1989 *Exxon Valdez* oil spill and cleanup activities, and was tested during 1990 and 1991 (Betts, *et al.* 1991; Dekin, *et al.* 1993). Radiocarbon dates ranging from 1710 ±120 BP to 560 ±50 BP were obtained from the site. These dates and the few diagnostic artifacts recovered suggest that the site represents an occupation of Kachemak period (middle to late) affiliated peoples.

SEL-188 was heavily oiled during the *Exxon Valdez* spill incident and suffered further injury during the oil spill response activity. The site is one of 24 known archaeological sites identified as still being in need of appropriate restoration activities (Jesperson and Griffin 1992; McAllister 1992). Restoration measures taken at the site was to monitor the effect of oiling. During 1993, documentation photographs were taken from a number of stations and sediment samples were collected for monitoring oiling (Klingler 1993).

1994

On May 26 and 27, 1994, archaeologist Jeanne Schaaf conducted a reconnaissance of the site and relocated the 1989 upland (Zollars) test pit, which was well vegetated with moss and barely distinguishable from the surrounding vegetation (Reger et al. 1996a). Dekin's Test #1 near the stream was well filled and partially covered with moss and granite spalls. Using the SEL-188 site map, she was able to find the general location of the three sample units established in 1993 by Klingler and Partlow. Color enlargements made from Klingler's slides of the sample units allowed identification of the precise location where the sediment samples had been removed. Although the beach cobbles had shifted somewhat, configuration was roughly the same as in 1993.

In order to avoid the effort of re-establishing the 1990 Exxon site grid, distances and bearings to the sample units were recorded from the steel bolt and numbered washer markers set in various beach boulders during the 1992 NPS Stranded Oil Persistence Study (Table 9). In several cases, numbered putty dots were also present on the boulders bearing the metal bolts and helped locate the bolts. A sketch map on file with the NPS Coastal Programs Office showed the locations of the fixed plots marked by the steel bolts and the putty dots.



adapted from Betts, et al. 1991: 47

Figure 10. McArthur Pass Site map.

Sample Unit A measured 8.8m at 271° (magnetic) from bolt #2 (putty dot #3 was located on that boulder) and 7.5m at 39° (magnetic) from NPS temporary bench mark MR-1 A-2 (located in the upland area on the south side of a tree fall). *Sample Unit B* measured 7.6m at 180° (magnetic) from bolt #3 (putty dot #6 was located on that boulder) and 8.3m at 139° (magnetic) from bolt #2 (putty dot #3). That unit was in the mid-intertidal zone. *Sample Unit C* measured 6.8m at 100° (magnetic) from NPS REP (*Note*: REP 199: putty dot #1 was located on this boulder) and 5.2m at 358° (magnetic) from bolt #7 (in the *Fucus* zone). That unit was in the low intertidal *Fucus* zone. At 9:00 PM, May 26, 1994, and at a +1.9 low tide, the following elevations were recorded:

Table 9. SEL-188 Reference Point Elevations

Station	Height above MLLW (m)
NPS Temporary Bench Mark A-1	5.77
NPS Temporary Bench Mark A-2	5.96
NPS Temporary Bench Mark A-3	6.28
NPS Site Datum	4.77
Sample Unit A	4.86
Sample Unit B	2.23
Sample Unit C	0.76

On the morning of May 27, Schaaf surveyed the area up to a mile east of SEL-188 with a focus on checking cutbank exposures for evidence of charcoal. She attempted to relocate the midden and artifacts reported in 1990 (Schaaf and Johnson 1990). A culturally modified tree, with the cut facing inland, was noted at the bank edge about 100 meters east of the eastern-most stream at SEL-188. A large oval hammer stone was collected form the beach about 350-500 meters east of the eastern boundary of SEL-188. That was the approximate location of the site reported in 1990, but the entire cove was probably used prehistorically, and the hammer stone may represent one small use locality. The hammer stone was found on a sub-angular boulder beach about 2m from the eroding bank edge. The stratigraphy of the cut bank was obscured by evidence of charcoal eroding from the bank. The hammer stone measures about 17cm x 9.5cm x 7.8cm. Its two ends are flat and battered and it has two shallow lateral finger and thumb grooves.

1995

During 1995, the National Park Service re-visited the McArthur Pass Site and found no evidence of un-authorized digging in the upland fringe area (Reger et al. 1996b). Prior year test pits remained filled and were re-vegetated naturally with moss covering.

Sediment samples were collected from two localities at the McArthur Pass Site. The samples were recovered from previously sampled areas to maintain continuity of monitoring. The sample from Unit A was a column of turf and sediments taken from the eroded bank face (Figure 10). The column measured 4cm x 4cm x 12cm. The sandy gravel

sample was tested for petroleum hydrocarbons with the HNU- Hanby test kit and provided negative results.

The inter-tidal gravel from locality B smelled strongly of crude oil and because of the obvious presence of oil, was not tested. Oil samples collected from the beach in 1993 were identified as originating from the *Exxon Valdez* (personal communication, J. Short to T. Birkedal, July 5, 1995). Oil still remained in the inter-tidal sediments at the site during 1995. A tar mat was found which measured 50cm x 20cm and was 10cm thick. The mat, which was left in place, contained flakes of slate, some of which were culturally modified. A water worn cobble, not the same lithology as local bedrock and possibly culturally introduced, was also embedded in the tar mat. The spot designated as sample location C was covered by water during the visit and was not sampled.

Another goal of the NPS monitoring visit was to relocate the midden documented by Schaaf and Johnson during 1990. Changing weather and rising tides precluded the attempt.

1997

Mark Luttrell accompanied by Steve Baird, wildlife biologist from Homer, monitored the McArthur Pass Site, SEL-188, during 1997 (Reger et al. 1998). The three inter-tidal sediment sample locations at the site marked in prior year maps were relocated beginning with location C, low in the inter-tidal zone. The location C sample was collected at 10:27 AM on a rising tide. The sample was angular, coarse-grained sand derived from granite. No odor of hydrocarbon was detected.

The location A sample was collected at 11:15 AM and consisted of loamy organic sediment taken from the vegetative face slightly above highest high water. No odor of hydrocarbon was detected.

Location B was re-located and a sample of angular, coarse-grained sand derived from granite was collected. Some marine snail shells were also included in the sample. An odor of oil was detected at that locality and oil sheen appeared in the unit after the sample was collected.

All samples were placed in 4oz. jars and labeled. No chain of custody documentation was recorded and no attempt was made to maintain sterile collecting of the samples. They were submitted to the headquarters, Kenai Fjords National Park. The samples were tested with the HNU-Hanby field test kit as were samples at other sites.

Rocks on the beach in the sample locations had shifted somewhat from earlier positions, probably due to wave action. No evidence was seen that indicated human disturbance. An attempt was made using the 1993 map drawn by Klingler to relocate the adze he found. The attempt only succeeded in duplicating Schaaf in 1994 by relocating a green hammerstone that was near the original location of the adze. The absence of the adze suggested that theft had occurred between 1993 and 1994. Dekin's Test #1 near the mouth of the stream (Dekin et al. 1993) was relocated and it appeared much as described in 1994 and 1995; well back filled and covered with moss and granite spalls. An attempt

to locate the 1989 Zollars test and the expanded excavations by Schaaf and Johnson (Schaaf and Johnson 1990:3) was unsuccessful. That was attributed to careful restoration of the area by the excavators.

No artifacts were collected, but a photographic record of the sample units was obtained. For the most part, the photo sequences established by Schaaf in 1994 were duplicated.

Discussion: The McArthur Pass Site was one of the original sites identified as damaged from oiling by crude oil of the *Exxon Valdez* spill. The beach was heavily oiled and has been monitored for oil since that time. The archaeological remains were documented in 1993 and have been monitored on an intermittent basis since. Sediment samples were collected for testing in 1993, 1995, and last in 1997. The 1993 samples were tested in the Auke Bay lab and identified as North Slope crude from the *Exxon Valdez* spill. In the last two visits by National Park Service archaeologists, the sediments were visibly contaminated by crude oil and smelled distinctly of oil. No tests were made because of the obvious presence of crude oil. The archaeology at the site apparently was not affected by the presence of oil.

No evidence for vandalism has been documented at the site. After 1997, monitoring of the archaeological remains was no longer considered necessary and ceased. Periodic visits by National Park Service personnel have been made in the normal course of agency business.

Chugach National Forest Archaeological Monitoring, 1993-1999

Linda Finn Yarborough

The USDA Forest Service has participated in the *Exxon Valdez* Oil Spill Index Site Monitoring Project since its inception in 1993. At that time, funding was provided by the *Exxon Valdez* Oil Spill Trustee Council to monitor sites, which were either vandalized or unintentionally injured during the *Exxon Valdez* Oil Spill and the ensuing cleanup effort. The monitoring project was scheduled to continue for ten years. One site on Forest Service managed land was chosen to be monitored yearly. This was SEW-469, a cave site, on the northern end of Knight Island, which was vandalized in 1989. Several other sites were selected for monitoring on either biennial or unique bases. Sites were monitored for the presence of oil and evidence of disturbance by humans. The monitoring procedure for each site included at minimum a pedestrian survey, and photography from established points at sites visited on more than one occasion.

SEW-440 (Eleanor Island Camp Site; Segment EL-054)

The Eleanor Island Camp Site was monitored by the State of Alaska, Office of History and Archaeology in 1991 because of the inter-tidal cultural deposits and the fact

that cleanup had occurred. Bio-remediation had been applied at the site prior to the State visit and little other than documentation of the current status was attempted. Subsequently, the Forest Service voiced interest in monitoring the upland portion of the site and that agency became the lead monitoring group.

1994

A sediment sample taken for monitoring purposes on the southeast shore of the site in the inter-tidal zone indicated that fluid oil was still present under 20cm to 30cm of gravel. The sandy gravel sample was extracted August 11, 1994, from a depth of 30 cm below the surface at a point southeast of the site. It was referenced to the 1994 U.S. Forest Service excavation grid at 28.7 meters from grid point N26/E34. A bearing of 320^0 from the collection hole to the above grid point was recorded. The sample smelled strongly of petroleum product and produced a strongly positive result with the HNU-Hanby field test kit. The direct extraction method indicated that petroleum hydrocarbons in excess of 1000 mg/kg were present in the sample. The beach sediments have been bio-remediated in the past which no doubt affected the test result (Reger, et al., 1992:85).

Despite careful observation, no un-backfilled excavation could be located in the horizontal surface of the site. Erosion had occurred along the pre-1964 beach and was susceptible to further damage by foot traffic. However, it appeared that the eroding areas were naturally re-vegetation. In general, this site seemed to have undergone little further disturbance since the cleanup period.

The site previously was identified in the vicinity of the southwest side of the tambolo, however the extent of the deposits was unknown. Restoration of the site included documentation of site limits. Prior to opening large test squares, 33 shovel test, each approximately $25cm^2$, were systematically made, beginning near the northwestern shore and on the headland northeast of the site and working towards the known part of the site. Eight shovel tests contained cultural material, and defined the site in an "L"-shape. Cultural deposits occur on the tambolo just below the headland between the northwest and southeast shores, and then extent south along the southeast shore of the tambolo.

Five 1m by 1m squares were opened in the site, extending from just below the headland to the southern portion of the site. All backdirt was sieved through 1/8 inch mesh screens. The exposed cultural deposits ranged in depth from 60cm to over 1m. In four of the squares, cultural strata were sandwiched between natural deposits that included gravel, sand, peat, and decomposing grasses. The cultural strata were continuous in the fifth square, with stratigraphic changes evidenced by variations in the frequency of charcoal, gravel, and fire cracked rock. While it appeared that the bottom of cultural deposits was reached in several of the tests at SEW-440, it was also clear that cultural deposits continue deeper than 110cm in at least one square.

Few artifacts were recovered, a situation not unusual for Prince William Sound sites. Wood preservation was poor. Only one piece of cut wood was excavated, form the southern-most square where some strata consisted of peat. The 171 other artifacts were

all stone and none appeared to be diagnostic. The prehistoric faunal remains from the site were much more numerous, and include species such as sea lion, migratory ducks, cormorants, domestic dog, clams, mussels, cockles, chitons, rockfish, sculpins, and a large amount of Pacific cod. One charcoal sample was analyzed, yielding a date of 1820 ±60 years before present (Beta-78758) from a strata which contained apparent wood working tools 52cm below datum in a square containing at least 110cm of cultural deposits.

Although no house posts were found, it was possible that some of the deposits were associated with deteriorated structures. The square containing continuous cultural strata had better wood preservation than the others. Several large pieces of wood were recovered which may have been structural, although distinct cut or planing marks were not obvious. Based on the remains recovered, activities which occurred at different locations in the site, varied greatly. Faunal remains were most numerous from the middle square, whereas the most dense deposits of fire cracked rock were present in the northern-most square.

Interesting non-cultural strata were interspersed throughout several of the squares. An apparent layer of beach gravel was present in several squares, as was a thin layer of sand at a slightly lower level. In one square, the sand overlay what appeared to be grass remains. Peat formation was evident throughout the southwest part of the tombolo in many of the shovel tests, and occurred between some of the cultural layers in the southern-most excavated square.

1995

Test pits excavated in the site during damage assessment were re-vegetated and the only recent injury to the site was a small, eroded path from the beach to the uplands (Reger et al. 1996b). The path probably was created as deer trails. A sediment sample collected from the inter-tidal zone registered positive using the HNU-Hanby field test kit. A reading of 50 - 100 mg/Kg was obtained using the direct extraction method. That finding probably reflected the original oiling of *Exxon Valdez* crude oil.

1997

During 1997 monitoring visit to SEW-440, the site was photographed from the shore, and from the headland northeast of the site (Reger et al. 1998). The narrow deer trail leading from the inter-tidal zone up on to the site, which was noted as eroding in 1994, 1995 and 1996, appeared to have received less use during 1996-1997 and was re-vegetating. The back filled Archaeological Site Restoration project tests made in 1994 were re-vegetated and blended with the natural surroundings. Although substrate samples taken from the inter-tidal zone in front of this site in 1994 and 1995 tested positive for the presence of oil, the 1997 sample, analyzed using the HNU-Hanby field test kit tested negative. It appeared that no natural erosion or humanly associated damage occurred to the site during the time between monitoring visits in 1996 and 1997.

1998

Ludwig and Gilliam visited the site on July 7, 1998 and examined the bank at the head of the beach, the intertidal zone and the forested upland (Reger et al. 1999). Maps and field notes taken by Yarborough (1997) were used to relocate the midden exposure, earlier test pits and survey stakes. The midden exposure and fire cracked rocks were visible but the bank at the head of the beach looked stable with no evidence of erosion or looting. Weathered dimensional lumber was present at the head of the beach. Investigation of the beach at low tide revealed fire cracked rock and unmodified greenstone but no artifacts. The crew relocated the east/west and north/south lines of survey posts and test pits from the 1994 excavation (Figure 11). The test pits were re-vegetating well and their outlines were barely visible. Remains of a collapsed cabin were still visible. No vandalism or erosion was observed during 1998.

Discussion: Inter-tidal cultural remains at the Eleanor Island site were disturbed during cleanup and the beach containing the deposit was later bioremediated. Test pits excavated in the site during damage assessment have re-vegetated and the only recent injury to the site is a small eroded path from the beach to the uplands. Deer probably created the path walking through the area.

SEW-440 has both inter-tidal zone (ITZ) and upland components. It was recognized as having been damaged both by oiling, and by cleanup workers attempting to remove that oil. Changes in personnel at the Forest Service between 1997 and 1999 resulted in a lack of recognition that this site was originally proposed for biennial monitoring, with the result that this site was not monitored in 1999.

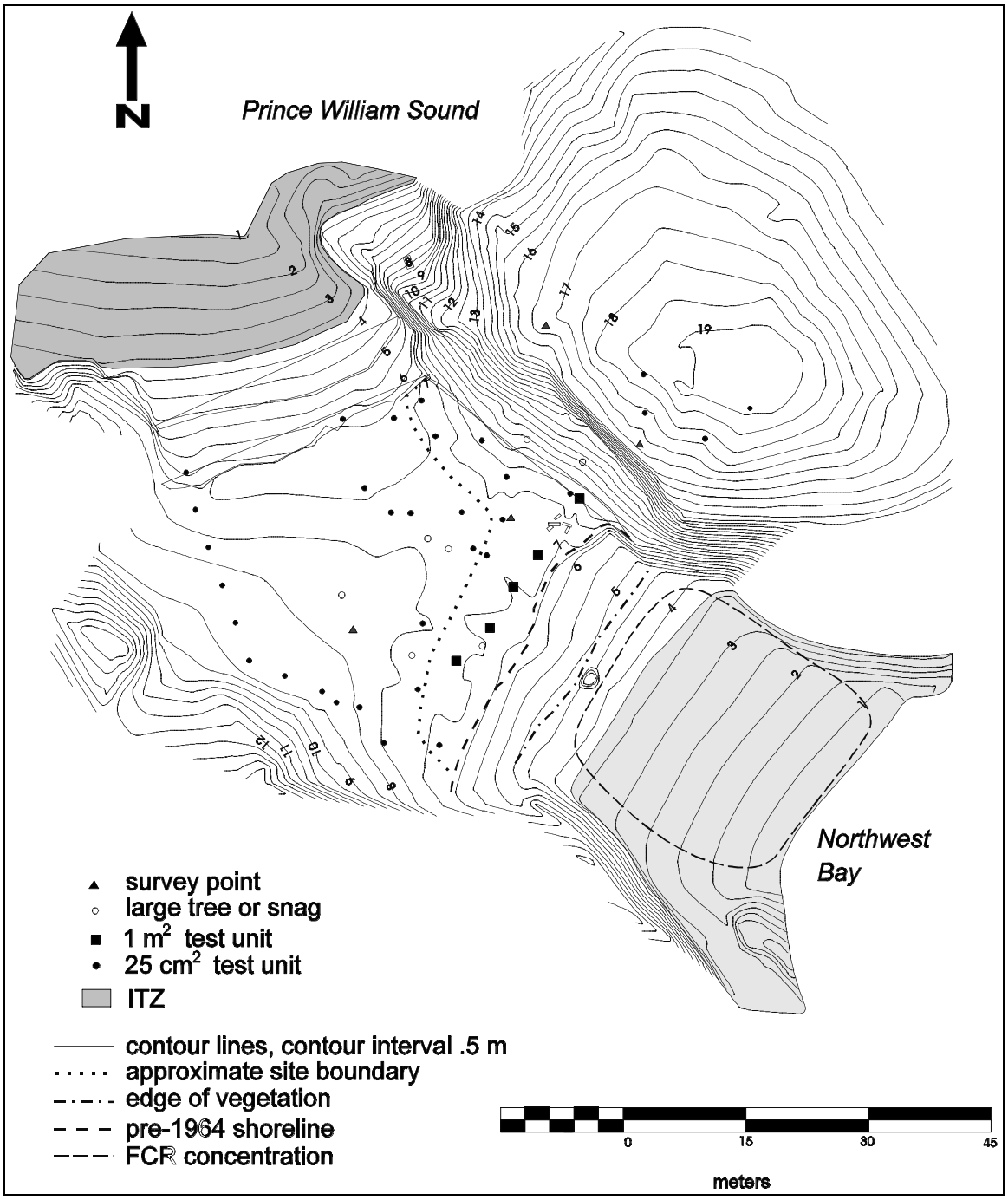


Figure 11. Forest Service map of SEW-440.

SEW-469 (Passage Point Rock Shelter; Segment KN-110)

This site was originally discovered by a cleanup worker in 1989 and became known to archaeologists and others because of the human remains looted from, and eventually re-buried in, the site. This cave, actually a very deep basalt rock shelter,

contained a series of contiguous, sloping terraces protected by an expansive overhanging cliff face.

The looted human remains were taken from a crevice in the upper part of the main cave, which was labeled area or level C. The major part of the cave (level B) contained large blocks of roof-fall and a small portion of the cave between level B and the shoreline is labeled level A. In 1989, human remains, fragments of woven matting (up to 5 cm by 15 cm in size) and what appeared to be the coracoid from a large bird, were noted in area C. Several wooden planks set level with the floor were noted on the north side of area B, next to the rock wall. One plank appeared to have a piece of gut beneath it. Mammal, fish and bird bones, and shells were strewn over the surface of the site. Some, such as small fish and shells, may have been left by land otters, which used the cave in the past. Porpoise, seal, large cod, and halibut bones were most likely brought into the cave by humans. Fairly recent sea gull remains were present in area A, with feathers spread over about a 2m area. With the exception of the modern wooden Russian Orthodox cross marking the recent burial of the looted human remains, no additional cultural materials were noted during subsequent Forest Service monitoring visits to the cave in 1992, 1994 and 1995. It seemed that land otters might be using the site again, as the surface appeared scuffed and rearranged, although the cultural materials were still present as previously observed. No human footprints were observed to indicate human visits to the cave. A second smaller cave, south and uphill from the main cave, was also looted in 1989. Human vertebrae, along with fish and small mammal vertebrae, remained in that location along with split wooden planks.

1995

During 1995 the rock shelter appeared to have been further disturbed through exposure of cultural remains (Reger 1996b). Chiton and small fish remains scattered on the floor of the rock shelter suggested that land otter were then likely culprits. No conclusive evidence of human activity could be found.

1996

Forest archaeologists Dale Vinson and Myra Gilliam arrived at the site in early October 1996 via floatplane and conducted a systematic examination (Reger et al. 1997). They photographed the site from the large roof-fall rock pile in level B, which served as a datum, and also took close-up photographs of individual features. The terrace surfaces, and rough rings and piles of stone blocks appeared much as described by past investigators, and area C, the small upper crevice, still contained human bones. Several small, shallow irregular holes apparently dug by animals, occurred n the fine sediment between the large blocks of roof-fall in area B. Those were probably the same holes noticed during 1995.

The boards and bones in the second smaller cave also appeared much as previously described. There were no signs of recent activity and fine sediment was scattered on the rocks in the overhang in an uneven fashion.

Examination of the lower portion of the shelter revealed evidence of a possible child's burial encased in rock detritus and finer cave deposits. It was previously

unnoticed. The cultural materials consisted of a bone, and what appeared to be decomposing bark, associated with a coarsely woven matting or fabric protruding from the cave floor. It was exposed about 20 cm above the edge of the wave cut at the lowest part of the shelter. Only the edge of the coarse fabric was exposed, but the material appeared to be "non-western" in origin. At the latest, it was likely to represent the early historic period, and may been well older. Only the very upper tip of the small bone was visible, however it had an apparently non-fused epiphysis or growth region. The bone tentatively was identified as a pelvis, but very little of the specimen was exposed. The investigators did not disturb it as the bone appeared to be in a stable position and not likely to be noticed by casual visitors.

1997

Although the lower cave interior floor localities of SEW-469 had been sketched during previous visits, the lack of a scaled map posed difficulties in interpretation of features noted by different visitors to the site. During the 1997 visit, a more formal map was made of the locality, showing archaeological surface features, roof fall areas, and general elevation changes over the main portion of the cave (Reger et al. 1998). The cave entrance measured approximately 22m wide, while the distance to the deepest part of the cave was about 17m. Scattered human remains were still present on the surface and appeared undisturbed in the uppermost area of the cave. Other portions of the cave with human and cultural remains also appeared undisturbed since the previous monitoring visit. Photographs were taken from the eastern edge of the roof fall pile northwest of the Russian cross, and on each individual terrace.

The cave continued to be used by animals, probably land otters, which made this National Register eligible site of interest to biologists as well as archaeologists. There did not appear to have been any changes to this site as a result of human activities since the 1996 archaeological monitoring visit.

1998

U.S. Forest Service archaeologists, Ludwig and Gilliam visited the site on July 8, 1998 (Reger et al. 1999). Known features and attributes of the site were relocated and the remains were examined to determine if there had been any disturbance since the site visit in 1997. Ludwig and Gilliam returned to the site on September 29, 1998, with Forest Service surveyors to set up a survey monument on a headland in front of the site.

The infant burial, noted on the 1997 map (Yarborough and Barthold 1997) in the east corner at the lowermost end of the rock shelter, appeared intact. Material found on the surface in the vicinity of the burial included woven mat fragments, planed wood, bird and sea mammal bone and clam shells. Cut bark planks were still present along the north wall of the uppermost level. Numerous pieces of shaped wood and wood points were scattered throughout the upper area. Modern trash was noted in the northwest corner of the rock shelter. The southwest corner of the rock shelter contained fragmentary human bones including carpals, metacarpals, and a sternum covered by sphagnum moss, as indicated on the 1997 map. The Russian Orthodox cross remained standing, undisturbed.

The smaller overhang was located approximately 50m uphill (to the south) and was about 1.5m across. The overhang contained two wood slab planks and smaller pieces of planed wood along the north wall. A human vertebra was wedged between the north wall and a small boulder on the floor of the overhang. The shelter floor was covered by small to large rocks and loose reddish dry soil.

There was one discrepancy between earlier observations and those made in 1998. No woven mat fragments were noted associated with the human remains in the southwestern corner of the main shelter. Such was noted when SEW-469 was initially recorded in 1989 (Lora Johnson 1989 field notes and photos; Linda Yarborough 1989 field notes). No mention has been made of the mat fragments in any monitoring reports since 1989.

The 1998 monitoring found no new disturbance except for two recently introduced items near the cross and near the back wall. Otherwise, the only disturbance was from small animal scat and burrows.

Discussion: SEW-0469 was monitored yearly. This included increasingly detailed mapping, over the course of the six years, and baseline monitoring. Not all human remains were removed by vandals. Small human bones were present in 1989, along with at least one small piece of woven grass matting, in the area from which bones had been taken. Although the matting has not been observed during recent monitoring visits, the small bones have still been in place. Additionally, bones, which may be those of a child, are present in another portion of the cave, and planed planks that may cover a plank-lined interment are present in a separate area. Neither of these features appears to have been disturbed, to date, by humans.

During the course of the monitoring, the only disturbance of the midden surface appeared to have been caused by land otters. What appear to be the remains of land otter meals and scat lie on, and are mixed with, the uppermost of the ancient cultural deposits. There is also evidence of an animal digging a burrow in the vicinity of, and slightly under, a large rock.

Other Monitored Sites in 1999

Several sites were monitored over the years on a unique basis, to see if the evidence of disturbance varied from those sites chosen as index sites. It was believed that this type of monitoring would indicate whether vandals were avoiding sites that were well known, and seeking out sites that were less visited.

SEW-0505 (Disk Island Cave), is a series of connected rock shelters on the western shore of Disk Island. They were visited seven times between 1980 and 1990, with five of those visits occurring during the *Exxon Valdez* Oil Spill cleanup program in 1989 and 1990. Although not directly impacted by spilled oil, the site became known and was visited by oil spill workers. A visit in 1990 by a State of Alaska archaeologist was prompted by a report of possible vandalism. Human bones were noted during each field visit, however the documentation remained incomplete. No comprehensive list of

bones was made, or any map other than a simple sketch map, and photographs were not taken from established points or with adequate lighting or film equipment to allow complete visual documentation of exactly what was present. The archaeologist from the Alaska State Office of History and Archaeology recommended a more complete inventory of the remains present in order to establish the number of individuals, age, and sex and any additional information that can be obtained. However, he did not note that the site was vandalized or damaged by humans.

Forest Service archaeologists monitored the site on June 9, 1999. Possible vandalism was reported in 1998 by a Forest Service employee. Archaeologists were able to confirm the presence of the human remains at this cave, but it was unclear whether they were the same remains, in the same locations, previously reported by various archaeologists. Increased public awareness of the site, an indirect effect of the Exxon Valdez Oil Spill, may have exposed this site to increased danger of vandalism. However, it was difficult to tell if damage or vandalism occurred at this site, without a systematic and complete inventory of human remains.

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