

Exxon Valdez Oil Spill
Restoration Project Annual Report

Archaeological Site Monitoring and Restoration, 1994

Restoration Project 94007-2
Annual Report

This annual report has been prepared for peer review as part of the *Exxon Valdez* Oil Spill Trustee Council restoration program for the purpose of assessing project progress. Peer review comments have not been addressed in this annual report.

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Archaeological Site Monitoring and Restoration, 1994

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Study History: The Index Site Monitoring project originated as an attempt to monitor vandalism and other site injury through time in the *Exxon Valdez* Oil Spill area. Sites were vandalized and un-intentionally injured during and immediately after oil spill cleanup efforts ceased. Additionally, the potential for oil to adversely effect their research value made monitoring intertidal site for intrusion by buried or re-transported remanents of the oil spill another concern of land managers. Because the large number of sites made monitoring of each site impossible, a few sites were selected to be visited. Montoring of selected sites commenced after Project 93007 as a reasonable approach of tracking injury to sites. The aim of the program is to provide monitoring of area sites for a ten year period after the spill to allow managers to detect trends of injuries.

Abstract: Some sites are visited yearly and others on a less frequent schedule. Condition of the index sites have been mapped and those which suffered oiling are sampled for encroachment of re-transported oil. None of the monitored sites have been re-oiled. The AFG-046 Site and AFG-098 continue to erode and provide fresh exposures to attract vandal attention. The AFG-097 Site continues to be impacted by campers tenting and building campfire on the site. The SEL-215 Site continues to erode an lose cultural data. The remaining sites do not appear to be seriously impacted.

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

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Archaeological Site Monitoring and Restoration, 1994

Introduction

Archaeological sites in the area of the Exxon Valdez Oil Spill suffered some injury from uncontrolled efforts at oil cleanup on beaches where sites were exposed. Documentation compiled in 1991 by Griffin and Jespersen and incident reports described in the 1990 Exxon report (Mobley, 1990:133ff) demonstrated that while some additional damage did occur, swift action by Exxon and agency personnel made the impacts minimal. Unfortunately, a by-product of the protection program and of the increased presence of cleanup crews was a more widely known presence of sites and their locations. That wide spread knowledge led agency archaeologists and concerned native corporations to fear vandalism of remote sites by newly knowledgeable looters.

A program of monitoring sites injured by vandals was proposed and current conditions

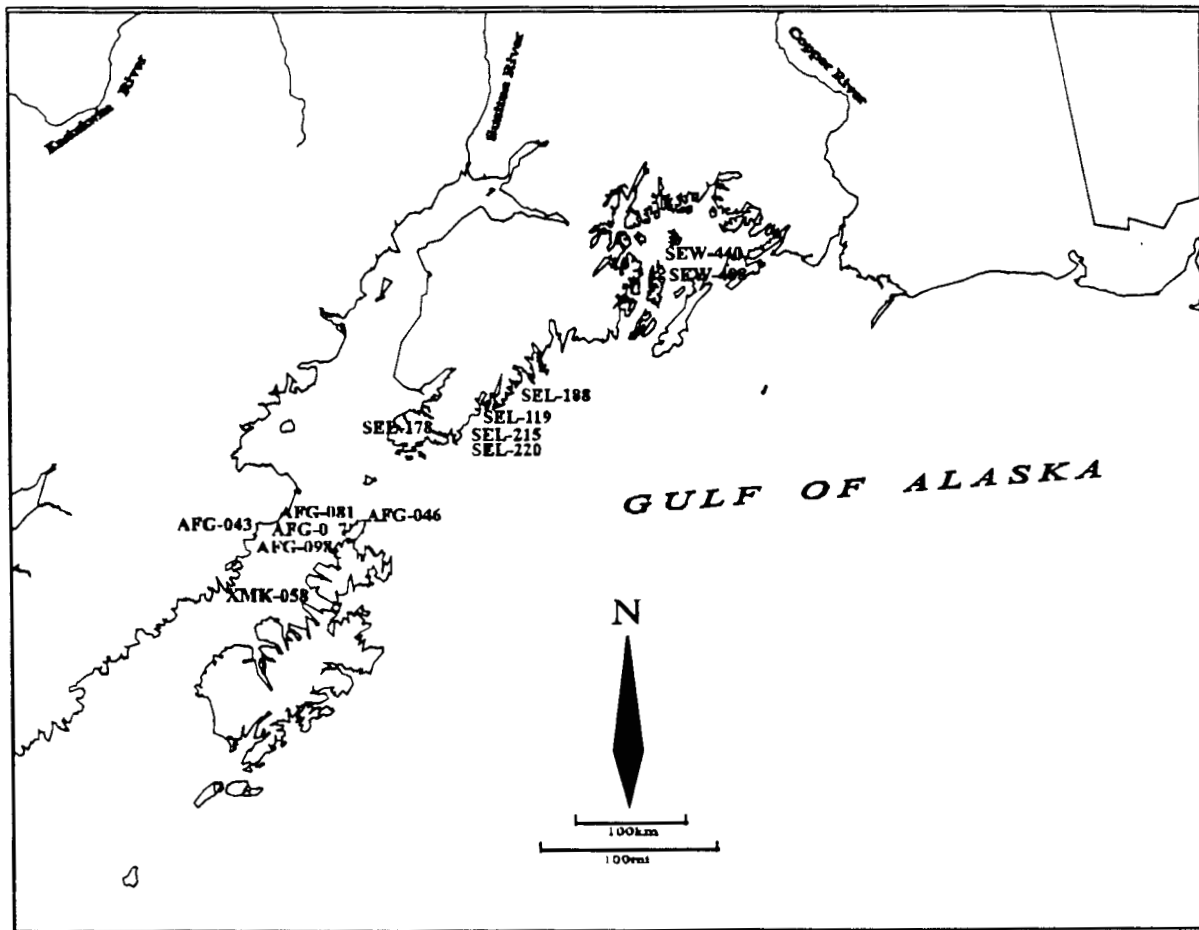


Figure 1. Archaeological sites visited during 1994 for monitoring and restoration treatment.

of selected sites were documented during 1993. Fieldwork during 1994 aimed at completion of any baseline data collection necessary but primarily at monitoring sites known to be vandalized. The Office of History and Archaeology, Alaska Department of Natural Resources, visited sites on Nuka Island and Shuyak Island to monitor sites documented during 1993 and earlier field seasons (Figure 1). The ADNRR activities are presented as Part I of this report. The U.S. Forest Service performed restoration data collection on sites in the Prince William Sound area and provided Part II of this report. The National Park Service monitored sites on the Alaska Peninsula coast and at one site on the Kenai Peninsula coast. Part III of this report summarizes the NPS activities. The U.S. Fish and Wildlife Service expected to visit the KOD-171 Site but were unable to because of weather and schedule conflicts.

Part I:
1994 Restoration and Site Monitoring on Nuka Island and Shuyak Island Sites

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Monitoring of archaeological sites involved using standard archaeological techniques of documenting conditions. Rather than using a transit or theodolite to locate sample locations, a brunton compass and metric tape were judged sufficiently accurate.

Sediment samples were processed using a HNU-Hanby field test kit for detecting petroleum hydrocarbons. The direct extraction method was used in which sediment is washed with a solvent and the resulting liquid combined with a chemical catalyst. Color of the resulting chemical product was measured against known comparative samples. Presence of petroleum hydrocarbons is detectable with some estimate of level of contaminant in parts per million. Identification of the source of contaminant is not possible.

During 1993 archaeologists from the State of Alaska visited sites AFG-046, AFG-081, and AFG-098 on Shuyak Island, SEL-178 in Port Dick, and SEL-215 and SEL-220 at Nuka Island to document and begin restoration of injury incurred as a result of the Exxon Valdez Oil Spill. The documentation of current status in 1993 served two functions; it set a current baseline to judge future vandalism impacts and it allowed a detailed restoration plan to be devised for the sites. Several sites seemed to be stabilizing naturally while the others needed further monitoring.

State archaeologists returned to those sites in the Nuka Island area and on Shuyak Island needing further monitoring during 1994. The sites, mapped previously, were re-examined to determine whether they suffered vandalism in the intervening years. The Port Dick Cabin Site was not visited during 1994 partly because of weather concerns but primarily because we felt the site could be monitored every other year rather than yearly. Other sites in the same category such as AFG-098 were briefly visited because they are very near more critical sites and no additional logistic expenditure was necessary.

Kenai Peninsula, outer Coast

SEL-215 (Segment NK-004)

In July, 1994, Douglas Reger and Alan DePew visited SEL-215 in Berger Bay on Nuka Island (Figure 2). The site was thoroughly mapped in 1991 and deposits in the intertidal zone tested (Reger, et al. 1992: 7ff). The site was re-visited during 1993 and additional sediment samples from the intertidal zone collected to test for presence of petroleum

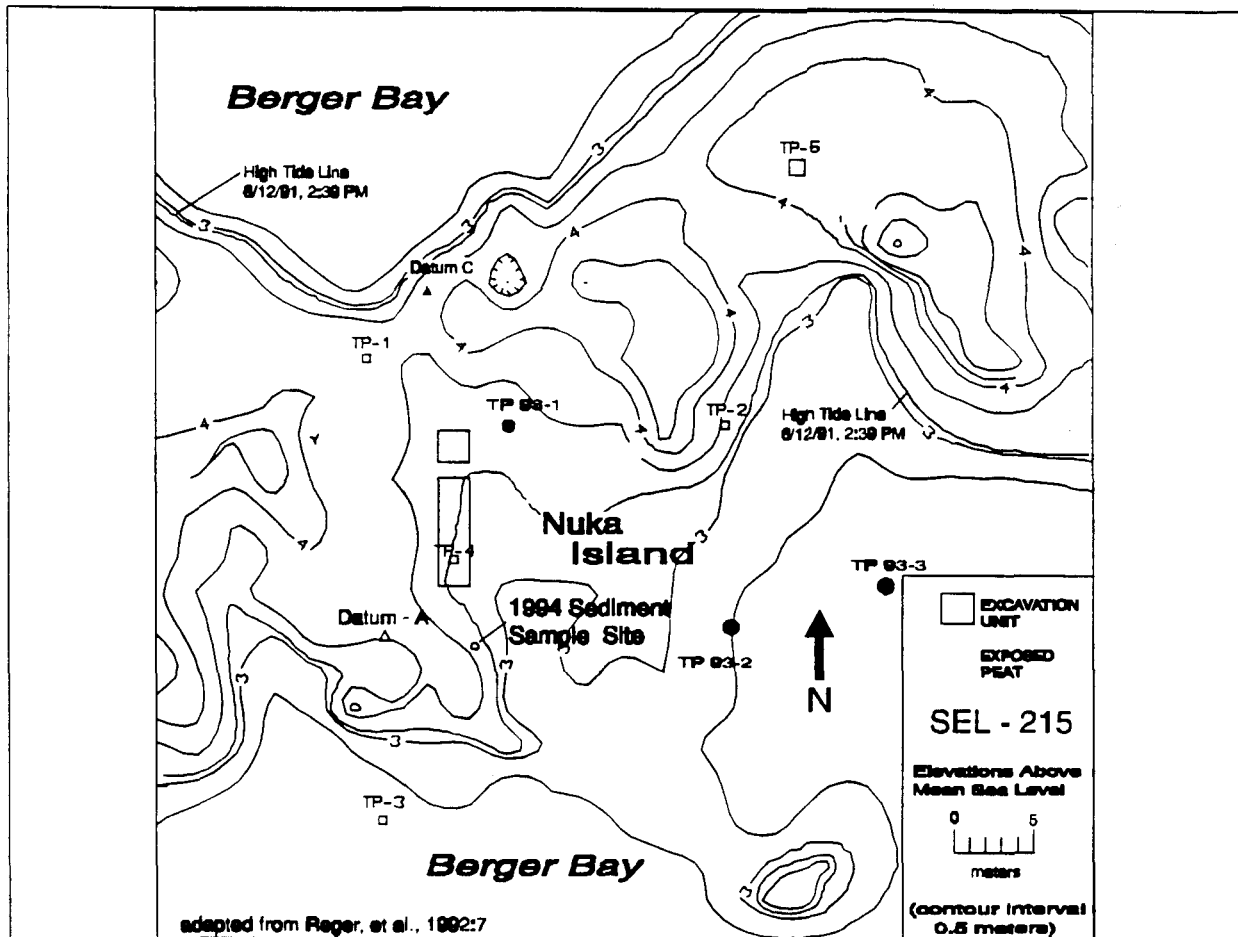


Figure 2: 1994 sediment sample location relative to 1991 and 1993 site features, SEL-215.

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 has occurred (Figure 3). The area south of the trench facing a small cove of Berger Bay had peat removed to a depth of at least 25cm. A remanent knob of peat, thickly interlaced with cut wood chips and some fire cracked rock was sampled to test for hydrocarbon (Figure 2). The sample was processed using the HNU-Hanby field test kit using the direct extraction method. Negative results indicate no detectable petroleum hydrocarbons are present.

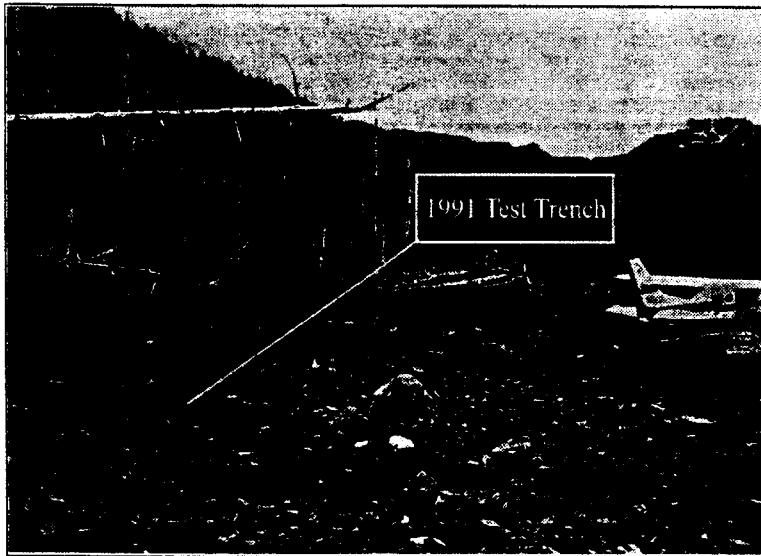


Figure 3. Eroded test trench from 1991 excavations, SEL-215.

the small bight in which SEL-220 is located. Time of the visit was about one hour before the mid-day high tide. Datum B from 1993 was re-located and a sediment sample collected and

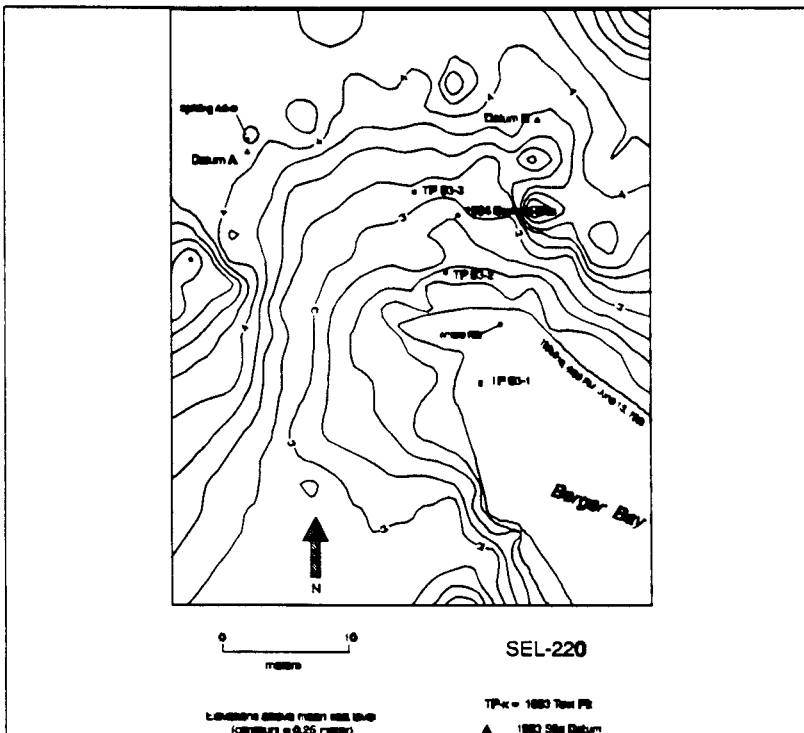


Figure 4: Location of 1994 sediment sample on site base map from 1993 site visit, SEL 220.

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° east of magnetic north (99° true azimuth) at a distance of 6.25 meters. The sample was collected from the top 5cm of exposed peat; wood chips and pebbles were removed prior to processing.

SEL-220 (Segment NK-004-B)

Following the visit to SEL-215, Reger and DePew examined the small bight in which SEL-220 is located. Time of the visit was about one hour before the mid-day high tide. Datum B from 1993 was re-located and a sediment sample collected and referenced to Datum B (Figure 4). The sample was located 15° west of magnetic south (220° true azimuth) at a distance of 10 meters. The sample location is well below the upper tidal limit.

The sediment sample produced negative results when tested for petroleum hydrocarbon using the direct extraction method with the HNU-Hanby field test kit. The sample was pure gravelly sand with no discernible organic component. No evidence was found indicating recent vandalism.

SEL-119 (Segment YP-002)

The SEL-119 site, last monitored during 1993, was

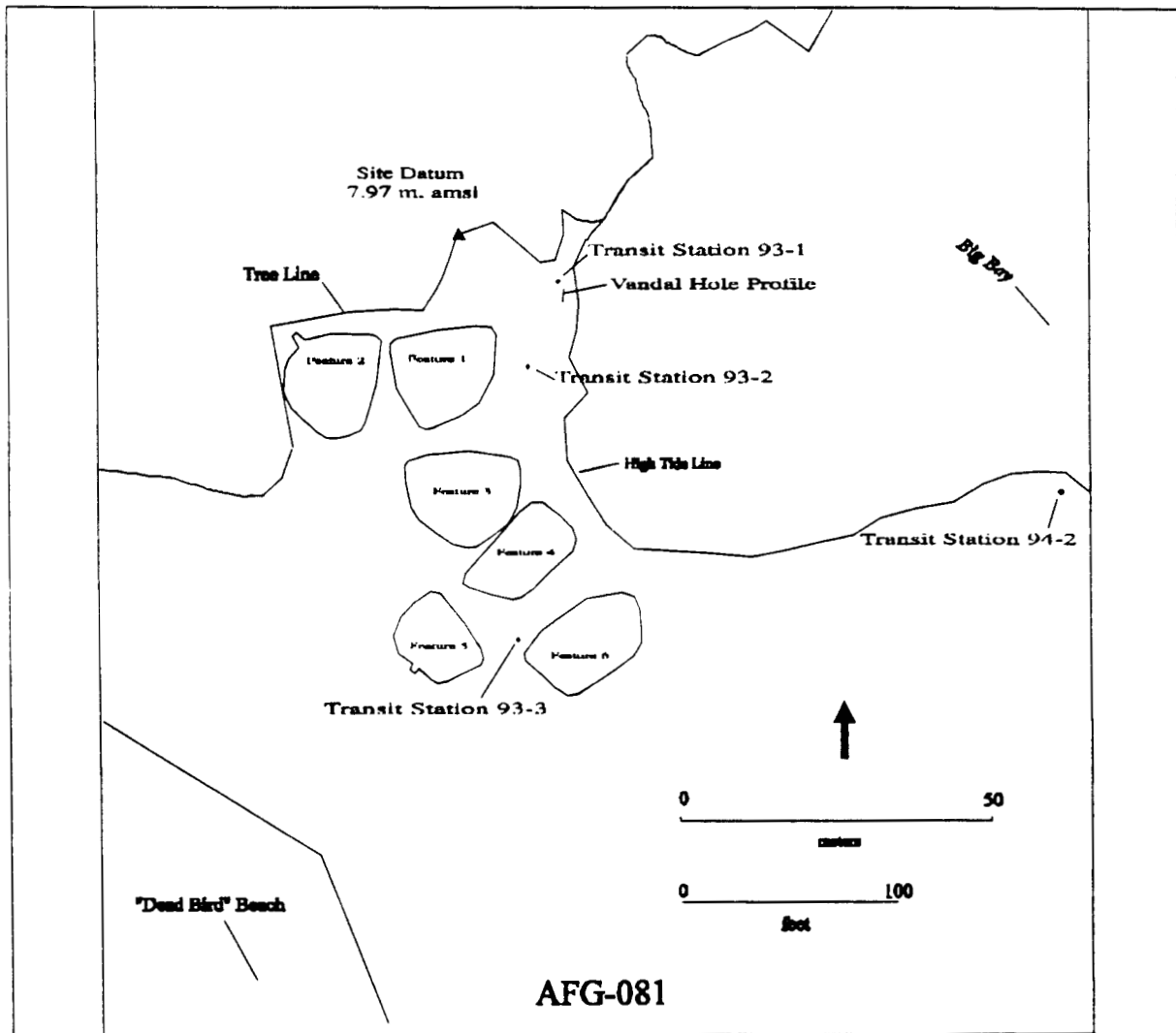


Figure 5: Map of AFG-081 displaying accurate relationship of treeline, beach, housepits and vandalism hole referenced to 1993 and 1994 site datum.

examined while checking nearby sites on Nuka Island. The site is easily approached and is therefore susceptible to vandalism. The site has suffered considerable damage from storm deposited gravel covering large areas of the site. Recent evidence of campers using house depressions for short term camps with camp fires was found, but no evidence was noticed of digging or any vandalism.

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

The Port Dick Cabin Site was scheduled for monitoring during 1994 but was not visited because of time and weather concerns. The site was mapped and sediment samples collected during 1993. However, the samples were not submitted for analysis with other samples by the National Park Service (the lead agency during 1993). Collection and storage

procedures used in obtaining the samples did not conform to the strict methodology required by the sample test laboratory. Because of logistic reasons the samples could not be frozen and stored within 24 hours of collection. SEL-178 will be visited during 1995 provided funding for a monitoring program is obtained for that year.

Shuyak Island

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

The Twin Creeks I Site was revisited in 1994 to monitor for possible vandalism and because damage had been reported to the site. 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 intertidal zone which were mapped during 1991 are now more exposed although the agent of exposure may be tidal rather than animal. No conclusive evidence for vandal activity was seen.

A drilled ivory pendant was surface collected from the intertidal 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.

AFG-097 (Salmon Cove Site; Segment BG-003)

The Salmon Cove Site is located near the mouth of an important salmon stream in Big Bay on Shuyak Island and is the camping location for many visitors. The site, which contains the remains of several cultural traditions was mapped in 1991 and has been monitored since. Campers continue to use the housepits for modern camps but there is no evidence of digging for artifacts or other vandalism.

AFG-081 (Segment WO-003)

The Office of History and Archaeology crew returned to the AFG-081 Site to do additional mapping of the site in order to reconcile prior mapping data from different sources. 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 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

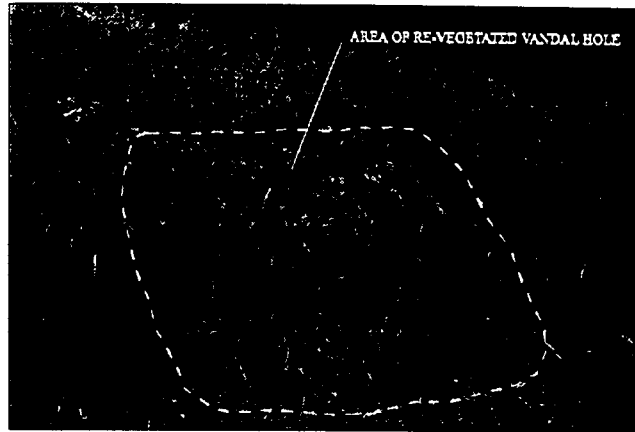


Figure 6. Area of vandalism hole in 1994, restored and re-vegetated during 1993, AFG-081.

site limit which is marked by the current treeline was surveyed and the beach vegetation edge of the cove to the east of the site was accurately surveyed. Measurements recorded during 1993 and 1994 were plotted to create the accurate map depicted in Figure 8.

The vandalism pit which was re-filled during 1993 was examined and no disturbance was noted since 1993. Vegetation is beginning to grow on the fill placed in the hole. The cut wall of the 1993 test pit is discernible but is stable and additional damage is not expected.

Radiocarbon samples collected during 1993 from the vandalized exposure (Figures 6 and 7) were processed since the 1993 report of State restoration activities was submitted to the lead agency. 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 calendric date of A.D. 1360. The measurement also gave secondary calendric dates of A.D. 1310 and A.D. 1380. 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 Late Koniag.

Two shallow depressions in the forested area north of the site mound were noted as possible house depressions. The subtle depressions are located in a shallow drainage about 50 meters northwest of the site datum.

Two test holes 0.5 meter in diameter were dug to depths of 1m where broken bed rock 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.

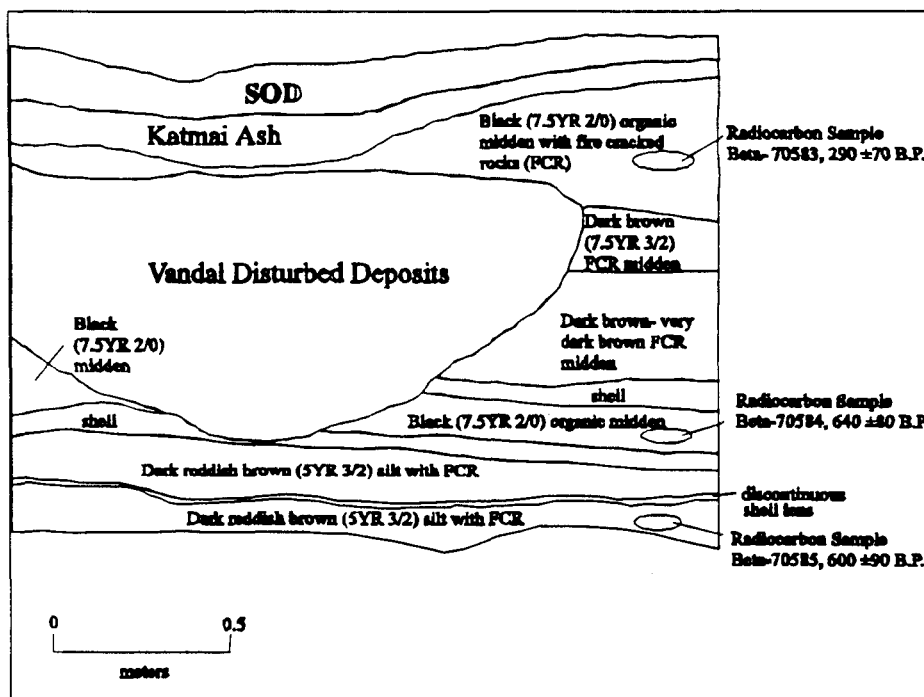


Figure 7. Stratigraphic profile of vandal hole with radiocarbon dates, AFG-081.

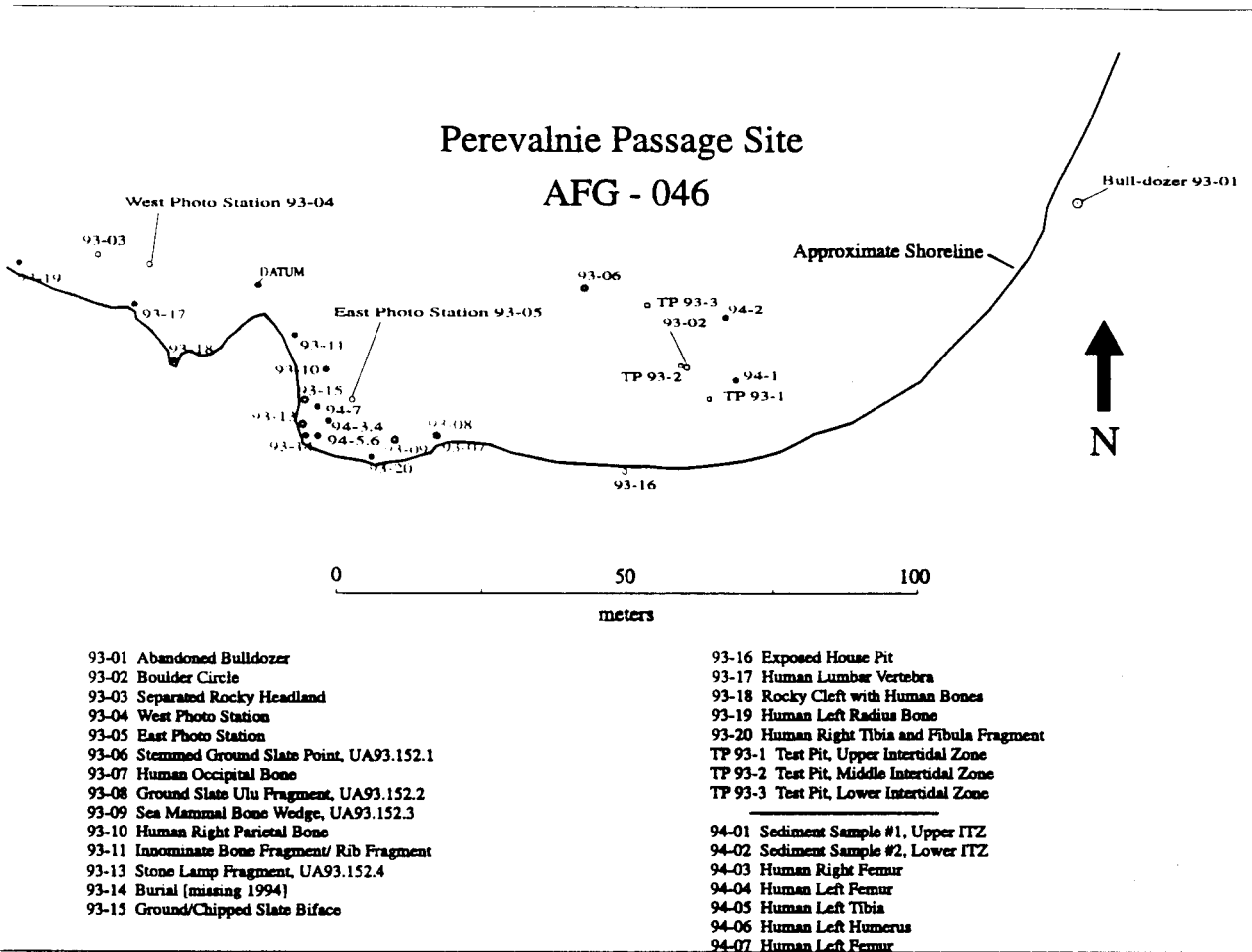


Figure 8. Perevalnie Passage Site, AFG-046, 1993 and 1994 collection locations.

AFG-046 (Perevalnie Passage Site: Segment SI-005-A)

The Perevalnie Passage Site was briefly visited during 1994 primarily because of poor weather. The site was visited August 6 and a number of artifacts and human bones were noted in the intertidal zone. Bones were mapped in with reference to 1993 East Photo Station (Figure 8 ,#93-05).

Table 1. Intertidal Locations, 1994, AFG-046

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

A burial documented in the exposed site sediments during 1993 (see item 93-14, Figure 8) did not remain in place in 1994. The scattered human bones in the intertidal zone are probably from that burial but that conclusion cannot be proved. No evidence was found to suggest vandals were responsible for the removal. A more likely agent of disturbance is seasonal storm waves or perhaps deer walking along the exposure. The bones were collected and placed in a protected cleft with other human bones near the west end of the site (see 93-18, Figure 8). No artifacts were mapped or collected although a number of pieces were present in the intertidal zone. None of the artifacts were distinctive and the out-of-context status made their scientific value much reduced.

The house floor exposed near the east end of the midden exposure of the site has been further exposed. Wood from the floor obviously protrudes 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, places the house floor in the appropriate time for late Kachemak Tradition.

Sediment samples (Items 94-01 and 94-02, Figure 8) were collected 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 direct extraction method.

PART II

1994 Archaeological Restoration at SEW-440 and SEW-488, Progress Report

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SEW-440 is on a tambolo west of a small headland in Northwest Bay, on Eleanor Island. SEW-488 is on a similar feature on northeastern Knight Island. Injury to SEW-440 was described as severe oiling, an increase in erosion of the prehistoric midden component as a result of foot traffic and high pressure water treatment during the cleanup response, displacement of archaeological resources during geological testing and an un-backfilled excavation in the horizontal surface of the site (Jespersion and Griffin 1992; McAllister 1992). Injury to SEW-488 consisted of oiling, and displacement of archaeological resources during high pressure water treatment and un-monitored cleanup activities (Jespersion and Griffin 1992; McAllister 1992). Erosion along three portions of the site was evident in 1991 (Dekin *et al.* 1993).

The project was designed to effect the restoration measures proposed by Martin McAllister (1992) for each of these two sites. These included a full field site damage assessment, and recovery, analysis, and curation of artifact for both SEW-440 and SEW-488, with additional backfilling and surface stabilization at SEW-440. Both sites have been "treated as being eligible for inclusion in the National Register" (Mobley *et al.* 1990:230),

although no formal determination of eligibility has been made at either site. In order to protect and preserve the remaining cultural deposits it is necessary to understand the nature of each site, and the extent to which the identified damage has compromised or destroyed information contained in the sites.

Although 15 days of restoration work were planned for each site, nine days were spent working at SEW-440 with a crew of five people, and nine-and-a-half days were spent working at SEW-488 with a crew of three people. Each site was documented photographically, and a contour map of each site was made by Forest Service surveyors, prior to the initiation of testing.

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

This site was heavily oiled and received high pressure water treatment. A sample taken for monitoring purposes on the southeast shore of the site in the intertidal zone indicated that fluid oil is still present under 20cm to 30cm of gravel.

The sandy gravel sample from SEW-440 in Northwest Bay of Eleanor Island 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° 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 bioremediated 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 is occurring along the pre-1964 beach and could easily be exacerbated by foot traffic. However, it does not appear to be occurring currently at a high rate and indeed it appears that the eroding areas are experiencing natural re-vegetation. In general, this site seems 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 were unknown. Restoration of the site included documentation of site limits. Prior to opening large test squares, 33 shovel test, each approximately 25cm², 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 extend 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 which 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 firecracked rock. While it appears that the bottom of cultural deposits was reached in several

of the tests at SEW-440, it is 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, from the southern-most square where some strata consisted of peat. The 171 other artifacts are all stone and none appear to be diagnostic. The prehistoric faunal remains from the site are 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. Only one charcoal sample has been analyzed so far, yielding a date of 1820 ±60 years before present (Beta-78758) for a strata containing what appear to be wood working tools, at 52cm below datum in a square containing at least 110cm of cultural deposits.

Although no house posts were found, it is possible that some of the deposits are 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, the activities which occurred at different locations in the site varied greatly. Faunal remains were most numerous from the middle square, whereas the densest deposits of firecracked rock were present in the northern-most square.

Interesting non-cultural strata are interspersed throughout several of the squares. What appears to be a layer of beach gravel is present in several squares, as is a thin layer of sand at a slightly lower level. In one square, the sand overlies what appear to be the remains of grasses. Pear formation was evident throughout the southwest part of the tambolo in many of the shovel tests, and occurred between some of the cultural layers in the southern-most excavated square.

SEW-488 (Louis Bay Lamp Site, Locus A; Segment KN-104)

The Louis Bay Lamp Site was oiled, and archaeological resources were displaced during high pressure water treatment and un-monitored cleanup activities (Jespersion and Griffin 1992; McAllister 1992). Erosion was noted by an assessment team in 1991 (Dekin *et al.* 1993).

Erosion of the intertidal zone component continues at this time, and several prehistoric cultural items were recovered from the surface of ITZ. There appears to have been no disturbance of the upland portion of the site beyond what may have occurred during cleanup activities, and during the course of testing for damage assessment. While erosion faces are present along the pre-1964 shoreline, their rate of erosion appears to be low and the surfaces appear to be re-vegetating.

A beach sample taken for hydrocarbon analysis showed no obvious evidence of oil in the intertidal zone at this site. The sediment sample was collected August 28, 1994, and was referenced to the 1994 northeast site datum. The extraction locality measured 23.30 meters on a bearing of 17⁰ from the northeast datum. Results of the HNU-Hanby field test kit, direct extraction process were positive for presence of petroleum hydrocarbons. The test indicated presence at a level of approximately 500-600 mg/kg of sandy gravel sample.

Because approximate boundaries were defined for this site during damage assessment no additional shovel tests were excavated. Using bearings and measurements recorded in

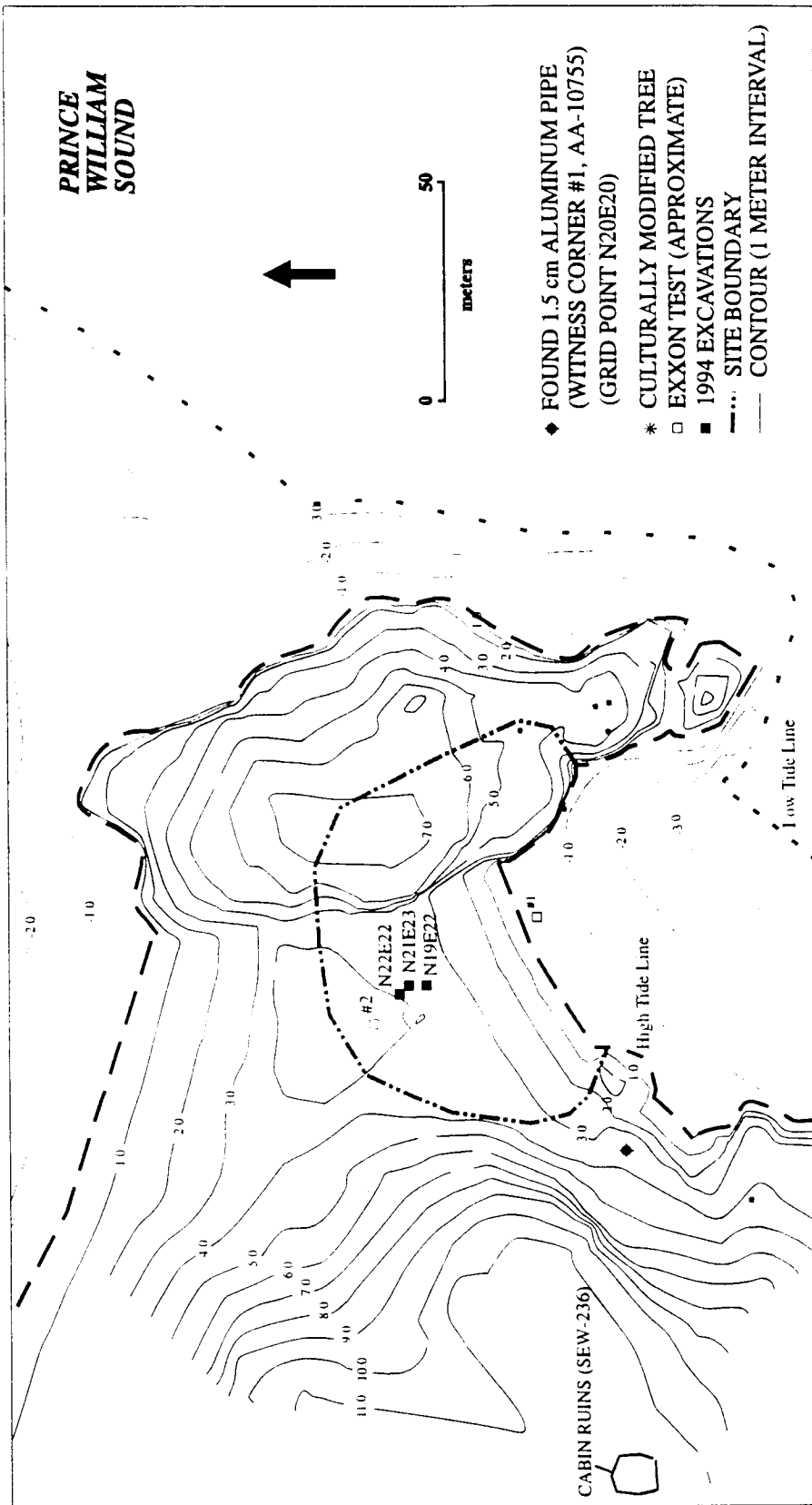


Figure 9: Contour map of SEW-488 displaying limits of site and test pit locations.

1991, the northeast corner of the Dekin, *et al.* test #1 was located. Although the general vicinity of assessment test #2 was determined, its precise location was not.

Three squares were excavated during 1994, revealing both historic and prehistoric components. Restoration tests were placed in a roughly north-south alignment, with the southern-most near the edge of the pre-1964 shoreline, and the northern-most near the vicinity of 1991 assessment test #2.

All three restoration tests contained historic strata, varying from 20cm to 30cm in depth. Beneath these were prehistoric cultural remains. Similarities to assessment test #2 include layers of beach gravel and in the northern-most restoration test, the presence of a silty layer which may be a tephra. Organic rich cultural remains were found, however, peats identified in 1991 test #2 were not present in any of the restoration pits. Wood preservation was good in the upper 30cm of the tests but wood in lower strata was significantly deteriorated, in contrast to findings in the 1991 test.

Over 100 historic artifacts and fragments, including metal, glass, and fabric items, were recovered from the restoration tests. Prehistoric artifacts could best be categorized as debitage and manufacturing tools for producing both stone and wood products. The one bifacial point which was recovered from a probable late prehistoric layer is not particularly diagnostic. Several pieces of red ochre were found in two squares.

Two small prismatic shaped pieces of ground stone are made of a fine-grained felsic tuff or chert. That material occurs rather uniquely as part of the Orca Group southeast of the Copper River Delta in the vicinity of the Martin River and Sheep Creek, and as an outcrop on Kayak Island (Joseph Kurtak, personal communication 1994; Nelson *et al.* 1985).

A California mussel shell found in the intertidal zone appears to be imported from a distant origin. *Mytilus californicus* is documented in the North Pacific Ocean, but on open, high energy coasts, and is rare in the North Pacific (Nora Foster, personal communication 1994). Whether this specimen was brought to SEW-488 from an area such as the outer coast of Kodiak or Montague Island, or from further south where the species is more common, it is nevertheless highly unlikely that the specimen would have occurred naturally where it was found.

Non-cultural items of interest include numerous pieces of pumice which were recovered from about 20cm to 30cm depth, within the historic strata. As there are no volcanoes within Prince William Sound, it is suggested that these may have washed

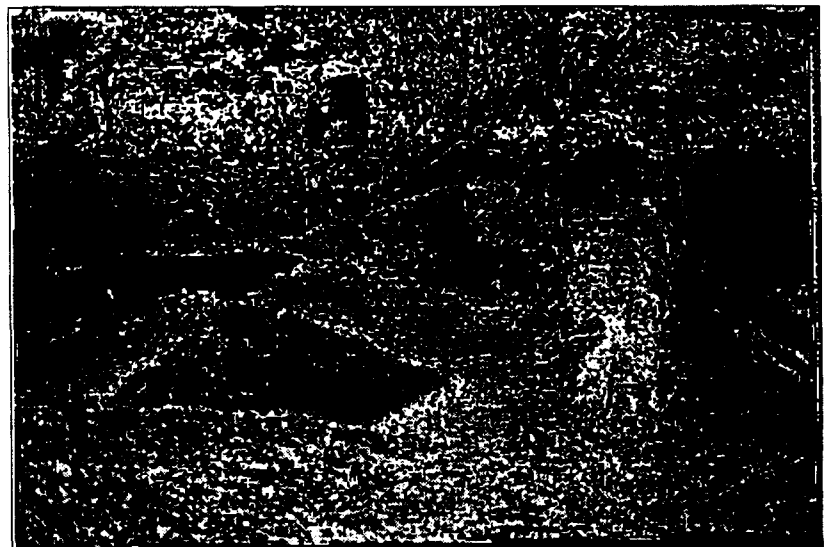


Figure 10. SEW-488, test excavations near the pre-1964 beach.

onto the shore of the site during a storm. They are currently being analyzed to find out which volcanic area and eruption may have produced them.

Two rock lined post holes were discovered at about 80cm depth in the northern-most of the restoration tests. Prehistoric structures are rarely found in Prince William Sound sites, and their designs and functions are poorly understood. They are rarely related to surface features which might indicate the presence of a building, unlike sites in Kodiak and Cook Inlet where structures are often indicated by surface depressions which are visible thousands of years after their abandonment. During her early surveys of Prince William Sound, de Laguna (1956:12, 19) found surface features at only two sites. She noted "several depressions, some opening into each other" on a gravel ridge at COR-081 in Constantine Harbor on Hinchinbrook Island and two rows of shallow pits at COR-041 on Hawkins Island. Surface features are present at SEW-056, in Esther Passage, but are not necessarily related to the subsurface house remains which exist at that site (Yarborough and Yarborough 1991). COR-001 on Hawkins Island does not have discernible surface features, yet has subsurface evidence of two houses. One house was over 9 meters long, with at least four house posts (de Laguna 1956: 43-44). The other, suggested to have been a small winter hut, was about 3 meters wide and 5.5 meters long. It contained a stone fireplace, a discernible mud or clay floor, and a wall marked by a line of four post holes (de Laguna 1956: 46-48). The post holes at SEW-488 are similar to those found at SEW-056 and COR-001, and are un-associated with any surface features.

Additional evidence of a structure at SEW-488 is a 5cm - 1cm thick layer of closely packed firecracked rock between 70cm and 80cm depth across the entire central square. A similar deposit in a portion of the southern restoration test may be part of the same structure.

The three restoration tests were excavated to depths of between 80cm and 110cm below the surface. As in the 1991 assessment work, there is no indication that this is the bottom of cultural deposits at the site. When coupled with the results of assessment test #1 in the intertidal zone during the 1991 damage assessment, where the lowest cultural occupation layers appear to be about 1.9 meters below the upland surface in elevation, it seems likely that the uplands deposits may continue for at least another meter.

Fewer faunal specimens were recovered at SEW-488 than SEW-440. However, the species present include harbor seal, rock fish, migratory ducks, and two types of clam.

Charcoal samples from SEW-488 have been submitted for analysis and will be reported in the annual report for 1995 fieldwork.

Comments about Prince William Sound Sites

Several questions remain unanswered for these sites at this time, some of which will be resolved through analysis. Radiocarbon dates of samples from the excavated remains should be available within the next month to help address the question of the age of various strata. Analysis within the next few months of geomorphological data gathered during the field season in the vicinity of these sites will provide a better understanding of the shoreline history of the area. Continuation of the artifact analysis will result in more knowledge of the activities at these sites, the cultural affinities of the inhabitants, and their technology. Faunal analysis, especially of the relatively abundant remains from SEW-440, should provide more

information on the prehistoric subsistence base, and possibly the seasonality of the occupations.

Depth of deposits has yet to be documented at both SEW-488 and SEW-440, information which can only be obtained through additional excavation. This is a basic question which affects our understanding of the age and nature of the site deposits, and which simply requires more field time than was available for this work during the 1994 field season. The design and function of the structural remains at SEW-488, and possible structure remains at SEW-440, are still unknown. While the presence of deteriorated structures is certain for the former and suggested for the latter, their use at these sites, and their cultural affinities can only be clarified by additional testing. The small amount of fauna recovered at SEW-488 hints at the subsistence base and activities of the site inhabitants, but in terms of understanding the nature of the site, a large sample is preferable for statistical validity.

The goal of all field site damage assessment has been addressed at both SEW-440 and SEW-488. Five years after the initial damage at the sites, the intertidal zone of SEW-440 remains oiled below the surface, and the intertidal zone of SEW-488 is still eroding. Erosion of the upland portions of the site appears to be minimal at this time. Rates of upland erosion will be monitored during the 1995 field season, with stabilization if necessary. The un-backfilled excavation at SEW-440 described in the injury reports (Jespersion and Griffin 1992; McAllister 1992) could not be located.

The restoration goals of documenting content at each site, and the extent to which cultural remains were damaged or destroyed was partially met during the 1994 fieldwork. Cultural materials were recovered from both sites. The availability of a larger crew during work at SEW-440 allowed testing of a greater area than at SEW-488. A variety of questions still remain for both sites, but additional testing at SEW-488 is especially crucial for understanding what appears to be a complicated and potentially important site. Analysis is continuing at this time on materials from both sites. With completion of analysis, and monitoring of erosion at the sites during the coming field season, it should be possible to address the protection and preservation of the remaining cultural deposits. Curation of artifacts from both SEW-440 and SEW-488 will not take place until analysis is complete, which is expected to be later in 1995 for SEW-440 and sometime in 1996 for SEW-488.

**1994 National Park Service
Archaeological Site Specific Monitoring**

Jeanne Schaaf
Pat McClenahan
Richard Bland
National Park Service

Under the aegis of, and in conformance with, the general work plan for Site Specific Archaeological Restoration, the U.S. National Park Service (NPS) began site specific archaeological restoration at three archaeological sites, Kaguyak Village Site (AFG-043), the McArthur Pass Site (SEL-188), and the Cape Gull Cove Site (XMK-058) in 1993, and

continued restoration activities during the 1994 field season (Figure 1). Two of the sites, AFG-043 and XMK-058, are located within Katmai National Park and Preserve. The third site, SEL-188, is located within Kenai Fjords Nation Park. To date, these three sites represent the only NPS sites that have been documented as injured and still require restoration action (Jespersion and Griffin 1992; McAllister 1993).

XMK-058 (Cape Gull Cove Site; KOD/K09-22, Segment CG-001)

XMK-058, which is located on the western shore of Shelikof Strait, consists of prehistoric midden, three house depressions, four small depression features, and a scatter of intertidal artifacts. The site was heavily oiled during the *Exxon Valdez* spill incident, was subject to minor vandalism, and suffered further injury during the oil spill response activity. The restoration measures recommended include full field site damage assessment, physical restoration, and oil effect monitoring.

During June, 1994, NPS archaeologists Pat McClenahan, Roger Harritt, and Richard Bland visited the Cape Gull Cove Site and collected soil samples for hydrocarbon testing. The team investigated three previously disturbed locations believed to be looter's holes by excavating two 1m x 1m holes. The third hole was discovered to be a shallow depression created by bears. In fully excavating the 1m x 1m units, the team looked at cultural stratigraphy and sought charcoal samples for radiocarbon dating of the site.

The three disturbed locations examined were designated as "Disturbance 5", located near Features 6 and 7, "Disturbance 9" near Feature 5, and the non-human disturbance near Feature 1. The latter disturbance did not penetrate the overlying Katmai Ash and no test excavation was made.

At "Disturbance 5", the test pit was excavated to a depth of 1m below the ground surface. Stratum 1 reached a depth of 24cm below ground surface and produced a single mammal bone. That stratum was comprised of a thick root mat overlying the Katmai Ash. The dark brown sod layer contained small pockets of beach sand, mollusk shell fragments, a piece of bone, and a few pieces of fire cracked rock. Stratum 2, composed of beach sand and organics, extended to as much as 50cm below ground surface. It contained a small disk-like object of wood or pumice measuring 4cm x 4cm x 1cm in maximum dimension. Also recovered were a clam shell, a mammal bone and a piece of fabric or animal skin. The disturbance extended to the bottom of this stratum but did not pass through the Katmai Ash.

Stratum 3, primarily Katmai Ash, extended to about 82cm below the ground surface. It contained lenses of organics as much as 3cm thick. Also in the Katmai Ash were several cobbles. Since these items all fall within the Katmai Ash, it must be assumed they are of post-1912 deposition. This test probe was excavated to a depth of about 1m. At approximately 82cm below ground surface, wood was encountered which appear to be drift logs under the Katmai Ash.

The test probe at "Disturbance 9" was excavated to a depth of 1.88m below the ground surface. The top 45cm consisted of sod (5cm thick) and Katmai Ash (40cm thick), neither of which contained cultural remains. However, the stratum from about 45cm below ground surface to 1.88m below the surface consisted of a midden of fire cracked rock in a matrix of dark brown organic soil. The soil midden contained mammal, fish and bird bones, mollusk shells, charcoal and artifacts. Samples of bones, shells, charcoal and soil were

collected, as well as a small barbed bone point, a spear or harpoon fragment, a rib flaker, two pieces of worked bone, a fragment of sawn slate, a notched cobble sinker, and four probable hammerstones. Below a depth of 1.88m was a stratum of yellowish-brown tephra containing numerous stones. This stratum was devoid of cultural materials.

Evaluation of the collected materials (fauna and charcoal) is presently being conducted. Initial assessment of the site indicates that a large number of rocks were heated to the point of fracture and that the diet of the people who cooked consisted of large and small mammals, birds, fish, and mollusks, some of which they obtained with barbed points and spears or harpoons. One small red jasper flake and rib flaker indicate that at least some stone tool modification was conducted at the site.

AFG-043 (Kaguyak Village Site; KOD/K09-17, Segment CC-003)

The planned visit to the Kaguyak Village Site was, unfortunately, prevented by a storm which made anchoring of the base ship and landing on the exposed beach too dangerous to attempt. The monitoring effort was postponed to subsequent visits.

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 of 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 further tested in 1990 and 1991 (Betts, *et al.* 1991; Dekin, *et al.* 1993). Radiocarbon dates ranging from 1710 ±120 BP to 560 ±50 BP have been 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 (Jespersion and Griffin 1992; McAllister 1992). The *Site Specific Archaeological Restoration Project (93-006)* was approved by the *Exxon Valdez* Oil Spill Trustees, with the goal of ameliorating injury to archaeological sites that were impacted by oiling, oil spill cleanup, or vandalism as a direct result of the *Exxon Valdez* oil spill event. As extensive work previously done at SEL-188 is considered to have accomplished other restorative measures (Betts, *et al.* 1991; Dekin, *et al.* 1993), the only restoration measures to be addressed was oil effect monitoring. During 1993, site documentation photographs were taken from a number of stations and sediments samples were collected for oil effects monitoring analysis (Klingler 1993).

On May 26 and 27, 1994, archaeologist Jeanne Schaaf conducted work at the McArthur Pass Site in Kenai Fjords National Park (Figure 11). She conducted a reconnaissance of the site and relocated the 1989 upland (Zollars) test pit, which is well vegetated with moss and barely distinguishable from the surrounding vegetation. Dekin's Test #1 near the stream is well backfilled and partially covered with moss and granite spalls. Using the SEL-188 site map (Figure 10) 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. In several cases, numbered putty dots are also present on the boulders bearing the metal bolts and may help in locating the bolts. A sketch map on file with the NPS Coastal Programs Office shows the locations of the fixed plots marked by the steel bolts and washers and the putty dots.

Sample Unit A measures 8.8m at 271° (magnetic) from bolt #2 (putty dot #3 is 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* measures 7.6m at 180° (magnetic) from bolt #3 (putty dot #6 is located on this boulder) and 8.3m at 139° (magnetic) from bolt #2 (putty dot #3). This unit is in the mid-intertidal zone. *Sample Unit C* measures 6.8m at 100° (magnetic) from NPS REP (*Note:*

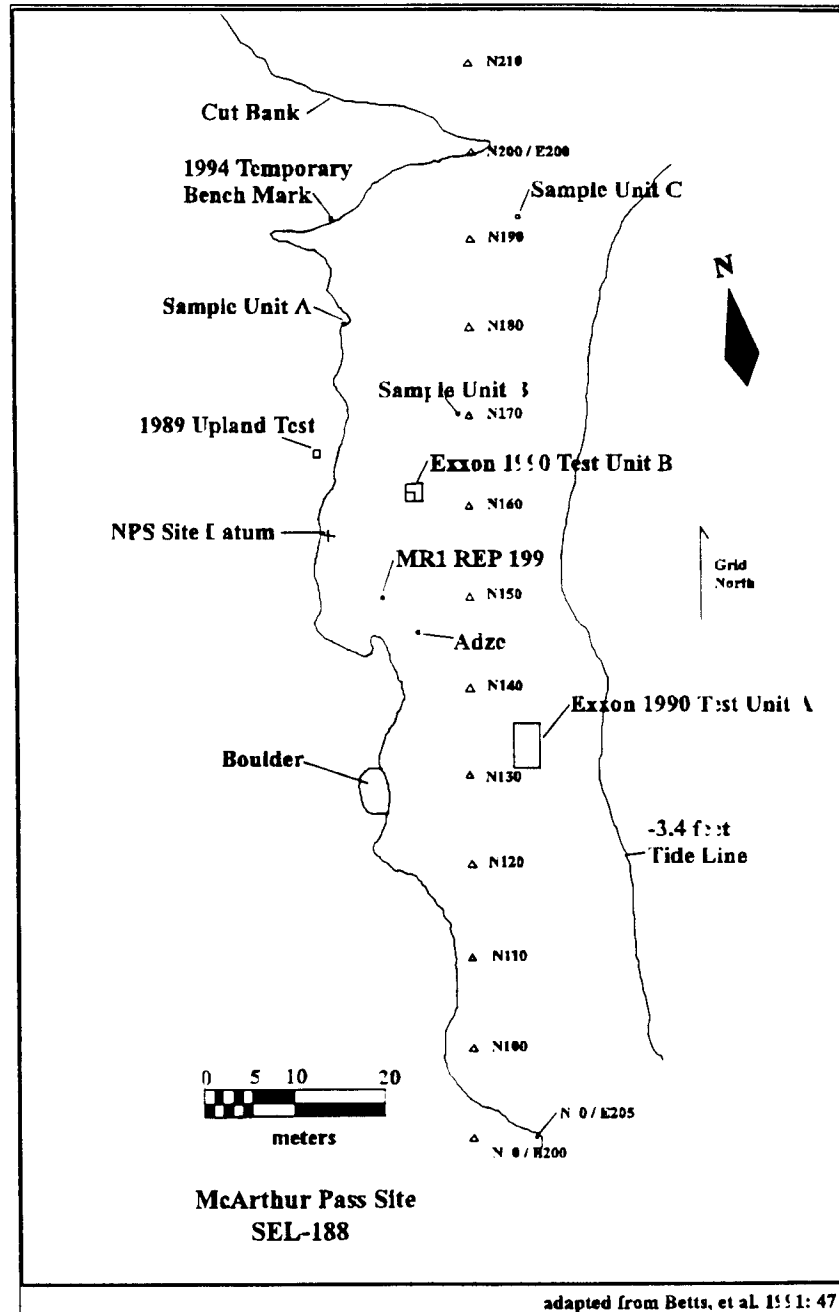


Figure 11. 1994 sample locations at the McArthur Pass Site, SEL-188.

REP 199: putty dot #1 is located on this boulder) and 5.2m at 358° (magnetic) from bolt #7 (in the *Fucus* zone). This unit is 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 2. SEL-188 Reference Point Elevations

Station	Height above MLLW (feet)
NPS Temporary Bench Mark A-1	18.92
NPS Temporary Bench Mark A-2	19.55
NPS Temporary Bench Mark A-3	20.60
NPS Site Datum	15.65
Sample Unit A	15.93
Sample Unit B	7.30
Sample Unit C	2.48

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 hammerstone was collected from the beach about 350-500 meters east of the eastern boundary of SEL-188. That is the approximate location of the site reported in 1990, but it is likely that the entire cove was utilized prehistorically, and the hammerstone may represent one small use locality. The hammerstone 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 hammerstone 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.

Schaaf was unable to find the splitting adze reported on the beach by Klingler in 1993. The exact reported location was relocated from Klingler's map and photographs and a 4m square area surrounding the location was searched. An oval green hammerstone was found and photographed 20cm from the reported adze location but was not collected.

Sediment samples from Sample Units A, B, and C were collected at low tide between 11:30 AM and 11:50 AM. The following samples were collected according to the directions given in the 1994 Work Plan, placed in a cooler and have since been stored in a freezer awaiting analysis.

Table 3. Sediment Sample Collection Data

Sample#	Field#	Date	Matrix	Method
5003-01	SEL188 1	5-27-94	Control	Hand
5003-02	SEL188 A/3A	5-27-94	Sediment	Spoon
5003-03	SEL188 A/3B	5-27-94	Sediment	Spoon
5003-04	SEL188 B/2A	5-27-94	Sediment	Spoon
5003-05	SEL188 B/2B	5-27-94	Sediment	Spoon
5003-06	SEL188 C/4A	5-27-94	Sediment	Spoon
5003-07	SEL188 C/4B	5-27-94	Sediment	Spoon

A photographic record of the current status of the site was recorded from all of the stations established in 1993 with the exception of the photo station at N90/E205. The photographs, slides, negative and photo logs are on file in the Cultural Sites Inventory photo files at the NPS regional office.

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