Archeology, National Natural Landmarks, and State Game Sanctuaries: Combining Efforts for Science and Management

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The sanctuary and the National Natural Landmarks program

THE WALRUS ISLANDS STATE GAME SANCTUARY AND NATIONAL NATURAL LANDMARK (NNL) in Bristol Bay, Alaska, comprises a group of seven small islands about 63 miles southwest of Dillingham. During the 1950s, declining population numbers of the Pacific walrus *(Odobenus rosmarus)* caused a great deal of concern about the future of the species. As a result, the state game sanctuary was established in 1960 "to protect the walruses and other game on the Walrus Islands"; it is managed by the Alaska Department of Fish and Game (ADF&G). Eight years later, the Walrus Islands National Natural Landmark was established to add nationwide recognition of the importance of this area for its concentration of Pacific walrus, with Round Island in particular serving as a summer haul-out for male walruses (see cover photo, this issue). It is one of the most southern of the walrus haul-outs and, at the time of establishment of the sanctuary and the NNL, it was one of the few remaining annual haul-outs in Alaska (and perhaps the only one consistently in use). The Walrus Islands are open to public access, but visitors to Round Island must obtain an access permit prior to arriving.

The National Natural Landmarks Program recognizes and encourages the conservation of outstanding examples of our country's natural history. It is the only natural areas program of national scope that identifies and recognizes the best examples of ecological and geological features in both public and private ownership. The program was established by the secretary of the interior in 1962, under authority of the Historic Sites Act of 1935. NNLs are designated by the secretary of the interior, with the owner's concurrence. To date, fewer than 600 sites have been designated. The program aims to encourage and support voluntary preservation and to strengthen the public's appreciation of America's natural heritage. The National Park Service administers the NNL program, and, if requested, assists NNL owners and managers with the conservation of these important sites.

Project description

A recreational trail grant application for trail and access improvements for the ADF&G operations at Round Island prompted a National Historic Preservation Act Section 106 review by the Alaska Department of Natural Resources' Office of History and Archaeology (OHA). It was determined that the proposed improvements could have adverse impacts on the

Qayassiq ("Place to go in a kayak") archeological site (no. XNB-043), adding to damage that had already occurred during the past 35 years of operations. OHA recommended that work should be done to determine the site boundary, assess existing damage to the site, conduct clearance investigation for any planned ground disturbance, and map the site as accurately as possible so that future impacts would be minimized. OHA concurred that the NPS would provide archeological expertise through an existing cooperative agreement between ADF&G and the NPS NNL program. NPS agreed to provide a complete report of activities and results, including an assessment of site significance for National Register purposes, and to catalogue any collections following the established procedures of the state repository at the University of Alaska–Fairbanks.

The physical and historical setting of Round Island

Round Island is located in northern Bristol Bay, midway between Hagemeister Island and the Nushagak Peninsula (Figure 1). The southeastern-most island in the group, Round Island is shaped like a "D" with a 1.5-mile-long narrow spit extending northwest from its spine (see cover photo). Sheer-walled, granodiorite cliffs rising to an elevation of 1,400 feet encircle the island, except for a low bench along the northeast shore. Only 1.3 square miles (735 acres) in area, Round Island is seasonally home to as many as 14,000 walrus (the highest number counted in a single day, in 1977), hundreds of Steller sea lions, and 250,000 nesting seabirds. Grey, humpback, minke, and orca whales pass by in the spring on their migration north, sometimes feeding offshore.

Round Island is within one of Bristol Bay's principal spawning areas of herring and yellowfin sole; all five species of Pacific salmon are found here (Sinnott 1992). Over 100 species of birds have been documented on Round Island. The vegetation is a mosaic of wet and dry tundra, meadow, and herb communities. The site area is classified as a bluejoint grass meadow (Hasselbach and Neitlich 1996:11).

While the entire area that is now Bristol Bay was under glacial ice during the maximum extent of Pleistocene glaciations, ice during the last (late Wisconsin) glacial maximum 20,000 years ago was confined in this area to the Ahklun Mountains north of the Walrus Islands and to the Alaska Peninsula. The Walrus Islands were high ground, overlooking part of the vast southern Bering

Figure 1. Approaching Round Island from the east. Site XNB-043 is located to the right of the island shore center.

Land Bridge plain, exposed when sea level was 120 meters lower than it is today. As the plain flooded and the land rebounded from the weight of the ice, areas of high ground became increasingly smaller islands, reaching their present configuration by 2000 years ago when sea level was within one meter of modern levels (Manley 2002). Some terrestrial mammals important to early prehistoric hunters survived for a time on at least some of the islands after the land bridge flooded. Mammoth remains from the Pribilof Islands have been radiocarbon-dated to around 8000 years ago (Guthrie 2004) and to as late as 5700 years ago (D. Veltre, personal communication). The Walrus Islands were still connected to Hagemeister Island and the mainland 8000 years ago when sea levels were about 14 meters below modern levels. By 6000 years ago, the earliest known prehistoric occupation of Round Island, sea level was within 10 meters of today's level and Round Island became separated from the other islands and the mainland (NOAA 1988).

Round Island was named by Captain James Cook when he sailed across Bristol Bay, briefly stopping at Cape Newenham, in 1778 (Kowta 1963:11–12; Fall et al. 1991:7). Nearby Togiak Bay was bypassed by most early exploration, until 1818 when Fort Alexandrovsk (Novo-Aleksandrovskii) was established at Nushagak (Fall et al. 1991). The post was relocated to the west coast of Hagemeister Island for just a year in 1821 and then moved back to Nushagak (Bailey 1991:14). Petr Korsakovskiy visited Summit Island in 1818 and reported that the people of the Togiak River traveled to the Walrus Islands to pick berries and had temporary shelters on them (VanStone 1988:38, 48).

A. Schanz, traveling in 1890 by bidarka along the coast from the Kuskokwim River mouth to Nushagak, noted that the people of Togiak Bay were relatively primitive despite the commercial activities in the bay (Kowta 1963:17). The transition for Togiak residents from sea mammal hunting with skin boats and hand-held harpoons to guns, wooden boats, and outboard motors occurred during the 1930s and 1940s (Fall et al. 1991:8). Round Island was a primary walrus hunting site for them before and after the transition until it was closed to hunting in 1960. Walrus were shot from motorized skiffs and butchered at rocky haul-outs along the shore, with the meat returned to the village in one day, weather permitting (Fall et al. 1991: 9, 11–12). The other Walrus Islands and the coast from Togiak Bay to Cape Newenham are also traditional hunting areas for walrus and other sea mammals, used until the bay freezes and resuming on the sea ice in early spring (Chythlook 2006).

When established in 1960, the Walrus Islands were the first state game sanctuary to be designated and legislators were unaware of the importance of Round Island to local subsistence hunters (Sinnott 1992). After closure of the island to hunting, Togiak hunters began hunting from boats in open water, which resulted in the loss of many of the struck animals and in a corresponding loss of cultural tradition. The Togiak Traditional Council petitioned the Alaska Board of Game in 1991 for the right to hunt a limited number of walrus on Round Island. The ADF&G Subsistence Division prepared a comprehensive report on the history of walrus hunting by the Togiak community (Fall et al. 1991). In 1995, the Board of Game approved limited

access to Round Island for hunting, and the first hunt since 1960 was held.

Previous archeological research at Qayassiq and vicinity

A village site at Round Island, now known as Qayassiq, was first reported to the OHA by ADF&G because employees had encountered artifacts when constructing a cabin, outhouse, and garden in 1976 and later (Alaska Heritage Resources Survey file). The site was observed from an overflight of the island (Klingler 1983) and was visited briefly on the ground by the state archeologist in 1986. A large village site was surveyed and mapped at this time. No testing was done, but check- and linear-stamped pottery were noted in the sediments disturbed by the garden excavation (Bailey 1991:25). Artifacts were collected from the surface and fit with Norton-tradition assemblages found on Crooked and Summit islands (Shaw 1998:238). This investigation "found evidence of at least 2,200 years of intermittent occupation of a major village.... The site was occupied until at least late prehistoric times..." (Fall et al. 1991:6).

The only previous archeological work reported within the Walrus Islands group were surveys and testing done in 1982 and 1985 on Summit Island, located just off the mainland coast, about 19 miles north of Round Island (Shaw 1986). Five prehistoric sites were documented in the central portion of Summit Island with radiocarbon dates ranging from 2460 to 610 years BP (before present, with "present" being 1950 AD; Shaw 1986:5). The island was occupied intermittently beginning 2500 years ago, during a time when large village sites affiliated with the Norton tradition became widespread along the coast of western Alaska. Shaw proposed that this pattern resulted from "a major population increase associated with innovation in net fishing technology (and perhaps means of food storage) that resulted in a florescence of the Norton tradition (Shaw 1986:3)." The Norton tradition in this region spans about 1500 years. Its traits, among many others, include thin, well-made ceramics, with fiber or sand temper and often decorated with linear or check stamping; square or rectangular houses; notched stone net sinkers; stone lamps; small, bifacially flaked side and end blades; and some use of ground slate (Workman 1982:104–105). Later and smaller settlements documented on Summit Island were found to be affiliated with the Thule tradition and other late-prehistoric occupations. From all appearances, it was expected that a similar culture history would be represented at the large village site on Round Island.

Sites on several of the other islands in the sanctuary were identified from the air by keying in on visible surface depressions and the occurrence of bluejoint grass *(Calamagrostis canadensis),* which is known to commonly grow on archeological sites and disturbed areas. Widespread vandalism of the large villages on these islands was also reported. The Alaska state archeologist emphasized that the archeological sites in the Walrus Islands group and on the nearby mainland required protection and further investigation because they contained information vital to the understanding of Alaska's prehistory from the beginning of the Norton tradition (Shaw 1986).

The late prehistory and history of this immediate area is best told in the report (Kowta 1963) of the 1960 excavations at

Old Togiak, which lies about 35 miles north-northeast of Round Island (the modern village of Togiak now has a population of about 800, over 86% of whom are Alaska Natives). Kowta's analysis of the occupations and artifacts dating from 1000 AD to 1700 AD showed the following seasonal activities, with emphases on land and sea hunting, fishing, and shellfish collecting becoming increasingly important through time:

- Winter: ice fishing with spears and lures and probably also hook and line; fox trapping increasingly important through time; little evidence of netting seals under the ice; sea mammal hunting using harpoon dart and atlatl.
- Spring: ice-edge seal hunting with hand-held harpoons; bird snaring, hunting, and egg collection probably occurred but are not represented in the archeological record.
- Summer: fishing predominant, with bear hunting and sea mammal hunting using kayaks also occurring.
- Late Summer/Fall: caribou hunting; probably molting bird hunting and berry collecting (Kowta 1963:453–455).

Kowta wrote that the people of Old Togiak were

> able craftsmen and craftswomen working in a number of industrial media. They made pottery.... They worked stone, particularly slate, into a number of specialized blades for tools and points for projectiles. They wove grass into baskets, matting and bags. Under their practiced fingers hides were fashioned into articles of clothing and containers for liquids. Wood was fashioned into a wide variety of household furnishings, shafts of weapons, and frames of sleds and water crafts. For numerous small articles that required a material that was sturdy yet workable with blades of stone or the sharp incisors of animals, they turned to bone, to ivory, or to antler (Kowta 1963:472).

Survey and testing

ADF&G staff provided information about the history of operations at the site, including names of previous employees who may have information about artifacts found during the original ground-disturbing activities. They gave a thorough orientation to the area and identified and flagged areas of previous disturbance, such as infilled outhouses and garbage disposal areas, for mapping.

An initial survey of the established trails and the area from the boat landing to the cabin was conducted. All archeological surface features were then numbered and flagged prior to mapping with the GPS system described below. Two permanent site datum markers—18-inch rebar with 2-inch aluminum caps marked XNB-043 A and XNB-043 B—were set for future reference. Limited probing with an Oakfield soil probe was done along the trails where they crossed archeological features and at selected overlooks.

ADF&G wanted locations identified for two new outhouses that would not impact cultural resources, one by the cabin and the other near the existing outhouse in the campground. Reasoning that the garden, a 5.6x12-meter rectangular area, was a completely disturbed zone, ADF&G planned to build a new cabin there and to use the existing cabin as a storage shed. Therefore, Test 1, a 0.5x0.5-meter test unit,

was excavated adjacent to the garden disturbance in order to record the undisturbed stratigraphy and to characterize the cultural deposits destroyed by the garden excavation (Figure 2); Test 3, a 1.0x1.0-meter test unit, was placed in the garden about 4.0 meters north of the current outhouse in order to identify any undisturbed deposits below the garden and to clear a place for the replacement outhouse. Test 1 and the intact sediments below the garden disturbance in Test 3 were excavated by troweling and the sediments were not screened. Because of the uneven and sloping ground surface, depths were measured from a line level set at an arbitrary height above the ground surface and recorded as centimeters below datum (cmbd). No other tests were excavated.

Test 2, a 0.5x0.5-meter test unit located 10 meters north of Test 1, was opened but not excavated because lithic flakes were encountered within the sod layer, indicating substantial cultural deposits that could not be excavated in the short time available. The two grey chalcedony secondary flakes were photographed and left *in situ* and the sod was replaced. Test 4, a 0.9x0.9-meter test unit located about 4 meters south of the existing campground outhouse, was opened in order to clear a location for the replacement outhouse, but it was not excavated because of the dense concentration of artifacts occurring in the roots of the thick grass sod. The artifacts that were disturbed by the sod removal were collected then the sod was replaced. They are described in the following section. Sod was peeled back in three other locations in the cabin area but the tests were not excavated due to the presence of lithic flakes just beneath the sod for two of the locations and due to the presence of water just beneath the sod in the third location. No suitable alternative outhouse locations were identified because our limited exploration indicated that any well-drained area contained substantial cultural deposits located immediately below the vegetation in the cabin and campground areas.

The artifacts and other samples collected from archeological deposits were taken to the Lake Clark Katmai Studies Center and cleaned, accessioned, and catalogued. Unmodified flakes and bone from each excavation level were catalogued in lots rather than individually.

Figure 2. Test 1 is in the foreground at the edge of the garden disturbance area, marked by the green rectangular area. J. Alderson is standing at the location of Test 3 in the garden, north of the current outhouse.

Mapping

GPS data collection methods and processing. The locations of modern infrastructure, archeological features, and walking trail centerlines were collected using a Trimble Pathfinder ProXR GPS mapping-grade receiver. All data were post-processed and differentially corrected using the Cold Bay Continual Operated Reference Station (CORS), a U.S. Coast Guard real-time DGPS station located approximately 200 miles south of Round Island. The intent of mapping was to record any archeological features found in the area and provide base maps of current and historical features (e.g., cabins, outhouses, trails) to give a map context of the relationship of modern and prehistoric features.

Equipment used for mapping included one Trimble Pathfinder Pro XR beacon receiver with a TSC-1 datalogger and Asset Surveyor 5.27 datalogging software. A GPS antenna was mounted above head height and equipment was placed in a backpack for data acquisition while walking. Attributes were collected using a data dictionary after collaboration with field experts in both archeology and visitation to Round Island. Final data dictionary edits were conducted and the data dictionary file (roundis_v1.ddf) was transferred into the datalogger for use. GPS quality controls for PDOP mask, signal to noise ratio (SNR), and elevation mask were set to 6, 4, and 15 respectively. Line and area features were collected at a 5-second logging rate, while all point features were logged at 1-second intervals and averaged for a minimum of three positions.

Thirteen data files were collected between May 31 and June 1, 2004, stored on the TSC-1 datalogger, and later transferred as proprietary SSF files to Trimble Pathfinder Office version 2.9 software at the conclusion of the field trip. As noted above, data were differentially corrected against the CORS at Cold Bay. Over 85% of the datasets were corrected using the differential utility. Although no survey control was occupied during the field acquisition time, previous experience with this same equipment under open-sky conditions have revealed horizontal accuracy within a meter for point features occupied for at least 10 seconds. Heights from GPS were output to orthometric heights using the Alaska Geoid 1996, NAVD 88 fixed datum. Topographic quadrangle maps from the 1950s used the NGVD 29 fixed datum. Because the elevational relationships of NGVD29 and NAVD88 to local measurements of mean sea level (MSL) and to each other may not be consistent from one location to another, heights should be considered approximate.

GIS processing. Post-processing edits included checks for proper attributes and anomalous GPS error spikes. Once those were completed, the data were then exported to ESRI shapefile format in UTM Zone 3, NAD83 (CORS96) coordinate system. A total of 8,698 GPS positions were read and a total of 355 features created (169 point, 63 line, and 123 area features). Data were then defined in ArcGIS 9.0 and loaded into a personal geodatabase for optimum use. In addition, trail centerlines were snapped to anchor point features at trail junctions, and the locations of modern standing structures collected as lines in the field were converted to building footprints using field-entered building widths. Some features not represented in the original data dictionary include NNLs (a polygon area depicting the NNL boundary; NPS files), and the photos feature class, representing hyperlinked photos of features.

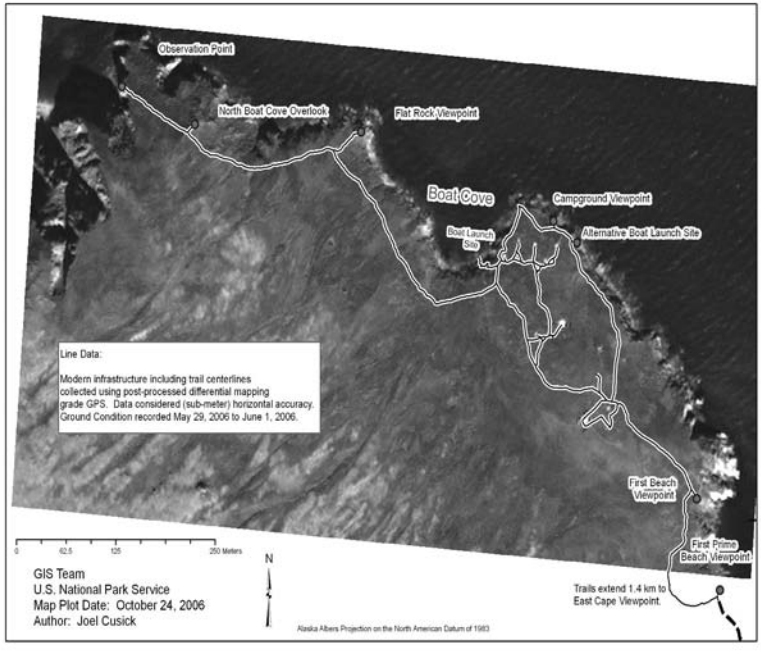
In June 2004, a compact disc containing images of Round Island from the U.S. Fish & Wildlife Service (USFWS) was obtained by NPS personnel. These screen shots were most likely from an IKONOS satellite image obtained on June 16, 2001, for purposes of a walrus haul-out study (Burns et al. 2001). One close-up image revealed an excellent depiction of trail and camp infrastructure. It was then determined to simply rectify another image covering most of the study area. This image was converted to TIFF format and simply rectified using ArcGIS into the Alaska Albers NAD27 projection using a first test set of trail and infrastructure GPS data. The image requires a datum transformation to allow for rendering with the final GIS projection of UTM Zone 4, NAD83. This image (Figure 3) was used to give broad-scale characterization of the site.

In addition to these data, on-ground digital cameras were used to document on-site locations. In some cases, digital photos were tagged with GPS positions or placed in the photos feature class for hyperlinking in ArcGIS. Federal Geospatial Data Clearinghouse (FGDC) metadata were created for all feature classes.

Results

The entire trail system (2.2 miles), the viewpoints, and all features identified by current personnel that are related to ADF&G operations since establishment of the camp in 1976 were mapped (Figures 4 and 5). A site area of 5.7 acres (2.3 hectares) was defined, containing 105 surface depressions thought to be prehistoric features (Figure 6). The area of maximum disturbance to the archeological site was determined to be 0.2 acres (0.075 hectares), or

Figure 3. GPS data from mapped trails and viewpoints overlain on imagery obtained from USFWS. IKONOS image acquisition date: June 16, 2001.



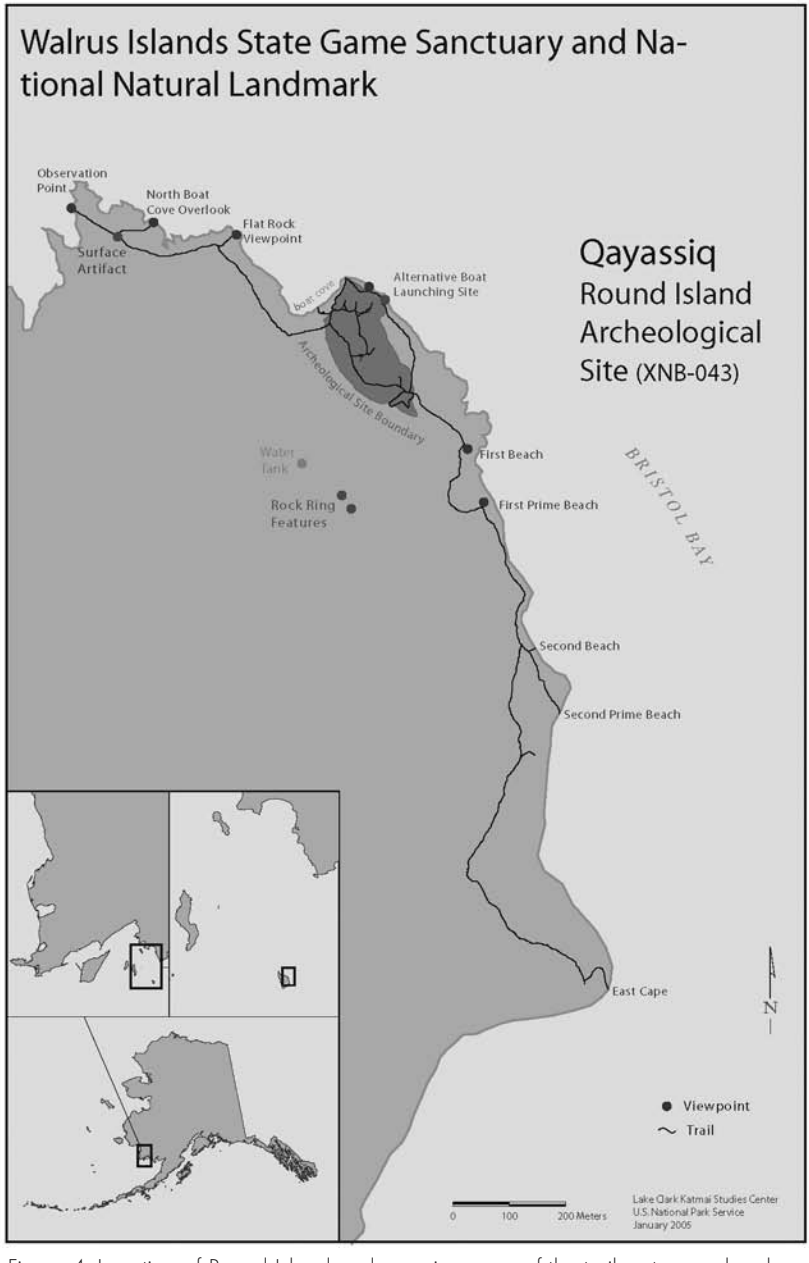


Figure 4. Location of Round Island and overview map of the trail system and archeological site, XNB-043. Map by Barbara Bundy, NPS.

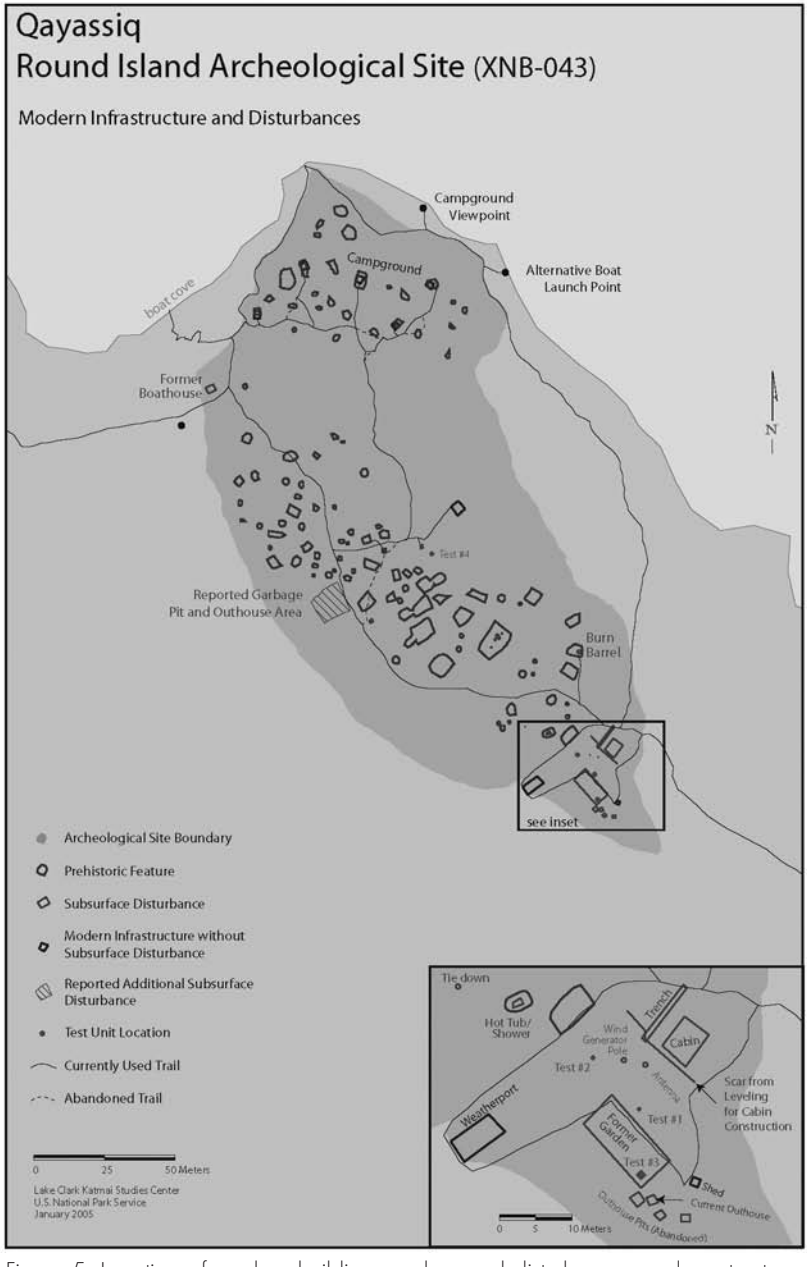


Figure 5. Location of modern buildings and ground disturbance, modern structures that are above ground, archeological features, trails, and archeological tests.

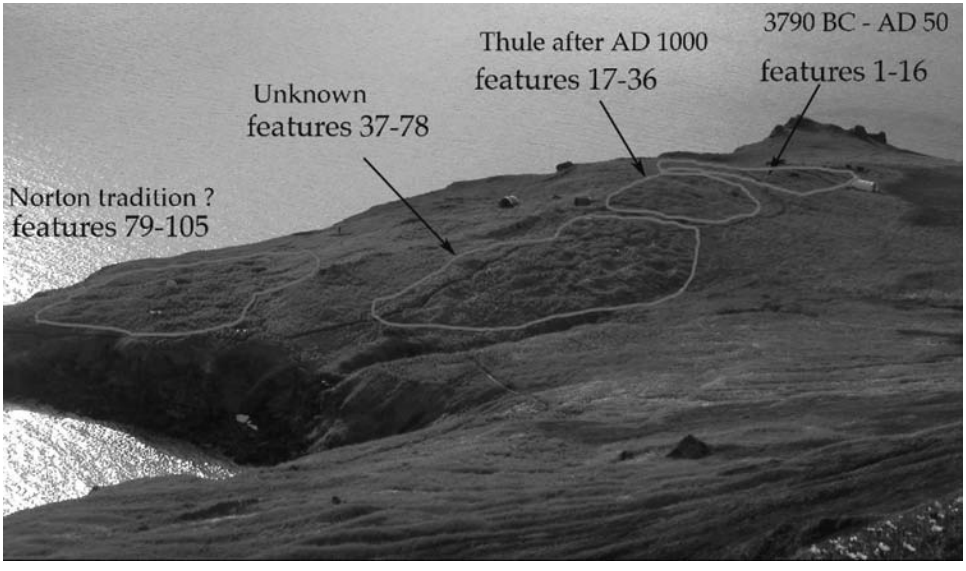


Figure 6. Qayassiq (XNB-043) surface features.

3.5% of the total site area. One isolated flake was found in the trail at the junction of the Observation Point and the North Boat Cove Overlook trails, indicating the potential for other sites to be present on the island. The mapped surface depressions represent semi-subterranean houses, cold-storage pits, and other features remaining from a series of occupations that date from 3900 BC (5900 BP). A small, finely worked side blade recovered from a test and dated to about 3300 years ago suggests an Arctic Small Tool tradition (ASTt) occupation. Distinct house forms clustered together in later settlements appear to represent Norton and the later Thule cultural traditions spanning the last 2500 years before contact in the late 18th century. Subsurface testing provided information about site depth and chronology, but was kept to a minimum due to the density of cultural deposits present. These deposits begin at the base of the current vegetation mat and extend up to a meter in depth. Thirteen hundred artifacts were recovered from a total of 1.08 cubic meters excavated. Two rock rings of unknown age with evidence of early 20th-century use are located in a boulder field at the base of a nearby slope (Figure 4). Isolated artifacts on outlying trails indicate that there is a high probability of finding additional sites on the island.

These datasets, provided to ADF&G in ArcGIS, are useful and accurate tools for future planning, trail maintenance, development of interpretive materials, and management decisions that are sensitive to site preservation.

Discussion

Qayassiq on Round Island is a noteworthy archeological site warranting further research for a number of reasons.

First, it has the oldest radiocarbon-dated occupation of any known site along the coast of Alaska north of the Alaska Peninsula. We now know that hunters came to this island at least seasonally nearly 6000

years ago to hunt walrus and probably other things. In ice-free seasons (when walrus haul out), the trip may not have required use of boats, as it may have been possible at this time to travel to Round Island by foot. The nearby Crooked and High islands were still joined, and at low tide would have been connected by exposed land to Hagemeister Island, which was itself still connected to Cape Newenham, at least at the island's north end near Tongue Point. The hunters could have been primarily terrestrial game hunters and they could have locally adapted their hunting methods to hunt walrus on land. The only other walrus haul-out in the area today that is not an incidental haul-out is located at Cape Pierce on Cape Newenham, relatively close to Security Cove. Elements of the small collection from this early occupation that align with Northern Archaic assemblages reported from sites in the Ahklun Mountains to the north, Security Cove to the west, and the Alaska Peninsula are large stemmed-point bases, a fragment of a stone vessel, a large bifacial point, and two radiocarbon dates with calibrated ages ranging from 5590 to 5900 BP. Side-notched points characteristic of these Northern Archaic sites have not yet been found at Qayassiq. Two probable blade fragments were found in the lowest levels of Qayassiq. This technology is not represented in the Northern Archaic sites to the north and west of Round Island; however, it is found in Northern Archaic contexts with side-notched points in the Ugashik Knoll phase (5055±70–4810±85 radiocarbon years BP) at Ugashik Narrows on the Alaska Peninsula (Henn 1978:12, 78–80).

Second, Qayassiq has the potential, through further excavation, to shed light on the development of the ASTt in this region and on its relation to the preceding Northern Archaic tradition and the following Norton tradition. This has implications for understanding the cultural history for coastal Alaska north of the Alaska Peninsula. At Qayassiq, the possible ASTt occupation (suggested only by a single radiocarbon date and a sideblade) is separated from the earliest component in Test 1 by 2100 radiocarbon years and by 30 cm of sediment containing scattered artifacts. It is separated from the later Norton occupation in the same test unit by 1600 radiocarbon years, 30 cm of sediment, and a handful of flakes. This small 0.5x0.5-meter test window suggests substantial breaks between these occupations in this area of the site on Round Island, yet the scattered artifacts in the sediments between these major occupations indicate at least intermittent use in the intervening years. Recovery of faunal remains associated with the occupation dated between 3470 and 3680 years ago may reveal seasonal use patterns with implications for the use of watercraft, not usually associated with ASTt.

Third, Qayassiq is significant to the people of Togiak, the descendants of the historic Tuyuryarmiut, who are probably directly descended from the Thule tradition people inhabiting Round Island at least intermittently beginning 1000 years ago. The site has the potential to add to our understanding of this time period and the significant changes in subsistence practices, seasonal activities, social structure, and political interactions, such as warfare, documented at Old Togiak.

Fourth, the interpretation of the cultural history of this region draws heavily from sites researched on the Alaska Peninsula. The demonstrated bone preservation at the lowest levels of Qayassiq, something the sites on the Alaska Peninsula lack, offers the

opportunity to better understand the prehistoric subsistence economies and their environments. The faunal remains can also be studied, perhaps through DNA if present, to help understand the natural history of important marine species from mid-Holocene times. There are few reported specimens of walrus in the Late Wisconsin and Holocene records for the North Pacific (Dyke et al. 1999). It may be possible to better understand the origin of both subspecies of walrus, the Atlantic *(O. rosmarus rosmarus)* as well as the Pacific.

Lastly, based on the finds at Qayassiq and other sites within the Walrus Islands Sanctuary, this National Natural Landmark district can add a rich prehistoric record to the list of world-class resources that are interpreted to the public via the agency's website, the webcam managed by ADF&G on Round Island, and through other media. Round Island should be evaluated along with the other islands in the sanctuary for National Historic Landmark (NHL) status as an archeological district. This would make the Walrus Islands Game Sanctuary one of only ten places in the nation with dual NNL and NHL status. NHL status may increase professional interest and public interest so that these sites will be better studied and preserved in this largely unexplored area.

Recommendations

Research. In partnership with the Togiak Traditional Council and the Bristol Bay Native Association, funding should be sought to conduct archeological excavations at Qayassiq. Federal and state agencies, such as the Bureau of Indian Affairs Office of Archeology, the National Park Service (the Lake Clark and Katmai Cultural Resources program), and the State Office of History and Archaeology, would be sources of archeological expertise. The research should be multidisciplinary, including ethnography (solicit participation of elders and collection of oral history), geology (identify lithic material sources), geomorphology (understand natural history of the island with regard to glacial, climate, and sea level histories, and surficial geology), and wildlife biology (sample prehistoric faunal remains for DNA). Block units should be excavated in the garden and cabin area to further define the earliest occupation of the island. Testing at the other components should also be done to characterize the nature of these occupations and to understand relationships among them.

Former ADG&F employees should be interviewed regarding any collections made or artifacts observed when they worked on Round Island. The interviews should also try to identify additional areas of past ground-disturbing activities, particularly in the garden area. If for example, sod and sediments were removed from the garden and placed along its perimeter, this would have important implications for future excavations in this area.

The significant cultural and natural resources of Round Island should be interpreted. Additionally, as noted above, a National Register nomination for the Walrus Islands Sanctuary should be done that seeks National Historic Landmark designation in recognition of the national significance of the cultural history represented on these islands.

Management. Although the current management infrastructure occupies basically the same area as the archeological site on Round Island, the actual impact to site features is limited to approximately 0.2

acres, or 3.5% of the total archeological site. There are a number of general recommendations to keep this impact from spreading:

- Maintain the staff presence on the island. The staff serves as an educational and enforcement component of the program, and their presence is a likely deterrent to site vandalism or looting.
- Improve management of human waste. Since no suitable locations for new outhouses were located outside the perimeters of the archeological site, research into the feasibility of a propane toilet or other technological means to prevent further subsurface disturbance from digging outhouse pits may provide a viable option.
- Continue use of tent platforms in the campground. The existing tent platforms are located prehistoric house depressions but are causing no disturbance to these features.
- Consult with a trails expert for further advice on trail drainage, tread, and sustainability on major trails.
- Foster a relationship with Togiak and other local communities and user groups to improve understanding of the historical use and significance of Round Island and to involve them in management discussions.
- Communicate to visitors the importance of the archeological site and emphasize education for proper behavior, including reporting any artifacts found, etc.
- Mapping-grade GPS systems provide resource managers with an ideal tool for mapping and assessing ground condition. These systems require an investment in hardware, software, and training to effectively use the equipment and enter data into a Geographic Information System. Having such a system would allow managers to update (1) trail centerlines, so that inventories of trail condition can assist managers in routing visitors through the site and around areas of concern; and (2) the potential locations for new infrastructure.

Conclusion

The Round Island archeological site is significant as the oldest dated coastal site, by over 3000 years, in Alaska north of the Alaska Peninsula. The site has clear evidence of island-based walrus hunting about 5700 years ago and again 3600 years ago. Over 100 mapped prehistoric surface depressions on Round Island represent semi-subterranean houses, cold storage pits, and other activity areas from settlements spanning the last 2500 years before contact in the late 18th century. Excellent bone preservation in the site's major occupations provides an important opportunity to better understand the prehistoric subsistence economies and their environments as well as the natural history of key marine species from mid-Holocene times. Close interagency and interdisciplinary collaboration, including GPS data collection and mapping support, made this significant archeological discovery possible.

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