THE SNAKE RIVER SANDSPIT (NOM-146): A LATE WESTERN THULE SITE IN NOME, ALASKA

Kelly A. Eldridge
Department of Anthropology, University of California, Davis, One Shields Avenue, Davis, CA 95616-8522; kaeldridge@ucdavis.edu

ABSTRACT

This paper reports on the 2005 discovery of the Snake River Sandspit archaeological site (NOM-146) during construction of the Nome Navigation Improvements Project in Nome, Alaska, and its subsequent partial excavation in 2006. The remains of two partial houses and part of a midden were excavated, which date to the seventeenth and eighteenth centuries. The artifact assemblage, which includes harpoon heads, fixed projectile points, fishing equipment, pottery, and decorative or ceremonial objects, is indicative of Late Western Thule culture. Vertebrate faunal remains are represented by at least 30 different taxa and dominated by ringed seals, tundra hares, foxes, ptarmigan, and gadid fish. This site provides the first evidence of a precontact, indigenous settlement in Nome, Alaska.

INTRODUCTION

The Snake River Sandspit Site (NOM-146) was discovered during construction of navigation improvements to the Nome Harbor in Nome, Alaska, by the U.S. Army Corps of Engineers, Alaska District (USACE). The post-review discovery (Code of Federal Regulations title 36, sec. 800.13, 2004) of a partial house in 2005 and a second partial house and midden in 2006 constitute the three known features of the site (Fig. 1). All three features were buried more than 5 m below surface in a sandy matrix.

Although the sandy matrix directly above the remnants of the excavated features represented undisturbed deposition events (Fig. 2), the majority of the sandspit was heavily disturbed by postcontact and modern activities (i.e., mining, laying pipe, addition of fill). Because of these activities, no complete house structures were identified. Some artifacts were recovered from the first house (House A) in 2005, while both the second house (House B) and midden were fully excavated in 2006 by USACE personnel and volunteers from the City of Nome, the Nome Eskimo Community, and Kawerak, Inc.

METHODS

The first semisubterranean house (House A) was identified in May 2005; artifacts were selectively collected (Pipkin 2005). The second semisubterranean house (House B) was identified in July 2006. Using shovels and trowels, House B was excavated in 15 days, primarily by two USACE archaeologists and three volunteers from the Nome Eskimo Community. The midden was identified in August 2006 and was excavated in 16 days by USACE personnel, a subcontracted archaeologist, and local volunteers under the supervision of a USACE archaeologist (Cassell et al. 2007). Approximately 80 square m of the midden were excavated with shovels and trowels; 75 square m yielded cultural material. All excavated sand from House B and the midden was dry-sifted through a quarter-inch (0.635 cm) screen.

Between 2006 and 2007, USACE District Archaeologist Margan Grover and archaeologist Dan Thompson inventoried all artifacts recovered during excavation of House B and the midden. Artifacts were cleaned, formal tools were labeled, and most artifacts were photographed. Faunal remains were organized by

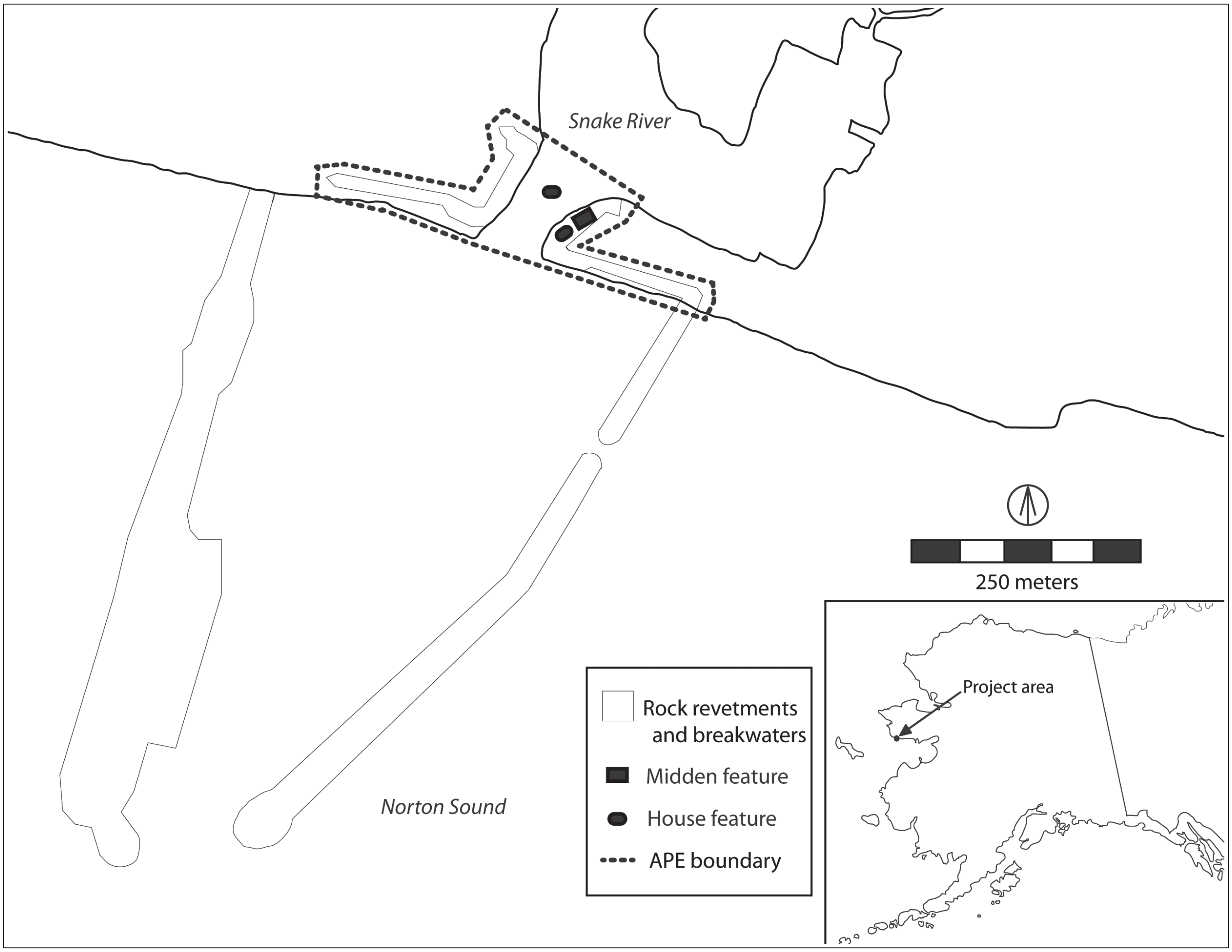

Figure 1. Location of the Snake River Sandspit site (NOM-146), Northwest Alaska.

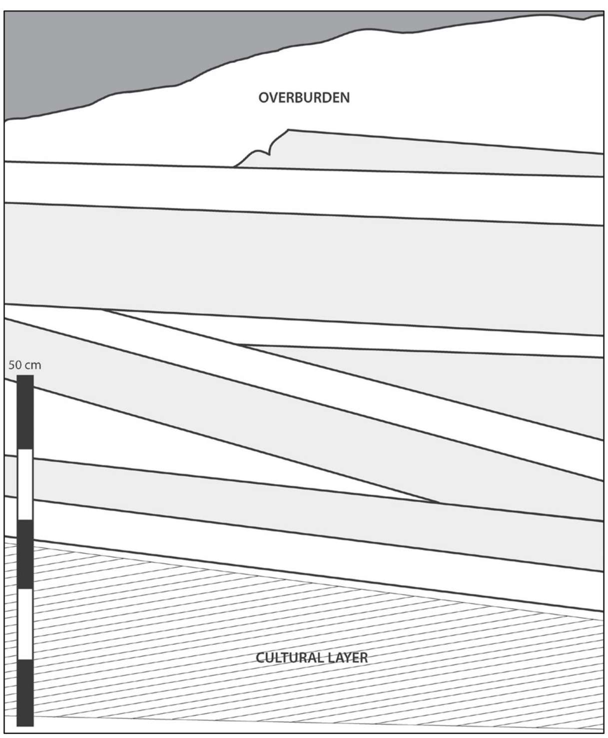

Figure 2. Midden wall profile showing intact depositional sequences capping cultural material.

provenience and counted. After inventory, all materials were shipped to the Carrie M. McLain Memorial Museum for curation in Nome. Between 2009 and 2011, the author, a USACE archaeologist at the time, reexamined most of the artifacts and analyzed the faunal remains.

NOM-146 SITE DESCRIPTION

The Snake River Sandspit archaeological site consists of three known features: House A, the partial semisubterranean house discovered in 2005; House B, the partial semisubterranean house discovered in 2006; and the midden, also discovered in 2006. Conventional radiocarbon ages were obtained from four carbon samples collected from NOM-146 (Table 1).

HOUSE A

The remnant of House A was approximately 1 m deep and 6 m wide. A single vertical post about 1.2 m long and 0.15 m in diameter was at the east end of the house. Several faunal remains and precontact artifacts, including potsherds, an ivory wedge, an antler point, and a drilled rib, were observed in the fill of the house. Fifty-three artifacts were selectively collected from the house fill, and a charcoal sample was collected from the floor of the house. It was estimated that only one-third of the feature was intact at the time of its discovery (Pipkin 2005:20).

HOUSE B

The partial remains of House B were approximately 6 m long, 1 m deep, and between 1.5 and 2.5 m wide (Fig. 3). Fourteen vertical posts were spread throughout the feature, and deteriorated wooden floor boards were identified. A total of 456 artifacts and 3,752 faunal specimens (excluding mollusks) were recovered from inside the feature. Four bulk samples, four carbon samples, one peat sample, and one vegetation sample were also collected.

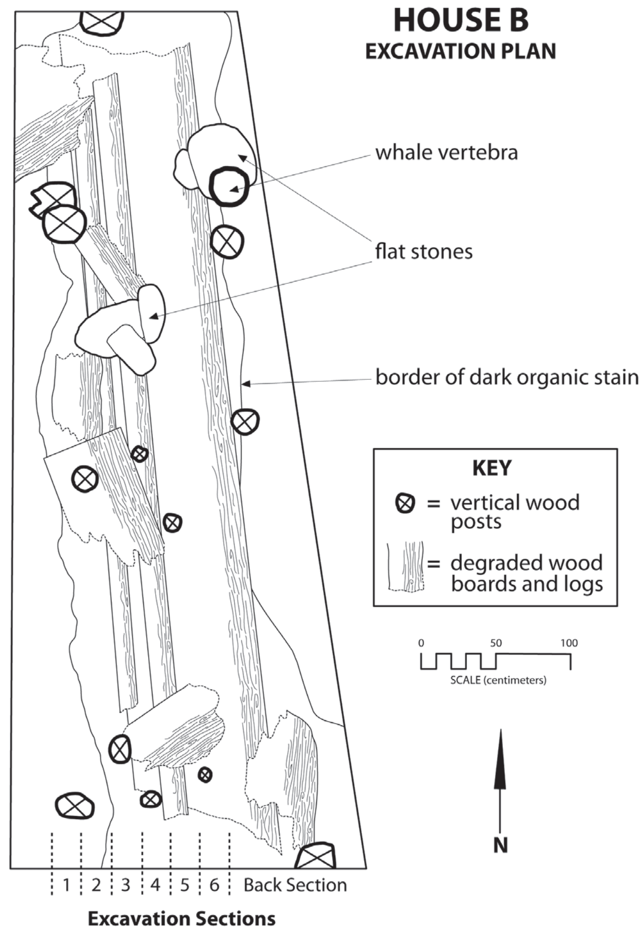

Figure 3. Plan view of House B.

Table 1. *Radiocarbon dates from samples collected in 2005 and 2006. Dates were calibrated using CALIB 7.0 and IntCal13 (Reimer et al. 2013; Stuiver and Reimer 1993).*

Feature	Lab Number	Material	Technique	$\delta^{13}C$ Value	^{14}C Age BP	2σ Calibration
House A	Beta-206697	charred wood	Radiometric	-24.7	240 ± 60	AD 1481–1816
House B	Beta-222485	charred wood	AMS	-26.0	130 ± 40	AD 1670–1895
House B	Beta-222486	charred wood	AMS	-24.3	110 ± 50	AD 1674–1799
Midden	Beta-222487	peat	AMS	-27.4	250 ± 50	AD 1486–1809

MIDDEN

The midden deposit, consisting of a thin layer of organic material, wood debris, faunal remains, and artifacts, was located approximately 15 m north of House B (Fig. 4). Cultural material was found under at least a half meter of intact, stratified beach deposition. Within the midden, a small accumulation of 23 unbroken hunting weapons (including an atlatl, net gauge, harpoons, and gorges, used for capturing birds) lay under a mandible fragment of a large baleen whale. The distal portion of the mandible was chopped off, and the remaining proximal fragment is heavily gnawed. Found *in situ*, it appeared to have been purposefully outlined with smooth, multi-colored beach pebbles, perhaps marking a hunter's cache (Fig. 5). A total of 639 artifacts and 4,828 faunal remains (excluding mollusks) were recovered from the midden. Nine peat samples and one wood sample were also collected.

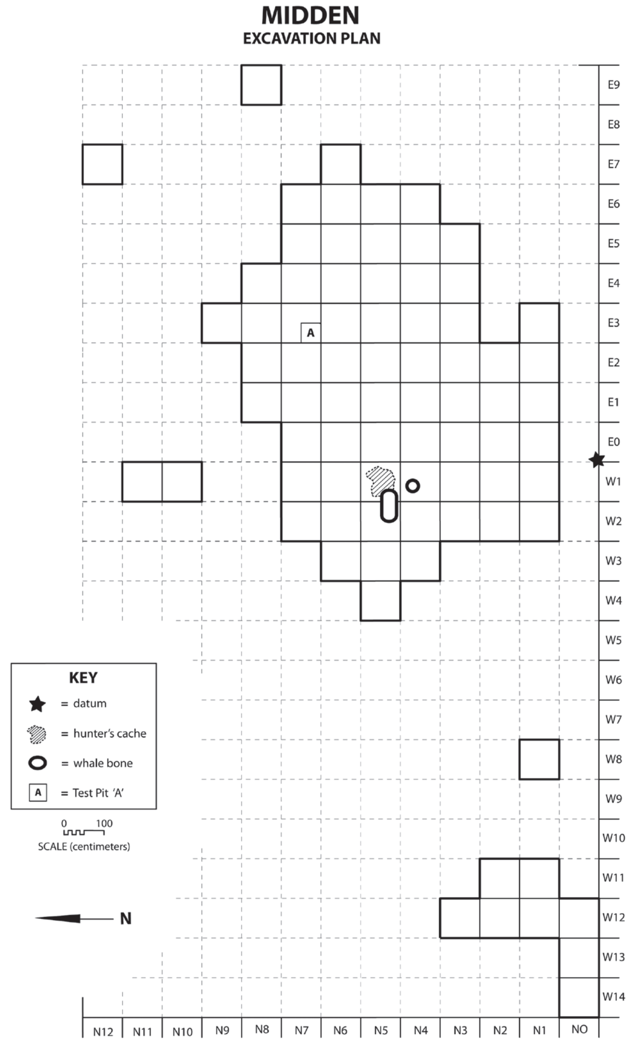

Figure 4. Plan view of midden.

ARTIFACT ASSEMBLAGE

The site produced a total of 1,148 artifacts (for a more detailed report see Eldridge 2012a). Approximately one quarter of the collected artifacts (*n* = 275; 24.0%) had been recovered from out-of-context deposits, and were not analyzed as part of the NOM-146 assemblage: 17 artifacts from near House B (3.7% of the feature) and 258 artifacts from the midden area (40.4% of the feature). Due to the heavily disturbed nature of the site area, it is unlikely that these artifacts are associated with the intact cultural layers of House B and the midden. The analyzed artifacts were separated into functional classes based on the assumed use of each artifact (Table 2; Bockstoce 1977; Collins 1930; Fitzhugh et al. 2009; Ford 1959; Giddings 1964; Giddings and Anderson 1986; Hall 1990; Mathiassen 1927, 1930; McGhee 1974; Morrison 1991; Nelson [1899] 1983; Stanford 1976),

LATE WESTERN THULE CULTURE

For the purposes of this paper, Western Thule culture is dated to between AD 900 (Jensen 2009:76) and 1775, ending around the time of Cook's voyage (1778) and the opening of the Anyui Market on the Kolyma River (1789) (Morrison 1991:103). The composition of the artifact assemblage from NOM-146, which includes harpoon heads, fixed projectile points, fishing equipment, pottery, and decorative or ceremonial objects, is indicative of Late Western Thule culture.

Five of the six harpoon heads have closed sockets, which resemble the sealing harpoon heads recovered from Cape Krusenstern and the Choris Peninsula (Giddings and Anderson 1986) dating between the late fifteenth and the early nineteenth century, all of which had closed sockets. Barbed harpoon heads with closed sockets, such as those described by Giddings (1964:38) from Nukleet and the Intermediate Kotzebue periods (Giddings 1952: pl. XXXVIII:4) are characteristic of late precontact western Alaska (Giddings 1964:38). Two of the closed-socket harpoon heads recovered from NOM-146 have self-bladed bilateral barbs, line holes parallel to the plane of the point and barbs, and bifurcated dorsal spurs (Fig. 6a). They display a mixture of characteristics from heads collected from Point Barrow by P. H. Ray (Mason 1902), recovered from

Figure 5. Whale mandible fragment (ventral side) surrounded with beach stones that appear to have been purposefully placed. Photograph by Margan Grover, 2006.

excavations at Nukleet and Kotzebue by Giddings (1952, 1964), and at Point Barrow by Ford (1959). Their bifurcated spurs are similar to those of harpoon heads collected by Nelson ([1899] 1983: pl. LVII:4, 8, 11) and Murdoch ([1892] 1988: fig. 217b, 223) in the late nineteenth century.

The "Nuwuk" type of harpoon head, identified by its closed socket, occasionally bifurcated dorsal spur, small, round holes with a groove for the line extending dorsally, and an end-blade slot parallel to the line hole (Ford 1959:93; Stanford 1976:22), has been found in both the early and late Thule levels at Walakpa (Stanford 1976:102), Old Kotzebue period sites around Kotzebue (Giddings 1952; VanStone 1955), and late precontact sites at Point Barrow (Hall 1990; McGhee 1974:45). The third harpoon head from NOM-146 fits nicely into the Nuwuk type; it has a closed socket, a small round hole with a groove extending dorsally, an end-blade slot parallel to the line hole (complete with triangular ground-slate end-blade), and incised decoration, including a "Y-shape" over the line hole.

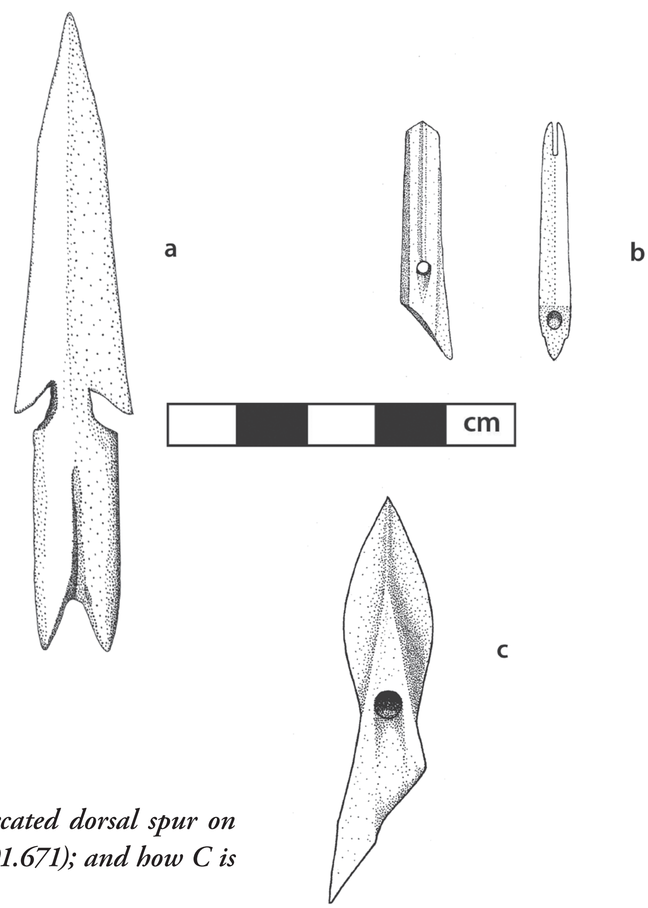

Figure 6. Harpoons recovered from midden: note the bifurcated dorsal spur on A (2006.001.394); the decorative channeling on B (2006.001.671); and how C is self-bladed perpendicular to the line hole (2006.001.293).

Table 2. *Artifact classification by function. Unless otherwise indicated, artifact material is bone, ivory, or antler.*

Artifacts	House A	House B	Midden
Household Equipment			
Potsherd (clay and temper)	49	223	214
Pottery vessel (clay and temper)	-	-	1
Boiling stone	-	2	1
Ice-scoop rim	1	3	3
Stone lamp	-	1	-
Bucket handle	-	2	-
Spoon	-	1	-
Snowbeater	-	1	-
Snow shovel	-	-	1
Fishing Equipment			
Net sinker (stone)	-	26	7
Net sinker	-	3	1
Net float (wood)	-	1	1
Net gauge	-	-	2
Marlin spike	-	2	-
Fishing lure	-	-	1
Fishing weight	-	-	1
Compound fish hook	-	1	-
Fish spear point	1	-	-
Hunting Equipment (Marine)			
Toggling harpoon head	-	1	5
Harpoon foreshaft	-	-	1
Harpoon socket piece	-	1	-
Ground-slate end-blade	-	-	1
Atlatl (wood)	-	-	1
Atlatl nock pin	-	-	1
Seal net sinker	-	-	1
Hunting Equipment (Terrestrial)			
Bow cable stop	-	1	-
Arrow/spear point	-	9	11
Bird blunt	-	1	-
Arrow/spear socket piece	-	-	1
Bola weight	-	-	1
Gorge	-	1	9
Tools			
Bow drill insert (stone)	-	1	-
Drill tool	-	3	-
Ground-slate ulu	-	2	-
Ground-slate blade/ulu	-	7	-
Chipped-stone blade	-	1	-
Hammerstone	-	2	-
Root pick	-	4	4
Hide scraper	-	6	2
Awl	-	1	1
Bodkin	-	1	-
Needle	-	2	1

Needle case	-	-	1
Thimble holder	-	1	-
Tool handle	-	5	4
Adze head	-	1	-
Wedge	1	6	4
Whetstone	-	12	1
Transportation			
Sled piece	-	7	10
Kayak cleat	-	1	-
Umiak cross-brace	-	-	1
Warfare			
Slat armor	-	1	-
Personal Adornment/Ceremonial Object			
Blue bead (glass)	-	1	-
Perforated caribou incisor	-	2	-
Perforated pinniped postcanine		1	
Labret	-	2	-
Bird figurine	-	1	-
Whale figurine	-	1	-
Seal figurine	-	-	1
Human figurine	-	1	-
Human figurine (wood)	-	-	1
Needle case pendant	-	1	-
Drum handle (antler/wood)	-	-	1
Manufacturing			
Preform	1	24	19
Debitage (osseous)	-	27	41
Debitage (wood)	-	-	3
Debitage (stone)	-	2	-
Unidentified	0	24	17
Total	53	431	377

The fourth and fifth harpoon heads recovered from NOM-146 both have closed sockets, but one is self-bladed perpendicular to the line hole (Fig. 6c), similar to an open-socket harpoon recovered by Stanford (1976; pl. 81a), and the other, which is small (3.5 cm long), has an end-blade slot perpendicular to the line hole and narrow channeling carved along the sides (Fig. 6b). End-blade slots perpendicular to the line hole are common in whaling harpoons (Morrison 1991:40), and this specimen, which looks like a more detailed, miniature version of the Cape Smyth type identified by Ford (1959: fig. 32a), may have been a toy (Morrison 1991:85) or have had a ceremonial purpose.

The sixth harpoon head recovered from NOM-146, and the only harpoon recovered from House B, has an end-blade slot parallel to the large, round line hole and a "sliced" socket (Fig. 7). A harpoon recovered from a house on Cape Krusenstern, dating between AD 1300 and 1400, has a similar sliced socket (Giddings and Anderson 1986:61). This socket form is common around Bering Strait during the late precontact period. None of the harpoon heads have the rivet holes for end-blades commonly seen towards the end of the late precontact or early contact period (Morrison 1991:34).

Five of the fixed bone, ivory and antler points (used with either arrows or spears) recovered from NOM-146 belong to types that have been called "Late Thule" or "Thule-like" (Morrison 1991:20). They all display one barb, square shoulders, and a conical tang. Another fragmentary point has a single barb and can probably be included with the other five. This type of projectile point has been recovered from late precontact levels around Point Barrow (Stanford 1976) and at Cape Prince of Wales (Collins 1940; Morrison 1991). Twelve more of the fixed organic points recovered from NOM-146, which have multiple small barbs either unilaterally or bilaterally placed, are likely prongs for fish leisters, a common Western Thule artifact type (Ford 1959:149; Mathiassen 1930:94).

Other artifact types recovered from NOM-146 support a late Thule or late precontact time period classification. Thirty-seven net sinkers for fishing were recovered from the site; although sinkers are found in most Thule sites, they seem to be more common after AD 1400 (Giddings and Anderson 1986:113). A single fish-shaped ivory lure was also recovered from NOM-146 (Fig. 8); such lures are common in late precontact sites around Bering Strait (Morrison 1991:24) and were used into the contact period (Nelson [1899] 1983:176). Half of a small, opaque, sky-blue glass bead was also recovered; although common during the early contact period (Sheehan 1997:123), similar trade items, presumably of Russian origin, were traded through native Siberian and Alaskan networks and occur in sites as early as circa AD 1650 (Morrison 1991:104), and are often found at late precontact sites in northwestern Alaska (Powers et al. 1982:181).

Amulets, perforated teeth, and zoomorphic figurines are also common in Western Thule sites (Mathiassen 1930:94; Morrison 1991:45). Three teeth perforated through their root tips (two caribou incisors, one large pinniped postcanine) and three zoomorphic carved ivory figurines representing seal, ptarmigan, and beluga were recovered from NOM-146, as were two human figurines. The seal figurine (Fig. 9) may be a drag handle (Morrison 1991:45; Murdoch [1892] 1988:257; Nelson [1899] 1983:172). One of the human figurines, also carved out of ivory, has a very realistic facial expression in addition to anatomically correct arms, fingers, and back musculature (Fig. 10). Human figurines began to be carved with realistic facial expressions during the Western Thule period (Fitzhugh et al. 2009:113), and are common during the late precontact period (Morrison 1991:86).

Like all Western Thule pottery, the pottery recovered from NOM-146 was tempered with both organic and inorganic materials (Frink and Harry 2008; Harry et al. 2009:292). Most of the potsherds included a mixture of sand and gravel; some were also tempered with grass. Although most of the pottery recovered from the site was plain, a small number of specimens were Seward Striated Ware (de Laguna 1947) and some had "pie-crust" rims (Fig. 11; Morrison 1991:pl. 24a). The single unbroken pottery vessel recovered from the site has an uncommon, rounded base (Harry et al. 2009: 292) and measures approximately 7 cm high and 6 cm in diameter at the rim. The vessel is smaller than most coastal Thule cooking pots, which generally range 10–20 cm in height and 13–17 cm in diameter. The small size may indicate a special purpose (Harry et al. 2009:294).

In addition to the harpoon heads, projectile points, fishing equipment and decorative or ceremonial items, other artifacts recovered from NOM-146 also point to an origin somewhere between Middle Western Thule and contact-era Iñupiaq (Mathiassen 1930:93–95; Anne Jensen, pers. comm. 2013). This includes, but is not limited to, sled fragments, snow shovels, atlatls, ulus and a drum handle. The single piece of unequivocal slat armor is another indicator of a late precontact time period on the Seward Peninsula (Fig. 12; Mason 2012:82). Moreover the absence of tobacco paraphernalia and recovery of only a single blue glass bead fragment suggests the site dates to the late precontact period (Morrison 1991:105; Sheehan 1997:123).

SEASON OF SITE OCCUPATION

The composition of the artifact assemblage from NOM-146 includes equipment used both during times of ice and snow and during ice-free months, indicating that people inhabited the site during the winter and, perhaps, during other seasons. Snow- and ice-related artifacts from NOM-146 include multiple ice-scoop rim fragments, a broken snow shovel, a snowbeater, and sled pieces. Additionally, artifacts associated with hunting and fishing that usually occurs during the winter, such as the fish-shaped lure, which was probably used for jigging for tomcod and sculpin through the sea ice, and a seal net sinker, used with nets set under shorefast ice, corroborate a winter presence (Bockstoce 1979:92; Burch 2006:143, 144, 149; Morrison 1991:57; Nelson [1899] 1983:126, 175). Although artifacts used during the summer and autumn months were also recovered from NOM-146, such as root picks and equipment for hunting migratory birds, they do not necessarily indicate a summer occupation since winter was a common time to make such tools. Winter habitation is further suggested by the presence of artifacts used in creating and repairing nets and bows, including net gauges and marlin spikes, and by the heat-conservative structure of the semi-subterranean house itself.

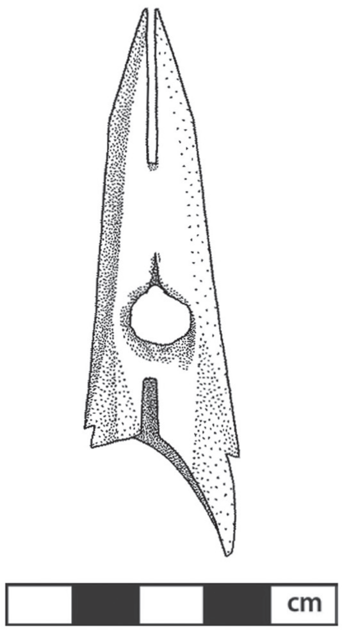

Figure 7. Harpoon with "sliced" socket recovered from House B (2006.001.088).

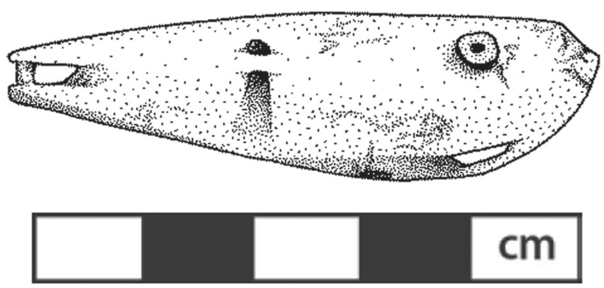

Figure 8. Carved ivory fishing lure recovered from midden (2006.001.303).

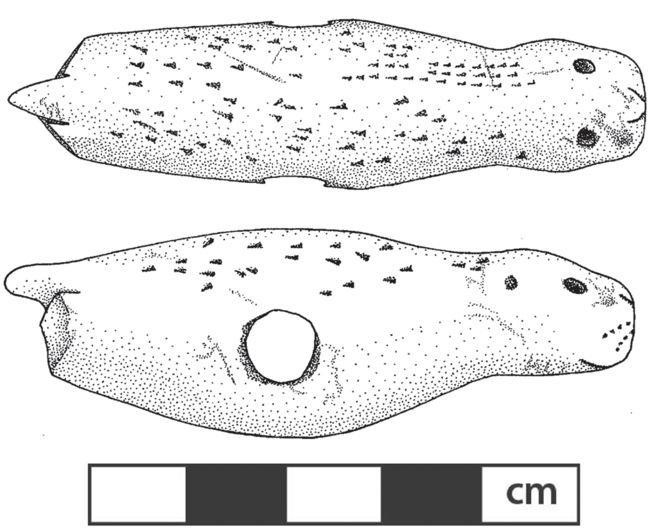

Figure 9. Carved ivory seal, possibly a drag handle, recovered from midden (2006.001.310).

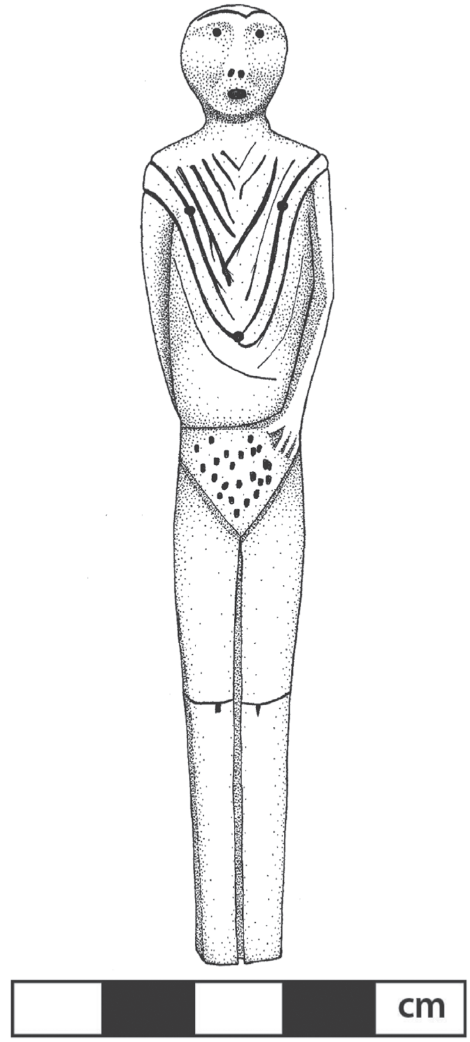

Figure 10. Carved ivory human figurine recovered from House B (2006.001.022).

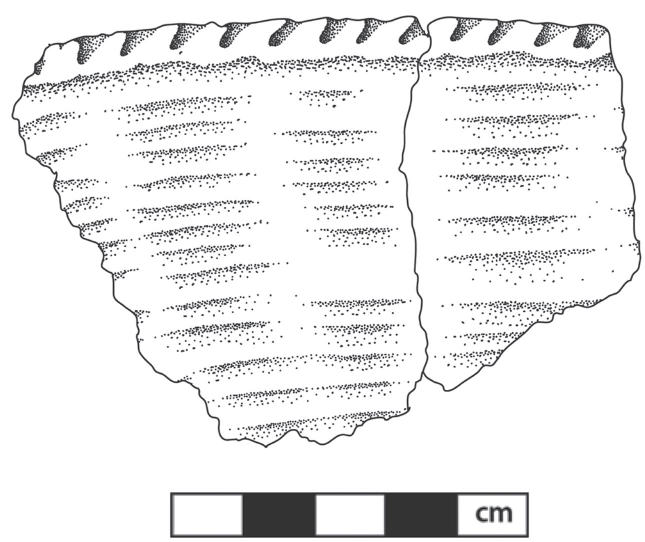

Figure 11. Seward Striated Ware potsherd with "pie-crust" rim recovered from midden (2006.001.378).

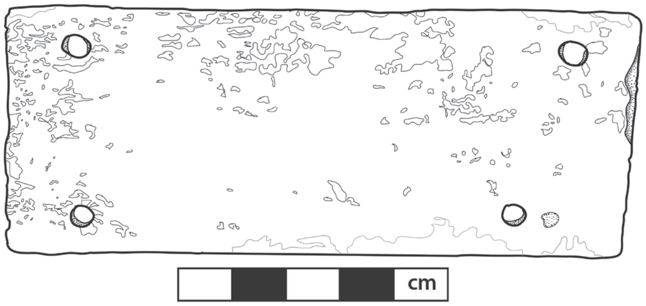

Figure 12. Carved bone armor slat recovered from House B (2006.001.090).

ARCHAEOFAUNAL ASSEMBLAGE

All of the faunal remains collected from NOM-146, excluding one bulk sample of 14 specimens from the midden, were examined, including one horse (*Equus* spp.) specimen that was excluded from analysis for taphonomic reasons. Mammal, bird, and fish bone in the assemblage totaled 8,590 specimens (a specimen is a bone, tooth or fragment thereof; see Lyman 2008). More than half of the vertebrate assemblage (*n* = 5,530; 64.4%) was identified to class or to a more specific taxonomic category (i.e., order, family or genus) (Fig. 13). For methods and a more detailed description of the faunal remains (e.g., aging, taphonomic and modification data), see Eldridge (2012b:69–103).

MOLLUSKS

Although at least 48 individual mollusks are represented in the collection (based on the number of bivalve umbos and gastropod columellae; see Claassen 1998), all mollusk remains were fragmentary. Combined, the mollusk fragments weighed a total of 25.1 g. Gastropods accounted for 9.6 g (38.2%), bivalves for 3.5 g (13.9%), and mussels (Mytilidae) for 5.0 g (19.9%); unknown mollusks represented 7.0 g (27.9%). All were recovered from the midden, with one exception . Due to the highly fragmentary nature of the mollusks and their widespread distribution across the midden, they were likely deposited by surf wash, rather than intentionally collected by site inhabitants.

FISHES

Fishes were the least common class represented in the assemblage, with a total number of identified specimens (NISP) of 540 (Table 3; Fig. 13). Of those, 48.7% were identified to family. Specimens representing the gadid family were most numerous with a %NISP of 74.1% (*n* = 195), and a minimum number of individuals (%MNI) of 90%. This family includes the following common Seward Peninsula subsistence species: cod, tomcod, and burbot (Bockstoce 1979:16). Salmonid species were the second most numerous with a %NISP of 21.3% (*n* = 56), and include salmon, grayling, cisco, and arctic char (Bockstoce 1979:16). Based on %MNI, gadids are by far the most frequent.

BIRDS

The total NISP for birds is 1,446 (Table 3; Fig. 13). Sixteen different bird taxa were identified, not including the unidentified bird specimens, which account for 48.3% of the avian assemblage. The most frequent bird taxon identified was the ptarmigan (*n* = 443; 59.3% of the identified bird NISP; 39.6% of the total bird MNI). Murres were the next most commonly identified taxa (*n* = 67; bird NISP = 9.0%), but they represent only 7.7% of the MNI; gulls and kittiwakes had the same relative frequency as murres based on MNI, accounting for 7.4% (*n* = 55) and 3.2% (*n* = 24) of the identified bird NISP, respectively.

MAMMALS

The total number of mammal specimens that could be identified to a particular taxonomic category was 3,661, or 64.8% of the total identified assemblage (Table 3). The

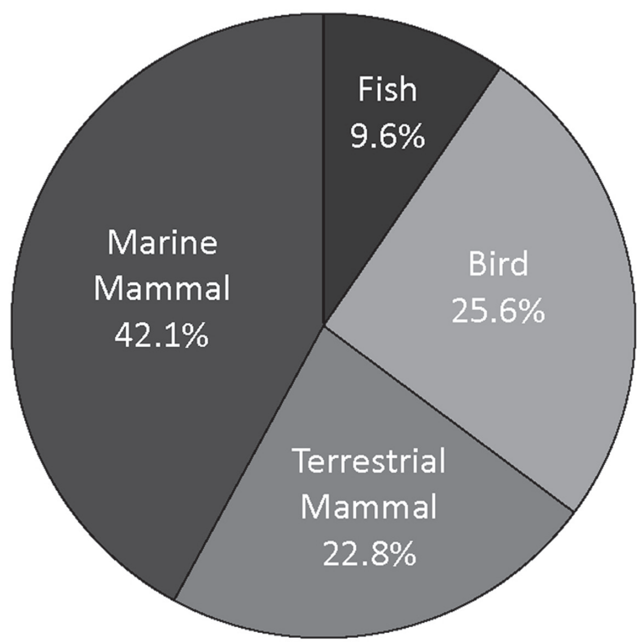

Figure 13. Vertebrate faunal assemblage %NISP (n = 5,647).

Table 3. Faunal remains from House B and midden deposits at NOM-146. NISP refers to the number of identified specimens; MNI refers to the minimum number of individuals, a derived measure.

Class	Common Name	Taxon	NISP	MNI
FISHES	Salmon, char, cisco, grayling	Salmonidae	56	2
	Cod, tomcod, burbot	Gadidae	195	27
	Halibut, flounder	Pleuronectidae	1	1
	Marine sculpin	Cottidae	11	2
	Ray-finned bony fishes	Actinopterygii	277	–
	Total fishes		**540**	
BIRDS	Loon	*Gavia* spp.	29	5
	Albatross	Diomedeidae	2	1
	Shearwater	*Puffinus* spp.	2	1
	Cormorant	*Phalacrocorax* spp.	11	3
	Diving duck	Merginae	24	5
	Dabbling duck	Anatinae	52	5
	Eider	*Somateria* spp.	13	3
	Goose	Anserinae	6	2
	Swan	*Cygnus* spp.	2	2
	Ptarmigan	*Lagopus* spp.	443	36
	Gull, tern, skimmer	Laridae	55	7
	Kittiwake	*Rissa* spp.	24	7
	Puffin, murre, auklet, murrelet	Alcidae	9	2
	Murre	*Uria* spp.	67	7
	Puffin	*Fratercula* spp.	4	2
	Owl	Strigidae	4	3
	Bird indet.	Aves	699	–
	Total birds		**1,446**	–
MAMMALS	Wolf, dog, fox	Canidae	19	2
	Wolf/dog	*Canis* spp.	164	5
	Dog	*Canis lupus familiaris*	32	4
	Fox	*Vulpes* spp.	196	10
	Bear	*Ursus* spp.	1	1
	Pinniped	Pinnipedia	47	2
	Walrus	*Odobenus rosmarus*	16	3
	Seal	Phocidae	524	3
	Bearded seal	*Erignathus barbatus*	84	5
	Small seal	*Phoca/Pusa* sp.	1,239	27
	Spotted seal	*Phoca largha*	19	3
	Ringed seal	*Pusa hispida*	373	20
	Caribou/muskox	Artiodactyla	3	2
	Caribou	*Rangifer tarandus*	185	4
	Whale	Cetacea	51	2
	Beluga	*Delphinapterus leucas*	3	1
	Hare	*Lepus* spp.	41	2
	Tundra hare	*Lepus othus*	456	15
	Rodent	Rodentia	10	3
	Muskrat	*Ondatra zibethicus*	12	3
	Arctic ground squirrel	*Spermophilus parryii*	69	10
	Small terrestrial mammal indet.		82	–
	Large terrestrial mammal indet.		16	–
	Marine mammal indet.		19	–
	Total mammals		**3,661**	–
ANIMALS	**Total NISP**		**5,647**	
	Richness (number of taxa)		34	
	Unidentified vertebrate bone (cf. mammal)		2,943	
	Total number of specimens		**8,590**	

total NISP for terrestrial mammals was 1,286 (Fig. 13). Although ranging from ground squirrel to caribou, the most numerous of the terrestrial mammals identified was the tundra hare (*n* = 456). Bones identified as either hare (*n* = 41) or tundra hare, comprise 8.8% of the total mammal and 39.3% of the terrestrial mammal assemblage. The second most numerous land mammal was the fox (*n* = 196), which represented 15.2% of the terrestrial assemblage. However, a rough calculation of biomass (MNI x average weight in kg) for those terrestrial species most likely eaten clearly changes the equation; caribou dominate at 93.3% (*n* = 185, MNI = 4), while the more numerous hare (MNI = 15) only make up 6.0% of the edible biomass. This calculation changes if dogs are considered a food species; although primarily used as pack animals and to pull sleds (of which there are numerous associated artifacts; see Table 2), dogs may have doubled as food animals (Burch 2006:283). Almost 10% of the dog remains display cutmarks, while over 40% had been gnawed by carnivores (Eldridge 2012b:90, 92).

The total NISP for marine mammals was 2,375 (Fig. 13), of which the most numerous taxa were small seals. Around the Seward Peninsula ringed, ribbon (*Histriophoca fasciata*), and spotted seals (Wynne 2007) can be found, although only ringed and spotted seals were confirmed in the assemblage. Small seals had an NISP of 1,631 (68.7% of the marine assemblage), which greatly outnumbers the larger bearded seal (*n* = 84) and walrus (*n* = 16). Ringed seal (*n* = 373) dominates the pinnipeds identified to species (75.8%), followed by bearded seal (17.1%). If a rough estimate of biomass is calculated for pinnipeds identified to species, however, walrus dominates: walrus = 48.3%, ringed seal = 26.6%, bearded seal = 21.4%, spotted seal = 3.7%. Whale remains (*n* = 51; 2.3% of the marine assemblage) are predominantly small whales, but the assemblage includes large baleen whales (Table 3; Fig. 5). Given their size, most whale bones were probably not brought back to the site, and thus their subsistence contribution is likely considerably underestimated.

SEASON OF SITE OCCUPATION

All faunal remains were analyzed for data regarding the season in which NOM-146 was occupied. Bird remains recovered from the site were evaluated using presence/absence (Monks 1981) and migratory life histories (e.g., Kessel 1989). Mammal remains recovered from NOM-146 were evaluated using physiological events, such as epiphyseal fusion (Monks 1981). Presence/absence was also noted for the neonatal and juvenile mammal specimens according to birthing season (e.g., Wynne 2007).

Rates of epiphyseal fusion of major skeletal elements were used to estimate age-at-death for most of the mammal assemblage [i.e., canids (Sumner-Smith 1966); small seals (Storå 2000); caribou (Hufthammer 1995); hare (Tiemeier and Plenert 1964)]. Tooth eruption sequences were followed for bears (Andrews and Turner 1992; Stiner 1998). Morphometrics were also used on appropriate small-seal specimens to determine approximate age (Storå 2002). Four levels of epiphyseal fusion were identified: unfused, partially fused, mostly fused, and fused. Due to differences in fusion timing among skeletal elements and species and the lack of known fusion sequences, epiphyseal fusion was not translated into chronological age classes for any other mammals (Klein and Cruz-Uribe 1984:43).

Each of the five age categories identified by Storå (2000) were found among the small seal remains (*n* = 1631): specimens ranging from neonate/yearling to old adult were identified. Based on epiphyseal fusion of multiple skeletal elements and morphometrics of femora (Fig. 14; Storå 2002), the small ice seal remains suggest an age at death younger than twelve months (*n* = 63), younger than 10 months (*n* = 1), younger than six months (*n* = 2), younger than four months (*n* = 4), and neonatal (*n* = 14). If the seals were born in April (Wynne 2007), then the faunal assemblage includes seals that died between April and May, between June and August, between September and October, and between November and February (Eldridge 2012b:98–100). *Termini post* and *ante quem* were also calculated for canid ages. Other than the neonatal specimens (*n* = 3), the youngest canids were less than 7 months old (*n* = 3); the oldest were at least 10 months old (*n* = 4). Depending on the species represented (both Arctic foxes and wolves whelp in May; see Rearden 1981:29, 32), the canid remains may represent animals that died in May, before their first January, or after their first spring.

Based on the epiphyseal fusion of multiple caribou skeletal elements, the youngest caribou at NOM-146 were less than 6 months old at death (*n* = 4), while the oldest were at least 4 years old. Based on the lack of fusion of proximal humeri, and assuming tundra hares (which produce one litter of leverets per year in May; see Rearden 1981:148) follow a growth rate pattern similar to jackrabbits, then at least three hares were killed before November (Eldridge

2012b:102–103). Based on tooth eruption, the single bear specimen, a partial maxilla, represents a neonatal bear that died during its first winter (Eldridge 2012b:102).

In addition to aging faunal remains in order to determine the season of acquisition, ethnographic information on subsistence practices combined with the above data can help establish the season of site occupation. This is based on the premise that general animal behavior would not have changed over the past few hundred years and therefore the timing of subsistence hunting will also not have changed. Published subsistence data collected from the Seward Peninsula area (e.g., Bockstoce 1979; Ray 1975) were used to recreate the probable seasonal round of the people who lived at NOM-146.

Bockstoce (1979:12) found that caribou were usually hunted during the winter (November to March), although there was a short, late summer hunting period as well. This summer hunting period corresponds with the Iñupiaq word for the month of July, *nuġġiaqtuġvik*, which translates to the time "to hunt caribou, particularly fauns, for clothing" (Burch 2006:32). Interviews done by Schaaf (1988:37) support Bockstoce's findings.

Burch (2006) identified different hunting and processing techniques for brown and polar bears, the only similarity being that both species were butchered at the kill site due to their large size. The skull of a polar bear belonged to the hunter who first saw the animal, while brown bear skulls were never brought back to the village (Burch 2006:169–171).

Bockstoce (1979:12) and Burch (2006:148, 165) found that walrus and bearded seal were hunted as they followed the edge of the ice pack during the fall (September and October) and the spring (April to June for bearded seal and May to July for walrus). Schaaf (1988:36) was told that walrus and bearded seal were hunted primarily during spring break-up, and that smaller seals were hunted around spring break-up and freeze-up. This corresponds with Mayokok's (1951) report on spring subsistence. In southern Kotzebue Sound, Burch (2006:48) found that hunters focused on small seals in March, while Bockstoce (1979:13) was told that ringed seals were hunted all winter long in Norton Sound, from October to May.

In Norton Sound, beluga whales were hunted during the spring and summer, from May to July (Bockstoce 1979:12; Mayokok 1951; Schaaf 1988:36–37). However, it has been noted that beluga are most abundant in the sound between June and August (Sheppard 1986:139), and farther north they were hunted primarily from June to early November (Burch 2006:164).

Waterfowl and seabirds were hunted from the time they arrived in the area around May until they departed, starting in August (Bockstoce 1979:12; Burch 2006:179; Schaaf 1988:36). Although it is possible that waterfowl and seabirds could have been stored for use during winter,

Figure 14. Sample of left femora of small seals (likely all ringed seals) showing a size range indicating harvest occurred from the neonatal stage through adulthood.

Burch (2006:179–180) found that they were eaten soon after being caught. Schaaf (1988:36–37) found that ptarmigan were snared during the summer and winter, but Oquilluk (1973:99) notes that they were most commonly hunted on the Seward Peninsula in midwinter. Burch (1980:276) found that ptarmigan was often considered a "critical late winter resource," and that small terrestrial game was obtained in the fall and winter.

Although available year round, arctic ground squirrels were usually sought during late spring or early fall when their fur was thickest (Sheppard 1986:137). And although hares are also available year round, they were usually sought during late winter and early spring, in part due to the tularemia ("rabbit fever") that is endemic to the population during the summer months and is potentially fatal to humans (Sheppard 1986:136). Burch (2006:174) also found that hares were rarely pursued in summer, and Oquilluk (1973:99) said they were hunted in midwinter. However, Schaaf (1988:36–37) was told that small terrestrial mammals were snared year round.

Tomcod were caught during winter, around February, while whitefish were fished in the fall (August and September), and salmon were caught between June and August (Bockstoce 1979:12; Schaaf 1988:36–37; Sheppard 1986; Thornton 1931). At Wales, flounder were fished in February, and sculpin were caught around March. Mollusks were collected from the beaches during the summer (Thornton 1931). This information is corroborated by other ethnographic studies (e.g., Burch 1980; Ray 1975).

Based on the presence of migratory species, age-at-death reconstructions, and ethnographic comparisons, the faunal remains recovered from NOM-146 indicate that people inhabited the site throughout the year, with an emphasis on winter occupation. The extensive age range of most mammal species is indicative of periods of procurement throughout the year. The existence of animal species hunted primarily during non-winter months, such as beluga and migratory birds, potentially demonstrates spring, summer, and autumn components, although storage of these warm season animals did likely occur. The animals with the greatest number of remains belonged to species hunted primarily during the winter: tomcod, ptarmigan, ringed seal, and tundra hare.

CONCLUSION

The Snake River Sandspit site (NOM-146) in Nome, Alaska, is a well-preserved example of a regional variant of the Late Western Thule culture. The cultural material recovered from NOM-146 is consistent with similarly aged sites in the area, such as those dated to the Kotzebue period at Cape Krusenstern (Giddings and Anderson 1986), the Cape Nome phase at Cape Nome (Bockstoce 1979), and the Nukleet culture at Cape Denbigh (Giddings 1964). Radiocarbon dating of material recovered from the site denotes a likely occupation date in the eighteenth century, with possibly two occupations indicated (House A and the midden date between approximately 1500 and 1800, while House B dates to between approximately 1700 and 1800). This precontact time period is corroborated by the lack of any tobacco paraphernalia, glass, or metal found in the intact cultural layers of the site, which suggests that the site was inhabited before direct contact with Euro-Americans. Both the artifact and faunal assemblages recovered from NOM-146 indicate that the site was potentially occupied throughout the year, with a conclusive winter habitation component.

This site represents one of the few excavated Late Western Thule sites on Seward Peninsula; it is a significant and important find, eligible for the National Register of Historic Places under Criterion D. NOM-146 not only adds to our general understanding of the people and the environment in northwestern Alaska during the eighteenth century, it also provides a rare opportunity to look back into the past and see what daily life was like for Alaska Native people living in the vicinity of modern Nome more than two hundred years ago.

ACKNOWLEDGEMENTS

The excavation and analysis of NOM-146 was conducted under the auspices of the U.S. Army Corps of Engineers, Alaska District. No work would have been possible without the cooperation and assistance of the City of Nome, Carrie M. McLain Memorial Museum, and the Nome Eskimo Community. Thanks to those individuals who first identified the existence of the site: Mark Pipkin, Mike Hahn, and especially Margan Grover, who directed the excavation, organized community involvement, and completed the initial artifact analysis. Thank you to the City of Nome and Kawerak, Inc. for letting their employees use work hours to help excavate the site in 2006. The University of Alaska Anchorage (UAA) provided lab space for the faunal analysis, and access to comparative faunal collections was granted by the Alaska Consortium of Zooarchaeologists, the UAA Anthropology Department, and the Museum of the North Mammalogy and Ornithology Departments. An enormous thank you to everyone who helped with the excavation and analysis: Mark Cassell, Dominique Cordy, Tom and Nancy Eldridge, Chris Floyd, Beverly Gelzer, Karlin Itchoak, Boogles Johnson, Helen Lindemuth, Erika Malo, Guy McConnell, Hillary Palmer, Jessequa Parker, Nick Riordan, Al Sahlin, Eric and Heather Smith, Meghan Ten Eyck, Dan Thompson, Aaron Wilson, and at least a dozen more who volunteered their time and effort. And, of course, thank you to those individuals who took the time to review my M.A. thesis on the faunal analysis, the site report, and this article, and to make invaluable suggestions and edits; in particular Christyann Darwent, Margan Grover, Diane Hansen, Anne Jensen, Doug Veltre, Diane Walters, and David Yesner. This article partially mitigates the adverse effect the Nome Navigation Improvements Project had on NOM-146, as per the Memorandum of Agreement (Stipulation IV.C.1).

REFERENCES

Andrews, Peter, and Alan Turner

1992 Life and Death of the Westbury Bears. *Annales Zoologici Fennici* 28:139–149.

Bockstoce, John R.

1977 *Eskimos of Northwest Alaska in the Early Nineteenth Century*. Pitt Rivers Museum Monograph Series, no. 1, Oxprint Limited, London.

1979 *The Archaeology of Cape Nome, Alaska*. University Museum Monographs, no. 38, University of Pennsylvania, Philadelphia.

Burch, Ernest S., Jr.

1980 Traditional Eskimo Societies in Northwest Alaska. In *Alaska Native Culture and History.* Y. Kotani and W. B. Workman, eds., pp. 253–304. National Museum of Ethnology, Osaka.

2006 *Social Life in Northwest Alaska: The Structure of Iñupiaq Eskimo Nations*. University of Alaska Press, Fairbanks.

Cassell, Mark S., Carol Gelvin-Reymiller, and Sarah MacGowan

2007 Archaeological Monitoring at the Snake River Spit Entrance Channel, Nome, Alaska, 2006. Northern Land Use Research, Inc. Report for the U.S. Army Corps of Engineers, Alaska District, Joint Base Elmendorf-Richardson, Anchorage.

Claassen, Cheryl P.

1998 *Shells*. Cambridge University Press, Cambridge.

Code of Federal Regulations

2004 Title 36. Protection of Historic Properties.

Collins, Henry B., Jr.

1930 Prehistoric Eskimo Culture in Alaska. In *Explorations and Field-Work of the Smithsonian Institution in 1929*, pp. 147–156. Smithsonian Institution Press, Washington, DC.

1940 Outline of Eskimo Prehistory. *Smithsonian Miscellaneous Collections* 100:533–592.

de Laguna, Frederica

1947 *The Prehistory of Northern North America as Seen from the Yukon*. Memoirs of the Society for American Archaeology, no. 3. Menasha, WI.

Eldridge, Kelly A.

2012a Archaeological Data Recovery at the Snake River Sandspit Site in Nome, Alaska: Final Report of Investigations. Report for the U.S. Army Corps of Engineers, Alaska District, Joint Base Elmendorf-Richardson.

2012b Archaeofaunal Representation of Late Western Thule Regionalization: Insights from the Snake River Sandspit Site in Nome, Alaska. Unpublished M.A. thesis, Department of Anthropology, University of Alaska Anchorage.

Fitzhugh, William W., Julie Hollowell, and Aron L. Crowell, editors

2009 *Gifts from the Ancestors: Ancient Ivories of Bering Strait*. Princeton University Art Museum, Princeton.

Ford, James A.

1959 Eskimo Prehistory in the Vicinity of Point Barrow, Alaska. *Anthropological Papers of the Museum of Natural History*, vol. 47, part 1, American Museum of Natural History, New York.

Frink, Lisa, and Karen G. Harry

2008 The Beauty of "Ugly" Eskimo Cooking Pots. *American Antiquity* 73(1):103–118.

Giddings, J. Louis

1952 *The Arctic Woodland Culture of the Kobuk River*. University Museum Monographs. University Museum, University of Pennsylvania, Philadelphia.

1964 *The Archeology of Cape Denbigh*. Brown University Press, Providence.

Giddings, J. Louis, and Douglas D. Anderson

1986 *Beach Ridge Archaeology of Cape Krusenstern: Eskimo and Pre-Eskimo Settlements around Kotzebue Sound*. Publications in Archaeology, no. 20, National Park Service, Department of the Interior, Anchorage.

Hall, Edwin S., Jr., editor
1990 *The Utqiagvik Excavations*. North Slope Borough Commission on Iñupiat History, Language and Culture, Barrow.

Harry, Karen G., Liam Frink, Clint Swink, and Cory Dangerfield
2009 An Experimental Approach to Understanding Thule Pottery Technology. *North American Archaeologist* 30(3):291–311.

Hufthammer, Anne K.
1995 Age Determination of Reindeer (*Rangifer tarandus* L.). *Archaeozoologia* 7:33–42.

Jensen, Anne M.
2009 Nuvuk, Point Barrow, Alaska: The Thule Cemetery and Ipiutak Occupation. Unpublished Ph.D. dissertation, Department of Anthropology, Bryn Mawr College, Bryn Mawr, PA.

Kessel, Brina
1989 *Birds of the Seward Peninsula, Alaska: Their Biogeography, Seasonality, and Natural History*. University of Alaska Press, Fairbanks.

Klein, Richard G., and Kathryn Cruz-Uribe
1984 *The Analysis of Animal Bones from Archaeological Sites*. University of Chicago Press, Chicago.

Lyman, R. Lee
2008 *Quantitative Paleozoology*. Cambridge University Press, Cambridge.

Mason, Otis T.
1902 *Aboriginal American Harpoons: A Study in Ethnic Distribution and Invention*. Smithsonian Institution Press, Washington, DC.

Mason, Owen K.
2012 Memories of Warfare: Archaeology and Oral History in Assessing the Conflict and Alliance Model of Ernest S. Burch. *Arctic Anthropology* 49(2):72–93.

Mathiassen, Therkel
1927 *Archaeology of the Central Eskimos*. Report of the Fifth Thule Expedition, vol. 4, parts 1–2. Gyldendalske Boghandel, Copenhagen.
1930 *Archaeological Collections from the Western Eskimos*. Report of the Fifth Thule Expedition, vol. 10, part 1. Gyldendalske Boghandel, Copenhagen.

Mayokok, Robert
1951 *Eskimo Customs*. Nome Nugget, Nome.

McGhee, Robert
1974 *Beluga Hunters: An Archaeological Reconstruction of the History and Culture of the Mackenzie Delta Kittegaryumiut*. Newfoundland Social and Economic Studies, no. 13. Institute of Social and Economic Research, Memorial University of Newfoundland, St. John's.

Monks, Gregory. G.
1981 Seasonality Studies. In *Advances in Archaeological Method and Theory*, vol. 4, edited by Michael B. Schiffer, pp. 177–240. Academic Press, San Diego.

Morrison, David A.
1991 The Diamond Jenness Collections from Bering Strait. Archaeological Survey of Canada Mercury Series, no. 144. Canadian Museum of Civilization, Hull.

Murdoch, John
[1892] 1988 *Ethnological Results of the Point Barrow Expedition*. Ninth Annual Report of the Bureau of Ethnology, 1887–88, Smithsonian Institution. Government Printing Office, Washington, DC.

Nelson, Edward W.
[1899] 1983 *The Eskimo about Bering Strait*. Bureau of American Ethnology Annual Report 18:1–518. Smithsonian Institution Press, Washington, DC.

Oquilluk, William
1973 *People of Kauwerak: Legends of the Northern Eskimo*. Alaska Methodist University Press, Anchorage.

Pipkin, Mark E.
2005 2005 Archaeological Monitoring of the Nome Navigational Improvement Project. Walking Dog Archaeology. Report for the U.S. Army Corps of Engineers, Alaska District, Joint Base Elmendorf-Richardson, Anchorage.

Powers, William R., Jo Anne Adams, Alicia Godfrey, James A. Ketz, David C. Plaskett, and G. Richard Scott
1982 The Chukchi-Imuruk Report: Archeological Investigations in the Bering Land Bridge National Preserve, Seward Peninsula, Alaska, 1974 and 1975. Anthropology and Historic Preservation, Cooperative Park Studies Unit, Occasional Paper no. 31, University of Alaska, Fairbanks.

Ray, Dorothy Jean
1975 *The Eskimos of Bering Strait, 1650–1898*. University of Washington Press, Seattle.

Rearden, Jim, editor
1981 Alaska Mammals. *Alaska Geographic* 8(2):1–184.

Reimer, Paula J., E. Bard, A. Bayliss, J. W. Beck, P. G. Blackwell, C. Bronk Ramsey, C. E. Buck, H. Cheng, R. L. Edwards, M. Friedrich, P. M. Grootes, T. P. Guilderson, H. Haflidason, I. Hajdas, C. Hatté, T. J. Heaton, D. L. Hoffmann, A. G. Hogg, K. A. Hughen, K. F. Kaiser, B. Kromer, S. W. Manning, M. Niu, R. W. Reimer, D. A. Richards, E. M. Scott, J. R. Southon, R. A. Staff, C. S. M. Turney, J. van der Plicht

2013 IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0–50,000 Years Cal BP. *Radiocarbon* 55(4):1869–1887.

Schaaf, Jeanne M., editor

1988 The Bering Land Bridge: An Archeological Survey. Resource Management Report, no. 14, vols. 1–2. National Park Service, Anchorage.

Sheehan, Glenn W.

1997 *In the Belly of the Whale: Trade and War in Eskimo Society*. Aurora Monograph Series no. 7. Alaska Anthropological Association, Anchorage.

Sheppard, William L.

1986 Variability in Historic Norton Bay Subsistence and Settlement. Unpublished Ph.D. dissertation, Department of Anthropology, Northwestern University, Evanston, IL.

Stanford, Dennis J.

1976 *The Walakpa Site, Alaska: Its Place in the Birnirk and Thule Cultures*. Smithsonian Contributions to Anthropology, no. 20. Smithsonian Institution Press, Washington, DC.

Stiner, Mary C.

1998 Mortality Analysis of Pleistocene Bears and Its Paleoanthropological Relevance. *Journal of Human Evolution* 34:303–326.

Storå, Jan

2000 Skeletal Development in the Grey Seal *Halichoerus grypus*, the Ringed Seal *Phoca hispida botnica*, the Harbour Seal *Phoca vitulina vitulina* and the Harp Seal *Phoca groenlandica*: Epiphyseal Fusion and Life History. *Archaeozoologia* 11:199–222.

2002 Neolithic Seal Exploitation on the Åland Islands in the Baltic Sea on the Basis of Epiphyseal Fusion Data and Metric Studies. *International Journal of Osteoarchaeology* 12:49–64.

Stuiver, Minze, and Paula J. Reimer

1993 Extended ^{14}C Data Base and Revised CALIB 3.0 ^{14}C Age Calibration Program. *Radiocarbon* 35(1):215–230.

Sumner-Smith, Geoff

1966 Observations on Epiphyseal Fusion of the Canine Appendicular Skeleton. *Journal of Small Animal Practice* 7:303–311.

Tiemeier, Otto W., and Marvin L. Plenert

1964 A Comparison of Three Methods for Determining the Age of Black-Tailed Jackrabbits. *Journal of Mammalogy* 45(3):409–416.

Thornton, Harrison R.

1931 *Among the Eskimos of Wales, Alaska, 1890–93*. Johns Hopkins Press, Baltimore.

VanStone, James W.

1955 Archaeological Excavations at Kotzebue, Alaska. *Anthropological Papers of the University of Alaska* 3(2):75–155.

Wynne, Kate

2007 *Guide to Marine Mammals of Alaska*, third ed. University of Alaska Sea Grant, Fairbanks.