

# ALUTIIQ TECHNOLOGICAL INVENTORY

## CHAPTER 10. RAW MATERIALS

### **Organic Raw Material Descriptions**

September 2021 — First Compilation

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Abalone	Alutiiq Name	Quirraq
Geographic Affiliation	Non-local, off island		
Associated Industries	Carving		
Common Objects	Jewelry, decoration		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM685:16a, UA84.193:880, UA85.193:6388, UA87.193:7706, UA87.193:7709, AM193.87:9497
Description	<p>The Pinto Abalone (<i>Haliotis kamtschatkana</i>) is a shallow-water, marine snail. It is one of eight abalone species that inhabit the Pacific coast of North America, and the only abalone that lives in Alaskan waters. It can be found from Alaska's Yakutat Bay to Point Conception in southern California. As such, it was traded hundreds of miles to Kodiak.</p> <p>Although the Pinto Abalone has an unremarkable, dull, tan or pink outer shell, the shell's interior features a beautiful, glossy, blue-green nacre. This iridescent coating, also known as mother of pearl, is exceptionally strong. It is coveted by artists who used it for decorative purposes.</p> <p>This material is very rare in Alutiiq sites and the few known examples are associated with the Koniag tradition. Today Alutiiq artists use the material in jewelry.</p> <p>Abalone may be the material Davydov (1977:149) refers to in his journal:          "The women wear them in their noses or ears, where they also hang pieces of mother-of-pearl which are occasionally washed up by the sea."</p>		
References	<a href="https://www.fisheries.noaa.gov/species/pinto-abalone">https://www.fisheries.noaa.gov/species/pinto-abalone</a> <a href="https://www.adfg.alaska.gov/index.cfm?adfg=abalone.main">https://www.adfg.alaska.gov/index.cfm?adfg=abalone.main</a> <a href="https://www.adfg.alaska.gov/static/education/wns/abalone.pdf">https://www.adfg.alaska.gov/static/education/wns/abalone.pdf</a>		
Last Update	04/07/2021		

## Abalone

### MATERIAL



A pinto abalone shell collected from the ocean floor near Sitka, Alaska.

### Object



Fragment of worked abalone from Karluk One, front and back (UA193.87.9497)



# Alutiiq Technological Inventory

## Raw Material Description

English Name  Alutiiq Name

Geographic Affiliation

Associated Industries

Common Objects

Example in Kit  Yes  No Examples (Catalog #s)

Description

Amber is the fossilized resin of ancient trees, particularly conifers. This hard, substance forms when a tree's gummy oils oxidize. Contact with air solidifies the resin, creating hard lumps. People prize amber for its warm lustrous colors—yellow, brown, red—as well as the prehistoric plants and insects often trapped inside.

Historical accounts of Alutiiq society repeatedly mention amber as a highly valued material. Pieces of amber were used to decorate the garments of the wealthy. These precious stones were made into beads and incorporated into jewelry, including earrings, pendants, armbands, and necklaces. They were also strewn on graves or given to young men preparing for warfare.

Amber is one of the materials Alutiiq people traded for with communities on the Alaska Peninsula, where the material is known to occur.

Amber is said to wash up on beaches, particularly on Chirikof Island, and to be particularly common after an earthquake. This may be because deposits of the material were carried to Chirikof by glaciers originating on the Alaska mainland.

References

Last Update

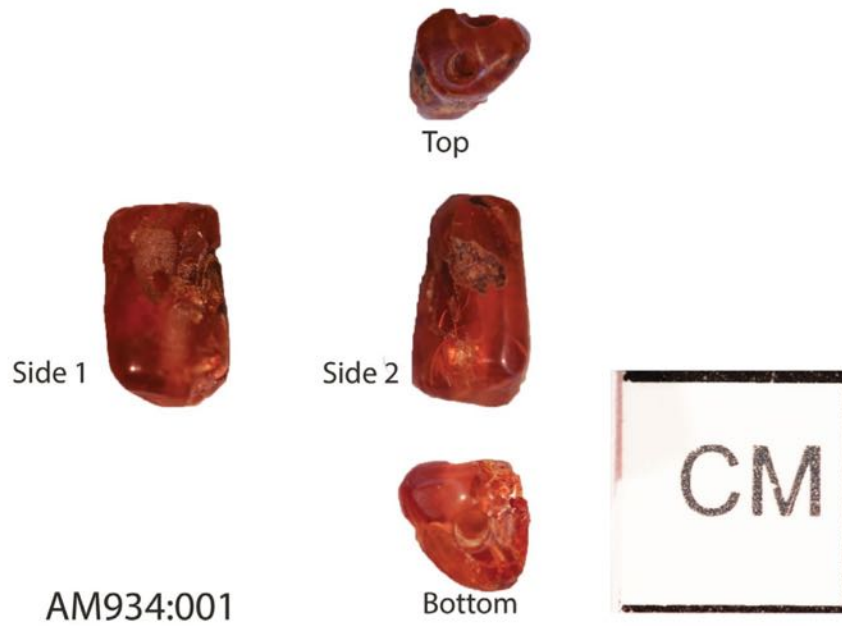
## Amber

### MATERIAL



Pieces of amber attached to a basket by Cleo Chernoff

### OBJECTS



Amber bead from KOD-1362

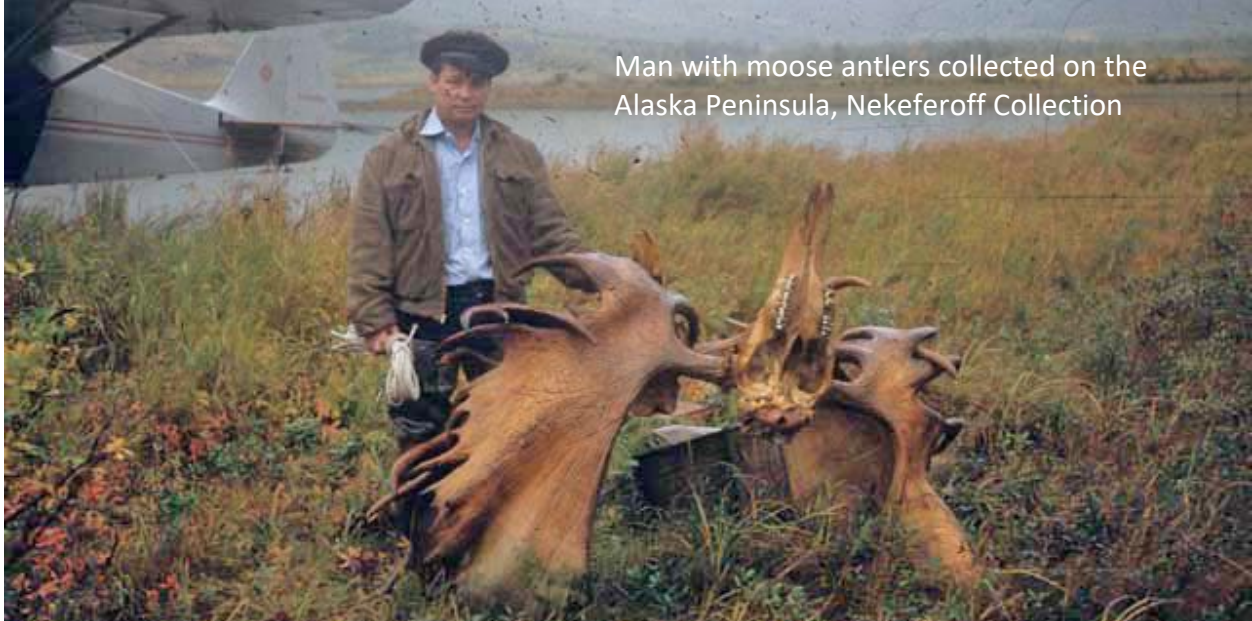
# Alutiiq Technological Inventory

## Raw Material Description

English Name	Antler		Alutiiq Name	Ciruneq
Geographic Affiliation	Non-local, off island. Antler growing animals were not indigenous to the Kodiak region. Deer and elk were both introduced in the 20th century, and were not available to ancestral foragers. Most of the antler used by Alutiiq ancestors was probably caribou traded, collected, or obtained through hunting on the Alaska mainland. Although small quantities of moose antler may have made it into artists' hands, moose were rare on the Alaska Peninsula			
Associated Industries	Carving			
Common Objects	Harpoons heads (togging and non-togging), fish harpoons valves, bird arrows, wedges, and many others			
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM14.193.68 (fish harpoon valve), AM193.95.9240 (worked antler), AM193.87.11386 (wedge)	
Description	<p>Antler is a compact form of bone grown and shed annually by animals of the deer family. Unlike horn, which is made of keratin, antler is formed from ash, calcium, and phosphorous. This porous, resilient material is excellent for making tools. Although it is not as strong as land mammal bone, it is fracture resistant. Archaeological data illustrate that craftsmen employed antler regularly in the manufacture of objects designed to withstand an impact. This was a preferred material even though it was not locally available.</p> <p>Antler occurs in substantial quantities in Alutiiq settlements with organic preservation, as raw material, debitage, preforms, and finished pieces—evidence that craftsmen were working the material on Kodiak not just trading for finished objects.</p> <p>When identifying antler look for evidence of the original, unmodified material - tines, the thick, bulbous, bumpy base of the antler, and the distinct surface of the material. Antler debitage often has elements like these. Antler also has a thick cortex (or rind) much more so than many bony elements. This thick rind tends to be dense, dull and have an outer almost fuzzy patina. Finally, antler tends to have much smaller sized holes in the material that forms its spongy center. In scientific terms, the intratrabecular spaces in antler are smaller than those in bone (less than 3 mm suggests antler).</p> <p>Antler is spongier than bone, and tends to erode a bit when buried in archaeological contents. If an artifact looks melted, this can be a clue that it is made of antler.</p> <p>Sometimes it can be very difficult to differentiate antler from bone.</p>			
References	<p>Dale, Joan, Craig Gerlach, and Gary M. Salinger, 1989, Macroscopic identification of bone, ivory, and antler for the archaeologist and paleontologist. MS on file Alutiiq Museum, Kodiak.</p> <p>Margaris, Amy, 2006, Alutiiq Engineering: The mechanical design of skeletal technologies in Alaska's Kodiak Archipelago. Doctoral Dissertation, University of Arizona.</p>			
Last Update	04/07/2021			

## Antler

### MATERIAL



Man with moose antlers collected on the Alaska Peninsula, Nekeferoff Collection



Alaskan caribou, courtesy of the USFWS National Digital Library

## Alutiiq Technological Inventory — Raw Materials

### OBJECTS



Worked pieces of antler from Karluk One



Antler harpoon points



Antler wedge





# Alutiiq Technological Inventory

## Raw Material Description

English Name	Baleen	Alutiiq Name	Kagit'ruaq
Geographic Affiliation	Locally harvested from baleen whales found in the waters surrounding Kodiak—e.g., humpback, grey, minke, and fin whales which are seasonally abundant in the Kodiak region and frequent nearshore waters. Other baleen species in the region include the northern right, blue, and sei whales, but they are more often found in deep, open marine waters. This second set of species is less accessible.		
Associated Industries	Weaving		
Common Objects	Baskets, lashings, lanyards, wrist clip, snood		
Example in Kit	<input type="radio"/> Yes <input checked="" type="radio"/> No	Examples (Catalog #s)	UA83.193.602 (sample), AM193.94.3225 (snood)
Description	<p>Baleen is a stiff keratinous tissue found in the mouths of certain whales (mysticete or filter feeding baleen whales). Alaska's filter-feeding whales use hundreds of sheets of baleen to strain krill, small fish, and plankton from ocean water. Baleen whales can have up to 700 plates of this tough but flexible material in their mouths.</p> <p>Baleen sometimes washed up on shore, lost from a dead or injured animal. However, it was more likely harvested from small whales taken by hunters during the warm season when both resident and migratory baleen whales are present around the Kodiak archipelago.</p> <p>Baleen is prized for its flexibility. The Karluk One site contains the remains of an Alutiiq village dating from about 600 years ago to the historic period. Baleen is common throughout the site's prehistoric layers, both as raw material and as a part of finished objects. Karluk residents used thin strands of baleen to lash handles to tools, stitch the ends of bentwood vessel rims together, tie suits of wooden armor, join the pieces of model kayaks, braid cords, and weave baskets.</p> <p>Baleen often appears as a group of stiff black fiber in archaeological contents, with some stuck together. They are found in a variety of lengths, from short pieces (matchstick length) to pieces the length of a forearm. To date, very long segments have not been recovered, suggesting the the material is being processed into smaller lengths before being used and deposited in ancestral settlements. Some examples of baleen fibers from Karluk 1 have been pulled apart to make lengths for lashing.</p>		
References	Wynne, Kate, 1993, Guide to Marine Mammals of Alaska, University of Alaska Fairbanks, Fairbanks. Steffian, Amy F., Marnie A. Leist, Sven D. Haakanson, and Patrick G. Saltonstall, 2015, Kal'unek—From Karluk. University of Alaska Press, Fairbanks.		
Last Update	04/05/2021		

# Alutiiq Technological Inventory — Raw Materials

## BALEEN

### MATERIAL



Plate of baleen, AM915

Cut strips, created by Coral Chernoff



Fragments, Kumluk Site, AM711.918

### OBJECTS



Wrist clip, K1  
UA85.193.3540



Basket Fragment, K1,  
AM193.87.19050



Worked fragments K1,  
UA87.193.7730, AM193.M:761,  
AM193.94.1421



# Alutiiq Technological Inventory

## Raw Material Description

English Name	Birch Bark	Alutiiq Name	Qasrulek, qasruq
Geographic Affiliation	Local—introduced. Paper birch trees are rare in the Kodiak region, although the related, smaller Kenai Birch ( <i>Betula kenaica</i> Evans) is common in coastal thickets and can grow to a large size. Today, there are reports of a stand of paper birch in the river valley at the head of Midway Bay, just north of Old Harbor. Paper birch also arrives in the Kodiak Archipelago as driftwood—as logs and as bark.		
Associated Industries	Stiching		
Common Objects	Containers, patches, shims (in sockets)		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM193.95.917, AM193.87:19045, AM230;15
Description	<p>Alaska Native people have been harvesting the bark of the paper birch (<i>Betula neoalaskana</i> Sarg.) for millennia. The tree's sturdy, flexible, waterproof bark is excellent material for manufacturing boats and containers and can be used as roofing. People typically collect birch bark in the spring, when it is easiest to remove from trees. Older birches produce good, flexible bark. Based on subtle clues in a tree's appearance, experienced harvester can identify those with the best bark. To work with the material, craftsmen often heat or steam the bark to help it fold, and then use willow or spruce roots to stitch an object together.</p> <p>Birch bark has distinctive papery layers that can be peeled apart. The material found in Kodiak's archaeological sites / used in artifacts tends to include the thick inner layers of the bark and not the more fragile, papery outer layers. It is typically brown and may be folded or stitched.</p>		
References	Russell, Priscilla 2019, Naut'staarpet—Our Plants. Alutiiq Museum, Kodiak.		
Last Update	04/09/2021		

## Birch Bark

### MATERIAL



Mainland paper birch



Kodiak Black Birch

## Alutiiq Technological Inventory — Raw Materials

### OBJECTS



Fragment of a birch bark container from Karluk One (paper birch? & spruce root)



Pieces of cut birch bark from Karluk One (black birch?)



# Alutiiq Technological Inventory

## Raw Material Description

English Name	Bird Bone	Alutiiq Name	Sakullkanam nenea
Geographic Affiliation	Local, on-island. Alutiiq people harvested a great variety of birds - including both marine birds and waterfowl. Bones from these species represent a plentiful resource.		
Associated Industries	Carving		
Common Objects	Awls, needles, tubes, beads		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM513:604 (awl)
Description	<p>Birds have a lightweight skeleton made of mostly hollow bones—with a tubular shape. Many birds lack marrow cavities inside their bone, but instead have a hollow gas-filled chamber. Despite their hollow form, bird bones consists entirely of cortical bone and are rigid and strong.</p> <p>Alutiiq craftsmen typically used bird bone to craft sewing tools—needles and awls. The bone could be sharpened to a point and it was strong enough to poke holes in leather. To create an awl, a carver removed the knobby ends from the hollow wing bone of a large bird. This created a tube from which long narrow slivers of bone were cut. The slivers were then ground to a sharp point with a piece of pumice or sandstone. Archaeological studies indicate that certain elements of large birds may have been preferred for this purpose. For example, at KOD-1362, a Koniag tradition camp on the coast of Chiniak Bay, analysis of faunal elements suggests that shearwater and albatross humeri were selectively collected by residents.</p>		
References	Margaris, Amy, 2006, Alutiiq Engineering: The mechanical design of skeletal technologies in Alaska's Kodiak Archipelago. Doctoral Dissertation, University of Arizona. Gelvin-Ryemiller, Carol and Joshua Reuther, 2010, Birds, Needles, and Iron: Late Holocene Prehistoric Alaskan Grooving Techniques. Alaska Journal of Anthropology, 8(1):1-22.		
Last Update	04/06/2021		

## Alutiiq Technological Inventory — Raw Materials

### BIRD BONE

#### MATERIAL & OBJECT



This photograph of bird bone artifacts from the Uyak Site (KOD-145, AM3), illustrates the way bird bones were worked to create awls and needles.



Bird bone awl from the Malriik Site, KOD-405.



# Alutiiq Technological Inventory

## Raw Material Description

English Name  Alutiiq Name

Geographic Affiliation

Associated Industries

Common Objects

Example in Kit  Yes  No Examples (Catalog #s)

Description

References

Last Update



## Alutiiq Technological Inventory — Raw Materials

### Clam Shell

#### MATERIAL



Recently harvested clams resting in the bottom of a dory.



Ancestral midden with clam and cockle shells.

#### OBJECTS



Clam shell beads from the Uyak site resting on a piece of clam shell.



# Alutiiq Technological Inventory

## Raw Material Description

English Name  Alutiiq Name

Geographic Affiliation

Associated Industries

Common Objects

Example in Kit  Yes  No Examples (Catalog #s)

Description

References

Last Update

## Alutiiq Technological Inventory — Raw Materials

### Coral

#### MATERIAL



Pink coral in Kodiak waters



Coral collected on Kodiak Island and kept in a basket of small treasures (two views of same piece).



# Alutiiq Technological Inventory

## Raw Material Description

English Name	Cottonwood Bark	Alutiiq Name	Ciqum Qelta
Geographic Affiliation	Local—on island. Cottonwood trees are abundant in Kodiak's coastal meadows and are also among the species carried to Kodiak shores as driftwood. Cottonwood bark can be harvested from local trees but it is also common on local beaches and much of the material used for artifacts was probably collected from beaches.		
Associated Industries	Carving		
Common Objects	Toys, gaming disks, net floats, maskettes, figurines and more		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM193.87.9352 (maskette), AM193.94:1482 (maskette), AM14:16 toy boat
Description	<p>Cottonwood bark is a soft, lightweight, buoyant material. It floats. As it ages it turns from grey to brown and may include patches or layers of very dark brown, almost black material. The bark has many layers that delaminate easily. It can be collected from the beach in thick slabs that are well suited for carving small objects.</p> <p>This material is easy to carve and it was used to make a variety of items, especially toy kayaks (because it floats).</p>		
References	Russell, Priscilla 2019, Naut'staarpet—Our Plants. Alutiiq Museum, Kodiak.		
Last Update	04/09/2021		

## Cottonwood Bark

### MATERIAL



Left: bark on cottonwood tree; Right: cottonwood bark on beach

### OBJECTS



Left: bark mask; Right: netfloats, all from Karluk One

# Alutiiq Technological Inventory

## Raw Material Description

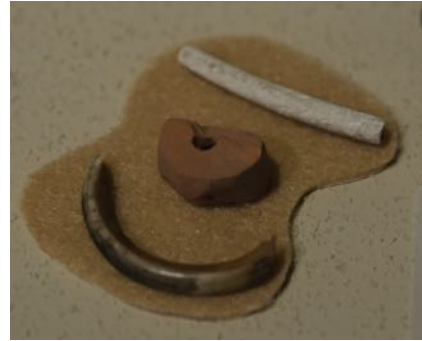
English Name	Dentalium Shell	Alutiiq Name	Aimhnaq
Geographic Affiliation	Non-local, off island. There are two types of dentalium found along the Pacific coast of North America. The most common, and the only type found in Southeast Alaska and Western Canada, is the Indian money tusk ( <i>Dentalium pretiosum</i> ). They often grow beneath deep waters, but can also be found close shore. Dentalium are particularly common around Vancouver Island. Native Alaskans fished for dentalium shells in the Copper River area and in		
Associated Industries	Beading, Decorative		
Common Objects	Beads, used on garments and jewelry		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM110.266 (teaching collection - shell), AM516 (hat with dentalium shell decorations), AM33:3205 (shell from Settlement Point site)
Description	<p>Dentalium, the long, slender white shells, come from scaphopods, a type of hollow-shelled mollusks. The name dentalium is derived from the Latin word <i>dentis</i>, meaning tooth. Aply, dentalium are sometimes referred to as tusk shells as they are white to grey, gently curved, and taper from a large opening to a small (like a cone). Empty dentalium shells are ideal for beading, as they have a hole at each end. Older shells may yellow.</p> <p>Alutiiq people sewed dentalium shells to hats, and used them in beaded earrings, bracelets, necklaces, and headdresses, and as nose pins. The shells were considered very valuable, and their use may be hundreds of years old. Pebbles incised with drawings of people more than 500 years ago seem to show dentalium shell necklaces.</p> <p>Trade in dentalium shells well-documented, with shells traveling great distances from the Northwest Coast to places like interior Alaska, Kodiak, and the Aleutian Islands.</p>		
References	Davydov, G.I., 1977, <i>Two voyages to Russian America, 1802-1807</i> , Limestone Press, Kingston, Ontario.		
Last Update	04/07/2021		

## Dentalium Shell

### MATERIAL



Dentalium shells, courtesy of ADF&G



Dentalium shell (top), from the Settlement Point site, Afognak Island

### OBJECT



Spruce root hat collected on Kodiak by Andrew Kashevaroff, AM516

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Driftwood	Alutiiq Name	Pukilaaq; Kapilaaq; Tep'aaq (small;medium;full)
Geographic Affiliation	Introduced, on-island and non-local. Kodiak lies at the western limit of Alaska's coastal rainforest. Currents, wind, and waves deliver an abundance of driftwood to the archipelago's shores. Some woods comes from great distances—the forests of southeast Alaska. Other woods is from the island's spruce forests and groves of deciduous trees and large brush.		
Associated Industries	Carving		
Common Objects	Kayak parts, floors, posts, net float, labrets, wedges, masks...etc.		
Example in Kit	<input type="radio"/> Yes <input checked="" type="radio"/> No	Examples (Catalog #s)	AM716:147 (unworked driftwood)
Description	<p>Driftwood is a major resource in Alutiiq communities, providing fuel for homes, banyas and smokers, as well as raw material for building homes and boats, and carving many of the tools essential to daily life. Although spruce trees are abundant at the northern end of the archipelago on Shuyak, Afognak, Raspberry, Marmot, Spruce, and northern Kodiak Islands, these plants are relatively recent colonists. Pollen and tree-ring studies indicate that the spruce forests of Shuyak, Afognak, and northern Kodiak are 500 to 900 years old. As such, much of the wood used in Alutiiq communities was likely driftwood, although cottonwood, alder, and willow are locally abundance species.</p> <p>Archaeologists have only begun to look at the types of driftwood represented in Alutiiq assemblages. This is an area where additional research is needed. Eventually, this raw material category should be divided into the types of wood represented - e.g., spruce, hemlock, pacific yew, cedar, birch, poplar, etc. For now, this is a catch all category designed to highlight the importance of wood as a drift resource and the potential to learn more about the selection of wood species for specific applications.</p>		
References	Russell, Priscilla 2019, Naut'staarpet—Our Plants. Alutiiq Museum, Kodiak.		
Last Update	04/07/2021		



## Driftwood

### MATERIAL



Driftwood on the beach at Cape Alitak.

### OBJECT



Unmodified piece of driftwood from Charles Mackey Teaching Collection, AM716.147

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Grass (Rye)	Alutiiq Name	Weg'et
Geographic Affiliation	Local, on-island. More than sixty-five varieties of grasses grow in the Kodiak Archipelago, as well as many types of sedges and rushes. The most widely harvested grass is beach rye grass ( <i>Elymus arenarius</i> ), a plant common across the northern hemisphere. This tall, sturdy grass grows in open environments, particularly at the margins of saltwater beaches. It has wide, flat, coarse leaves that are known for their stiffness.		
Associated Industries	Woven		
Common Objects	Basket		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM617 (contemporary rye grass basket), AM- (ancestral grass basket)
Description	<p>Grass was an especially important raw material in Kodiak's treeless regions. Alutiiq people used it in building and insulating structures. Each fall grasses were cut to thatch the roofs of sod houses, provide a clean floor covering, and create fresh bedding. Grass was also used in food storage and preparation. Storage pits were lined with grass, grass provided tinder for cooking fires, and it was used as a cutting surface: a clean place to butcher fish and meat. Alutiiq people once used rye grass to create a variety of household objects. They wove baskets, drinking cups, mittens, and socks from this grass and tied it into banya switches.</p> <p>Grass is common in historic, ethnographic, and contemporary art collections, but rare in archaeological assemblages. The known examples are from late prehistoric sites. As it ages, grass darkens from a warm beige color to brown, and in buried assemblages it turns to dark brown or black. Grass strands are typically thinner, flatter, and more delicate than spruce root strands.</p> <p>Rye grass leaves have a rib in the center that craftspeople remove before using in weaving. As such, the strands are typically reduced from the full leaf to long fragments of leaves. Depending on the width of weaving material required, the fragments may be split into thin lengths several times.</p> <p>Sometimes, multiple strands of grass fiber were twisted together to create strands for weaving, or multiple twisted strands were braided to create cordage.</p>		
References	<p>Russell, Priscilla 2019, Naut'staarpet—Our Plants. Alutiiq Museum, Kodiak.</p> <p>Steffian, Amy F., Marnie A. Leist, Sven D. Haakanson Jr., and Patrick G. Saltonstall, 2015, Kal'unek—From Karluk, University of Alaska Press, Fairbanks.</p>		
Last Update	04/07/2021		

## Alutiiq Technological Inventory — Raw Materials

### Grass

#### MATERIAL



Beach rye behind the beach on Sitkalidak Island.



Arlene skinner with harvested beach rye grass.

## Alutiiq Technological Inventory — Raw Materials

### OBJECT



Grass on a house floor at the Karluk One site.



Grass basket start, Karluk One site.



Right: Small grass basket, Left: Grass cordage Karluk One site.



# Alutiiq Technological Inventory

## Raw Material Description

English Name	Halibut Vertebrae	Alutiiq Name	
Geographic Affiliation	Local, on-island. Halibut are widely available in Kodiak Archipelago waters, particularly in the warm months where they move closer to shore.		
Associated Industries	Carving		
Common Objects	Beads		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	Clyda Christiansen Avocational Collection, Crag Point
Description	<p>Halibut vertebrae are distinctively larger than those of salmon or cod. They have a large circular body attached to a pair of long, protruding processes. The body of the vertebrae has a lattice work of bone inside, capped on each end by a circular bony plate.</p> <p>Alutiiq craftsmen made disks or beads from halibut vertebrae, harvesting the bony plates off the body of the vertebrae for this purpose. They cut the processes off the body of the vertebrae and smoothed the edges of the body, then they cut the plates off. Sometimes the circular plate has a hole in the center. In others, the plate has been largely carved out, leaving a circular ring of material.</p> <p>These beads are not common, but where they do occur, they are typically affiliated with the Kachemak tradition deposits (see de Laguna 1975: Plate 51).</p>		
References	<p>Hoffman, Kirsten, 1987, The Crag Point Site: A preliminary report of the 1986 excavations. Senior Thesis, Bryn Mawr College.</p> <p>de Laguna, Frederica, 1975, The Archaeology of Cook Inlet, Alaska. Alaska Historical Society, Anchorage.</p>		
Last Update	04/06/2021		

## Halibut Vertebrae

### MATERIAL



Prehistoric halibut vertebrae surrounding a modern halibut vertebrae.  
From: <http://www.pacificid.com/pages-added/research2.php>

### OBJECTS



Halibut Vertebrae Beads from the Clyda Christiansen Advocational Collection, AM679

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Horn	Alutiiq Name	Ciruneq
Geographic Affiliation	Non-local, off island. Horn producing animals are not indigenous tot the Kodiak region, so all horn in collections is imported. In Prince William Sound and on the Kenai Peninsula, Alutiiq people harvested the horns of mountain goats.		
Associated Industries	Carved		
Common Objects	Spoons, blood-letting instrument, gut scraper		
Example in Kit	<input type="radio"/> Yes <input checked="" type="radio"/> No	Examples (Catalog #s)	AM50:16 (blood letting horn), AM15.193.326 (gut scraper)
Description	<p>Horn is a hard but flexible material that grows from an animal's heads. Typically found in pairs, horns feature a core of bone covered with a hard layer of keratinized skin. The quality of the material depends on the type of animal and its condition. Healthy animals produce strong, elastic horn that can be made into beautiful objects.</p> <p>Goat horn from the Alaskan mainland is the likely source of horn used by Alutiiq craftspeople. Both male and female goats have horns that grow continuously, laying down new rings of keratin each year. These horns are short—just 8 to 12 inches long, sharply pointed, gently curved, and black. This material has not be found in Kodiak's archaeological sites.</p> <p>From this material, craftsmen fashioned elegant spoons. The first step in working horn is to clean out the spongy, blood rich, inner corn, a messy job that can be accomplished with a combination of soaking, scraping, or aging the horn. With a clean piece of material, carvers can season the material and work it dry, or soften the horn by soaking. Alutiiq methods of working horn are not recorded. However, they were probably similar to those of the neighboring Tlingit people, who also manufactured horn spoons. Tlingit carvers spit mountain goat horns in half, boil the pieces, soak them in oil, and then mold them to a desired shape. When it was time to carve, craftsman use warm water to soften the material. The final step was to buff the carving to create a shinny surface.</p>		
References	Varjola, Pirjo 1990 The Etholén Collection. The Ethnographic Alaskan collection of Adolf Etholén and his contemporaries in the National Museum of Finland. National Board of Antiquities of Finland, Helsinki.		
Last Update	04/07/2021		

## Alutiiq Technological Inventory — Raw Materials

### Horn

#### MATERIAL



Mountain goat on Kodiak Island (introduced in the 20<sup>th</sup> century)

#### OBJECT



Left: Horn spoon from the Etholen Collection, National Museum of Finland. Right: Gutscraper of horn from Karluk One.



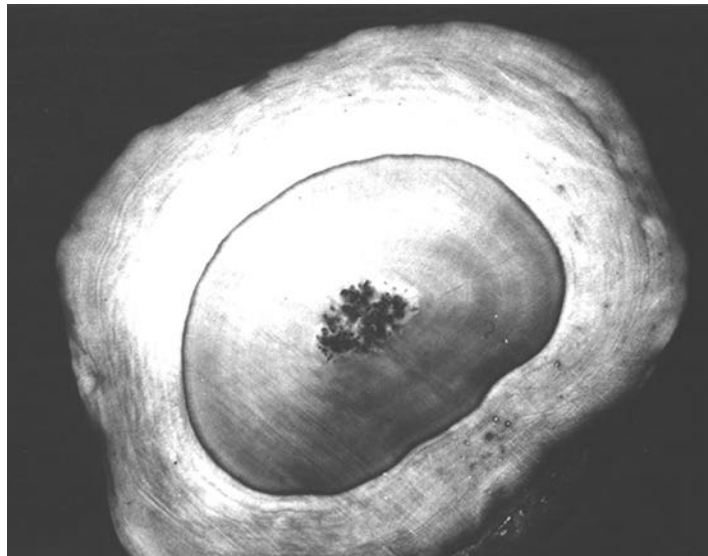
# Alutiiq Technological Inventory

## Raw Material Description

English Name	Ivory	Alutiiq Name	Tuluq
Geographic Affiliation	Non-local, off island. There are a variety of ivory sources in Alaska, and none of them can be considered locally available on Kodiak. Walrus are coastal resident of western Alaska, found along the shores of the Bering and Chukchi seas. These large sea mammals occasionally stray into the Gulf of Alaska, but the region's warm, ice free waters are beyond their typical range. Fossil ivory also occurs in Alaska (e.g., mammoth tooth and tusk).		
Associated Industries	Carved		
Common Objects	labrets, pendant, snuff box, pins, figurines (animal and human), fish lures, beads, inlays		
Example in Kit	<input type="radio"/> Yes <input checked="" type="radio"/> No	Examples (Catalog #s)	AM1:37789 (walrus head carving), UA88.78.3525 (ivory pin), AM33.2448 worked ivory
Description	<p>Walrus ivory comes from the animal's tusks, which are its two upper canines. These teeth can grow up to a meter long. Because it is a heavily mineralized material, ivory is typically smooth, and free of irregularities - although fine cracks are often present. Ivory is also very durable. These characteristics allow ivory to be carved and polished into beautiful shapes.</p> <p>Ivory typically ranges from buff to yellow in color, but may be dark brown (particularly if it has been buried). Walrus tusk had two types of dentin—primary dentine and secondary dentine—each with a unique appearance. Primary dentine has a classical ivory appearance. Secondary dentine looks marbled, and like oatmeal. Any large piece of ivory should show the secondary dentin.</p> <p>Although walrus are not indigenous to the Gulf of Alaska, walrus ivory has made its way to Kodiak for thousands of years. Small, carved, ivory objects appear in Kodiak's oldest sites. Although they are rare, these objects indicate Alutiiq people were familiar with the properties of ivory. About 2,500 years ago ivory became more common and settlements contain worked pieces of ivory as well as finished ivory objects. These artifacts suggest that ivory was accessible and worked regularly. Most of these ivory carvings are smalls and decorative. People made jewelry, amulets, and even dolls from ivory. One small ivory carving, from the Uyak site in Larsen Bay, depicts a walrus head! But there are also some large ivory carvings. A figurine found on Afognak Island was fashioned from a 10-inch section of tusk.</p> <p>Fossilized Ivory can be present in Kodiak artifact assemblages, but it is very rare. It is tempting to conclude that amber or brown pieces of ivory are fossilized, but this color can come from being buried. Mammoth ivory can be differentiated from walrus ivory relatively easily. In cross section mammoth tusk has a distinctive herring bone pattern (a series of arcing and crisscrossing lines radiating from the center). In contrast, walrus ivory has a ringed pattern (reflecting its a cone in cone structure), like tree rings. Mammoth Ivory also lacks the distinct internal dentin and is typically uniform throughout. See: <a href="https://www.fws.gov/lab/ivory_natural.php">https://www.fws.gov/lab/ivory_natural.php</a></p>		
References	<p>Dale, Joan, Craig Gerlach, and Gary M. Salinger, 1989, Macroscopic identification of bone, ivory, and antler for the archaeologist and paleontologist. MS on file Alutiiq Museum, Kodiak.</p> <p>Margaris, Amy, 2006, Alutiiq Engineering: The mechanical design of skeletal technologies in Alaska's Kodiak Archipelago. Doctoral Dissertation, University of Arizona.</p>		
Last Update	04/08/2021		

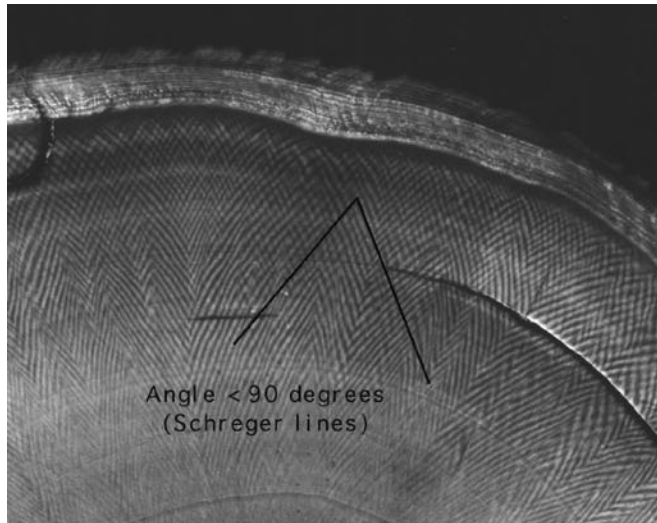
## IVORY

### MATERIAL



Left: Walrus, courtesy the UFWFS National Digital Library

Right: Walrus Tusk Cross Section, [https://www.fws.gov/lab/ivory\\_natural.php](https://www.fws.gov/lab/ivory_natural.php)



Left: Woolly Mammoth reconstructions, courtesy of Wikipedia, [https://en.wikipedia.org/wiki/Revival\\_of\\_the\\_woolly\\_mammoth](https://en.wikipedia.org/wiki/Revival_of_the_woolly_mammoth)

Right: Mammoth Tusk Cross Section, [https://www.fws.gov/lab/ivory\\_natural.php](https://www.fws.gov/lab/ivory_natural.php)

## Alutiiq Technological Inventory — Raw Materials

### OBJECTS



Small ivory carvings from various Kodiak sites



Ivory walrus head from the Uyak site



Ivory pin showing a sea otter, Afognak Artel site



Fragments of worked ivory- left & center: Settlement Point, right: Karluk One site

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Kelp	Alutiiq Name	Nasqulut
Geographic Affiliation	Local, widely available throughout the archipelago		
Associated Industries	Twisted		
Common Objects	Line, hafting aid		
Example in Kit	<input type="radio"/> Yes <input checked="" type="radio"/> No	Examples (Catalog #s)	AM193.95.162
Description	<p>Bull kelp (<i>Nereocystis luetkeana</i>) is a variety of seaweed with a long, hollow stem attached to a bulb with trailing leaves. This plant grows abundantly in Kodiak's nearshore waters and has a one-year life cycle. Microscopic spores emitted in the fall live through the winter to produce new kelp each spring. During the warm months, the plant grows rapidly, forming a sturdy stem up to sixty feet long. In the winter, kelp plants die, and large accumulations wash onto area beaches.</p> <p>Alutiiq people once used the kelp's hollow stem as a suction tube. Pieces about two feet long and one inch in diameter were kept in kayaks and used to bail water. The thinner parts of the stem were dried and used for line. The line was soaked in saltwater to make it supple and then used to anchor kayaks or as line for jigging halibut, cod, and rockfish. A complete fishing rig in the collections of the Russian Museum of Anthropology and Ethnography features a large skein of kelp line. The skein is about 91 cm in diameter and contains over 40 individual loops. This suggest that the rig had over 120 feet of line.</p> <p>Bull kelp is an excellent material for line because it is long and strong. The stipe or thin stem of a kelp plant can grow up to about 100 feet long and will stretch a great distance before breaking. Scientist report that kelp stems are as strong as wood or bone due to their elasticity. Alutiiq craftsmen took advantage of this unique property to create fishing line that would not only reach the ocean floor but that would hold a struggling fish.</p> <p>Kelp is extremely rare in archaeological contexts, because it is delicate. However, a line sinker from Karluk One features a strip of what appears to be kelp lining its pecked groove. Indentations in the kelp suggest that the material helped to secure a line to the sinker.</p>		
References	Korsun, S.A., 2010, <i>The Alutii/Sugpiat A Catalog of the Collections of the Kuntskamera</i> . University of Alaska Press, Fairbanks.		
Last Update	04/08/2021		

## Alutiiq Technological Inventory — Raw Materials

### KELP

#### MATERIAL



Kelp on the beach in Kodiak.

#### OBJECTS



Grooved line sinker with kelp lining (to help secure a line) from Karluk One, AM193

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Land Mammal Bone	Alutiiq Name	Specific animal (but ending m) + nenraa
Geographic Affiliation	Local, on-island = the bones of bear, fox, river otter, domestic dog, ground squirrel are all possible sources of material and we assume that land mammal bone is local unless there is a way to identify the element / animal from which it came. For example, there is at least one caribou bone tool in the Uyak site assemblage. The articular end of the bone is still in place, allowing a faunal analyst to identify the material as caribou.		
Associated Industries	Carved		
Common Objects	Awls, harpoon heads, and many others - widely present		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM33.690
Description	<p>The bones found found in land mammals have three different components.</p> <p>Compact bone = The dense structural bone with few holes or spaces. Most compact bones will have just a few small holes - nutrient foramina. Most limb bone have a thick shaft of compact bone with a tubular, interior cavity filled with cancelous bone. Compact bone is the land mammal bone most likely to be made into tools. It is among the strongest and stiffest boney material available for tool production. However it is also brittle, and studies suggest antler was often a preferred material for its resilience.</p> <p>Cancelous bone / Trabecular Bone = spongy bone with many holes / pores (&gt;3.5 mm typically). This is the lattice of bone typically found in the ends of the cavity of a long bone, where marrow is produced. This brittle bone is not typically used in tools, although it may be present in association with one of the other types of bone.</p> <p>Subcondral bone = articular ends of bones. This type of bone may appear in tools made from land mammal bone, particularly in association with compact bone.</p> <p>Alutiiq craftspeople often made tools from the compact bone of land mammal limb bones. This bone can be confused with ivory, as it is often yellowish, shiny, uniform, and compact. Like ivory it is highly mineralized. Look for evidence of inner cancelous (spongy) bone, or other anatomical structures (e.g., nutrient foramina, the curve of the marrow cavity, etc.) that indicate the piece is not from ivory (which grows in rings).</p>		
References	<p>Dale, Joan, Craig Gerlach, and Gary M. Salinger, 1989, Macroscopic identification of bone, ivory, and antler for the archaeologist and paleontologist. MS on file Alutiiq Museum, Kodiak.</p> <p>Margaris, Amy, 2006, Alutiiq Engineering: The mechanical design of skeletal technologies in Alaska's Kodiak Archipelago. Doctoral Dissertation, University of Arizona.</p>		
Last Update	04/09/2021		

## Land Mammal Bone

### OBJECTS



Figurines from the Uyak Site

Left = ivory

Right = land mammal bone



Fragments of land mammal bone from Settlement Point

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Mussel Shell	Alutiiq Name	Qapilam salaa
Geographic Affiliation	Local, on-island. The Kodiak Archipelago has more than 2,400 miles of shoreline, much of it covered with intertidal organisms. Most beaches have dense concentrations of shellfish—barnacles, blue mussels, chitons, limpets, snails, whelks, and sea urchins, while sandier beaches hold clams, cockles, and tellins. Only the exposed cobble beaches of Kodiak's outer coast and areas with heavy freshwater drainage are devoid of intertidal fauna.		
Associated Industries	Grinding		
Common Objects	Knives, scrapers (?), spoons (?)		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	UA85.193.3162
Description	<p>Shell is a ubiquitous material in the Kodiak region, but it was only occasionally used as a raw material by Alutiiq craftsmen. Worked mussel shell is very rare, but historic sources mention shell knives and an example from the Karluk One site is ground into a long triangle shape with one sharp edge. Both the nacre on the inside of the shell (with a pearly purple sheen) and the black, ribbed exterior surface of the shell are still present. This piece is from the late prehistoric Koniag tradition.</p> <p>Davydov (1977:186) notes that Alutiiq people used sharpened shells as knives.</p> <p>The Northern Horse Mussels (<i>Modiolus modiolus</i>) maybe the source of these shells.</p>		
References	<p>Steffian, Amy F., Marnie A. Leist, Sven D. Haakanson Jr., and Patrick G. Saltonstall, 2015, <i>Kal'unek—From Karluk</i>, University of Alaska Press, Fairbanks.</p> <p>Davydov, G.I., 1977, <i>Two voyages to Russian America, 1802-1807</i>, Limestone Press, Kingston, Ontario.</p>		
Last Update	04/07/2021		



## Mussel

### MATERIAL



Blue mussels on the shore of Kodiak Island

### OBJECT



Ground mussel shell knife from Karluk One



# Alutiiq Technological Inventory

## Raw Material Description

English Name  Alutiiq Name

Geographic Affiliation

Associated Industries

Common Objects

Example in Kit  Yes  No Examples (Catalog #s)

Description

References

Last Update

Alutiiq Technological Inventory — Raw Materials

Rodent Incisor

OBJECTS



Carving tool handles and incisors from Karluk One.

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Sea Mammal Bone	Alutiiq Name	Specific animal (but ending m) nenraa
Geographic Affiliation	Local, on-island		
Associated Industries	Carving		
Common Objects	Harpoons, arrows, foreshafts, sockets, digging sticks, awls, pins, wedges, handles, and many other tools.		
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM508:4 (bone handle)
Description	<p>Sea mammal bone is one of the most common organic raw materials in Alutiiq assemblages. Craftsmen used this material to make a great variety of objects, including weaponry as it is resilient and relatively easy to shape. It was also an abundant, locally available materials.</p> <p>Sea mammal bone has a distinctive appearance. It is characterized by many holes (spongey) and the fabric of the bone has a linear appearance - parallel to the length of the bone. This is because sea mammal bone is more vascularized than land mammal bone. Sea mammal bones typically lack the internal marrow cavity found in land mammal bones.</p> <p>In archaeological collections, sea mammal bone may appear dry and flaky - shedding bits of the material easily. the surface can feel rough, particularly on unfinished objects that have not been burnished (had the surface polished). It is typically buff to yellow in color, but can appear grey (dried out) or light brown (from being buried).</p> <p>Sometimes the elements of large sea mammals were worked into objects - e.g., ribs into digging sticks, vertebrae into grinders. This can help in identifying species, or a general attribution like whale vs. seal / sea lion.</p>		
References	<p>Dale, Joan, Craig Gerlach, and Gary M. Salinger, 1989, Macroscopic identification of bone, ivory, and antler for the archaeologist and paleontologist. MS on file Alutiiq Museum, Kodiak.</p> <p>Margaris, Amy, 2006, Alutiiq Engineering: The mechanical design of skeletal technologies in Alaska's Kodiak Archipelago. Doctoral Dissertation, University of Arizona.</p>		
Last Update	04/09/2021		

Alutiiq Technological Inventory — Raw Materials

Sea Mammal Bone

OBJECTS



Spacer bar sinker of sea mammal bone, Uyak Site (AM3)



Non-toggling harpoon of sea mammal bone, Uyak Site (AM3)



Sea mammal bone tool from AFG-004, Petrikoff Family Collection (AM330)



# Alutiiq Technological Inventory

## Raw Material Description

English Name  Alutiiq Name

Geographic Affiliation

Associated Industries

Common Objects

Example in Kit  Yes  No Examples (Catalog #s)

Description

References

Last Update

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Spruce Root		Alutiiq Name	Napam Acillqua	
Geographic Affiliation	Local, on-island - Spruce root is currently widely available at the northern end of the Kodiak region, where the Spruce forest is present. This forest is relatively young, however, so spruce root may not have been as readily available before 500 years ago. It is also a material that is not uniformly available. It was likely traded around the island, and perhaps even from areas of the mainland where it is abundant (e.g., the Kenai Peninsula).				
Associated Industries	Weaving				
Common Objects	baskets, hats, mats, lashing, cordage				
Example in Kit	<input checked="" type="radio"/> Yes <input type="radio"/> No	Examples (Catalog #s)	AM651 (Spruce root basket)		
Description	<p>Spruce root is a sturdy, pliable weaving material that was widely used in at least late prehistoric times for a variety of weaving and lashing activities.</p> <p>Spruce root harvesters prefer to collect from sandy soils, as the roots in this environment tend to be close to the surface and grow laterally beneath the ground. Roots can be anywhere from 3 to 50 feet long. When harvested, the roots have a rough, dark brown outer covering (bark or phloem and the cambium). This is removed by cooking the roots over a fire and then peeling off the covering. The underlying root is buff colored (xylem). This is split with the fingers to remove a yellow inner core (pith) that is discarded. The resulting lengths can then be split further to their desired thickness.</p> <p>In archaeological contexts, spruce root is typically medium to dark brown. Like grass, the material can be split into different widths, but it is less friable than grass, and denser and more uniform looking. Individual segments of a root may have a rounded appearance from the original curve of the root shaft.</p>				
References	<p>Corey, Peter A., 1995, A proposed glossary of Spruce Root Basket Terms. Alaska State Museum Concepts, Technical Paper #3.</p> <p>Harris, A. S., Sitka Spruce Roots Used in Basketry, Alaska State Museum Concepts, Technical Paper #4.</p>				
Last Update	04/09/2021				

# Alutiiq Technological Inventory — Raw Materials

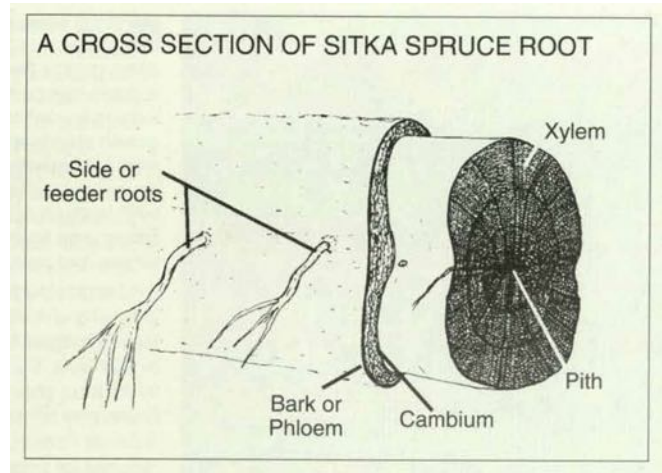
## Spruce Root

### MATERIAL



Left – roots harvested for processing

Below – root anatomy, courtesy Alaska State Museum Concepts #4.



### OBJECTS



Spruce root cordage from Karluk One.



Spruce root lashing on ulu handle from Karluk One.



Alutiiq Technological Inventory — Raw Materials



Spruce root basket from Karluk One



# Alutiiq Technological Inventory

## Raw Material Description

English Name  Alutiiq Name

Geographic Affiliation

Associated Industries

Common Objects

Example in Kit  Yes  No Examples (Catalog #s)

Description

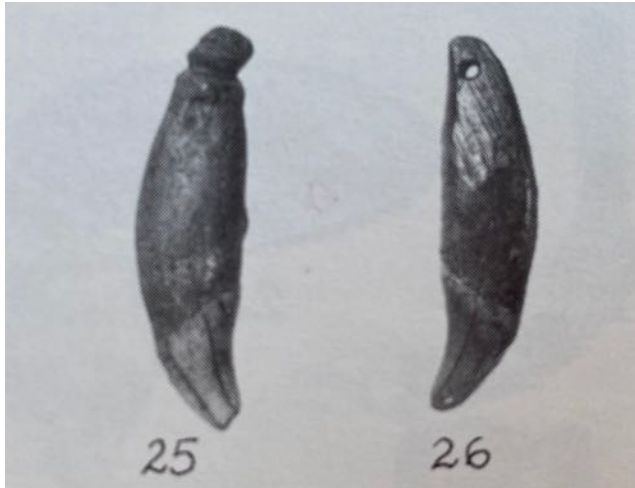
References

Last Update

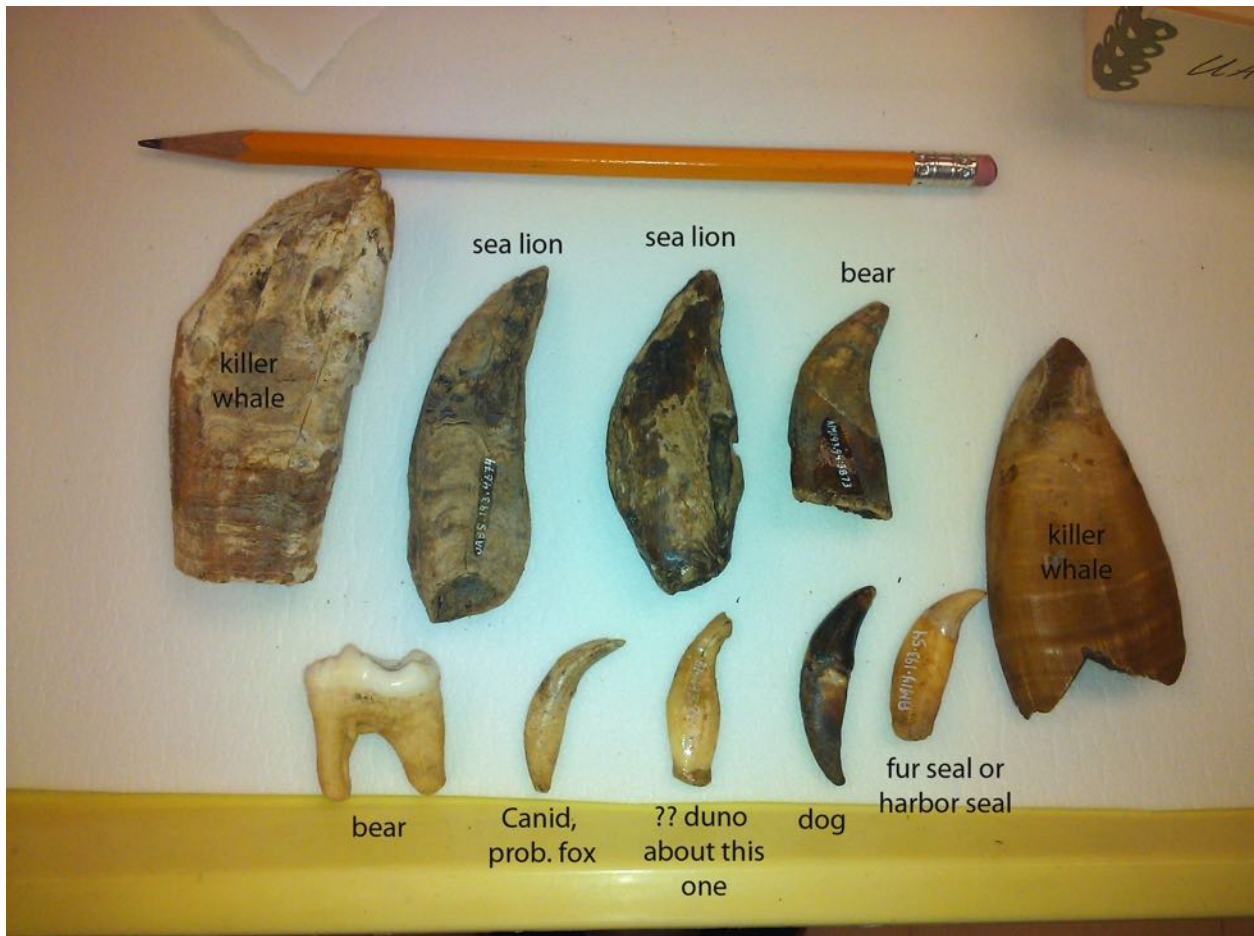
Alutiiq Technological Inventory — Raw Materials

Tooth

OBJECTS



Modified animal teeth, from de Laguna 1975: Plate 50



Animal teeth collected at Karluk One - identified by Mike Etnier.  
Bottom row, 3rd from left is likely sea lion.

# Alutiiq Technological Inventory

## Raw Material Description

English Name	Wood Local	Alutiiq Name	Pukilaaq
Geographic Affiliation	Introduced, on-island and non-local. Kodiak lies at the western limit of Alaska's coastal rainforest. Currents, wind, and waves deliver an abundance of driftwood to the archipelago's shores. Some woods comes from great distances—the forests of southeast Alaska. Other woods is from the island's spruce forests and groves of deciduous trees and large brush.		
Associated Industries	Carving		
Common Objects	Kayak parts, building materials (posts), labret hole stretchers, toys		
Example in Kit	<input type="radio"/> Yes <input checked="" type="radio"/> No	Examples (Catalog #s)	AM193.94.836, AM193.87.9259, AM193.87.9265 (all are hole stretchers)
Description	<p>Wood was a critical and widely used manufacturing material and Alutiiq people used a great variety of locally available and driftwoods (see Driftwood entry). Different woods were selected for different tasks based on their characteristics. For example rot resistant cedar driftwood was a good choice for paddles as they are frequently wet.</p> <p>It is difficult to differentiate local wood from driftwood in many finished wood objects without a careful microscopic analysis and archaeologists have only studies a few Kodiak artifacts in this way. This is definitely an avenue for future research and it could results in descriptions of individual wood types and their uses (e.g., refine this entry a great deal). However, there are a couple of clues that a piece may be made from local material</p> <ol style="list-style-type: none"> <li>1) Bark is still present that suggests one of the local species</li> <li>2) The piece is made of a smaller piece of raw material (a branch or twig) commonly found on local wood.</li> </ol>		
References	Russell, Priscilla 2019, Naut'staarpet—Our Plants. Alutiiq Museum, Kodiak.		
Last Update	04/09/2021		

# Alutiiq Technological Inventory — Raw Materials

## Wood (Local)

### MATERIAL



Alder on the shore of Olga Lake



Willow on a terrace above Karluk River



Spruce Forest on Northern Kodiak Island

## Alutiiq Technological Inventory — Raw Materials



### OBJECTS



Labret hole stretchers from Karluk One