

## CHAPTER 3. CHIPPED STONE—*ILAIYARNGASQAQ*

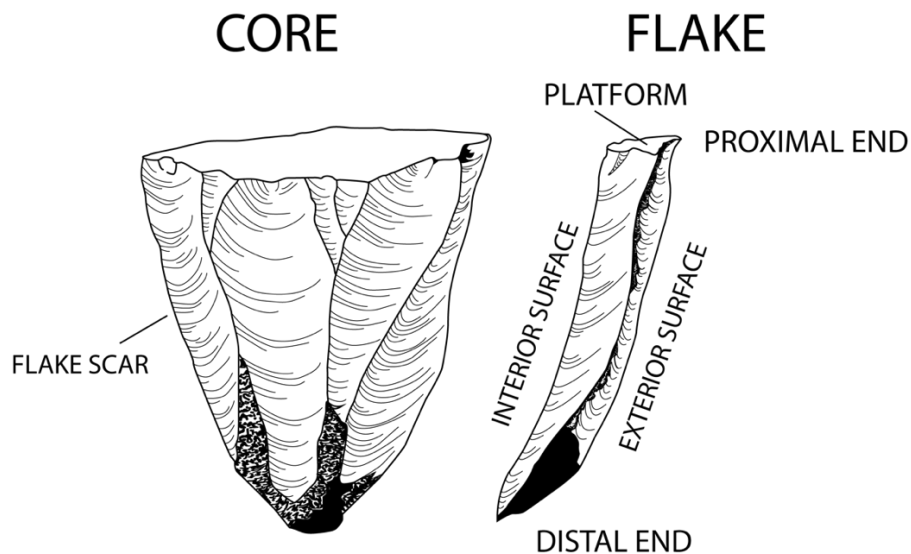
### Stone Chipping Introduced

Stone chipping, or flint knapping, is the process of breaking rock to create tools. By controlling the way stone breaks, craftspeople can shape tools like projectile points, knives, and scrapers, and create sharp cutting edges. Flintknapping is a very ancient technology found worldwide and throughout Alaska prehistory.

Stone chipping requires cryptocrystalline rock—fine-grained stone, high in silica ( $\text{SiO}_2$ ) with little internal structure (material that has not formed crystals)—that breaks in predictable ways. Chert and obsidian are examples of stone that were commonly used for flint knapping. These materials break conchoidally. This means that the force exerted by the crafter runs through the stone relatively evenly. It radiates from the point of impact, creating a smooth, curving fracture.

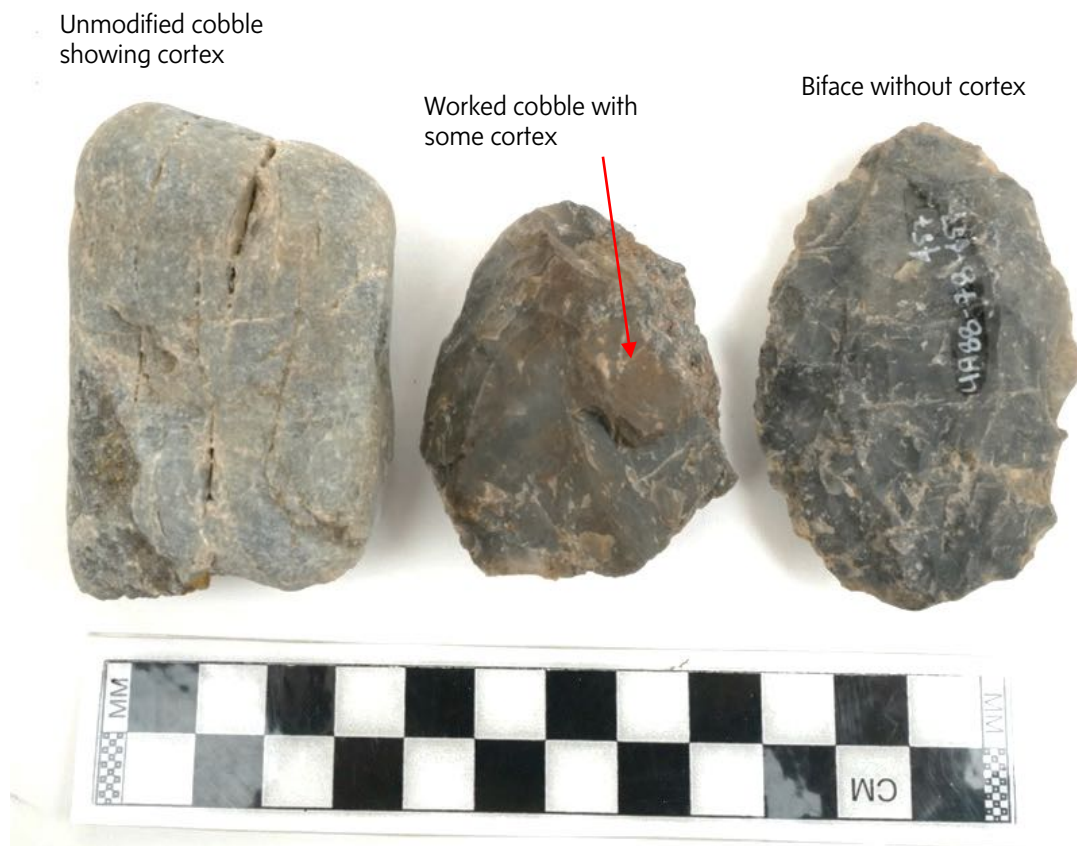
Stone chipping is a reductive process. The flintknapper strikes pieces of stone (called flakes) from a piece of raw material (called a core) to shape a tool. Knappers use a variety of tools and techniques in the shaping process, depending on the tool they are making and the stage of manufacture.

**Figure 3.1. Basic flintknapping terms, graphic by Alex Painter, adapted from <https://la.utexas.edu/users/denbow/labs/lithic2.htm>**



Often the first stage of flint knapping is a rough reduction. The flintknapper uses a tool like a hammerstone (e.g., a smooth rock that fits nicely in the hand), to knock flakes off the core to create the general shape of the tool (Figure 3.1). If the raw material is a cobble or a piece of stone harvested from the surface of an outcrop it will have cortex (a weathered outer surface, Figure 3.2), flakes from early reduction show this cortex. Sometimes, however, raw material comes from an outcrop and has been mined from bedrock. In these cases, cortex may not be present.

Figure 3.2. Examples of cobble cortex on chert nodules.

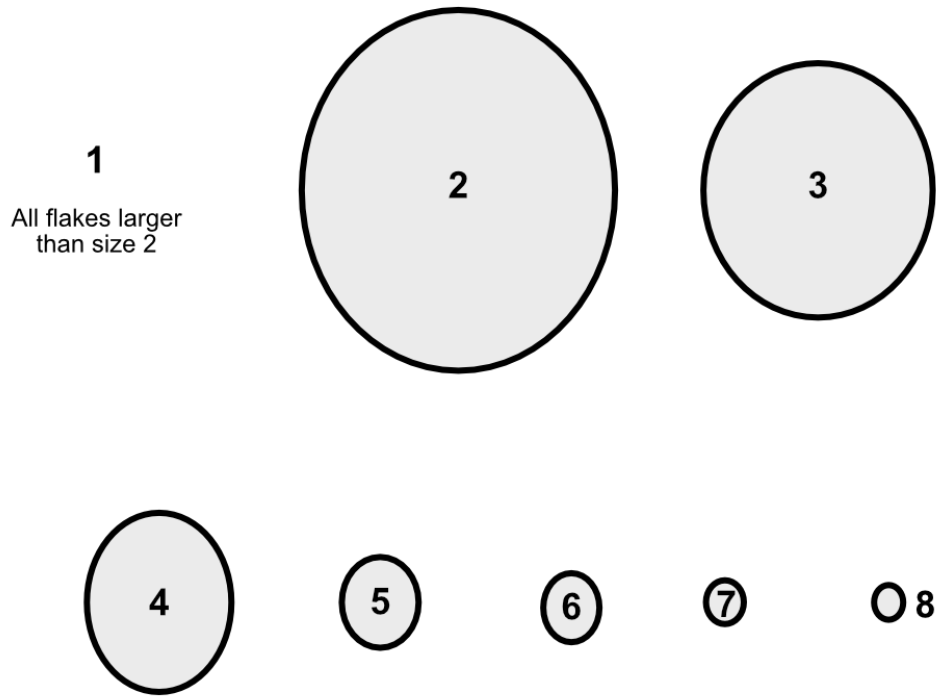


As shaping continues, the flintknapper might switch to a smaller hammerstone or a piece of antler to knock off smaller flakes. Generally, flakes become smaller during the reduction process. The final step is to sharpen the edges of the tool by taking off tiny flakes (pressure flakes), using a small flaking tool (e.g., a pressure flaker). By documenting the presence of cortex, the size and weight of flakes, researchers can sometime determine the stage of chipped stone manufacturing represented in an assemblage. For example, large heavy flakes with cortex suggest early-stage manufacturing, the reduction of a cobble. In contrast, the presence of tiny flakes suggests late-stage reduction—sharpening or re-sharpening a tool edge. The flake size template in Figure 3.3 can be used to measure flake size to aid in studying reduction stage.

For more information:

- Lithic Technology: <https://la.utexas.edu/users/denbow/labs/lithic2.htm>
- Flintknapping Demonstration: <https://www.youtube.com/watch?v=f2CcHYuOEsE>
- Whittaker, John C., 1994, *Flintknapping: Making and Understanding Stone Tools*. University of Texas, Austin.

Figure 3.3. Flake size template (adapted from Sheppard et al. 1991:203).



### Alutiiq Chipped Stone Industry

In the Alutiiq world, stone chipping is part of three distinct manufacturing industries—chipped stone, ground stone, and cobble working. This section focuses on tools made exclusively through chipping cryptocrystalline rock (as described above). This is one of the oldest industries on Kodiak and it is found throughout the prehistoric era in varying degrees.

The Alutiiq ground stone and worked cobble industries also employed chipping as a manufacturing technique. In the early stages of working slate and even coal, craftspeople chipped raw materials into rough shapes (tool blanks) before continuing to shape and finish items with grinding. Similarly, craftspeople broke apart cobbles to create expedient cutting and scraping tools. A flake knocked off a greywacke beach cobble makes a quick, sharp knife. However, rather than utilizing cryptocrystalline stone, cobble tools are made from coarsely grained rocks. As such, all tools made from greywacke, slate, and other rocks with a coarse or crystalline structure are excluded from the chipped stone industry.

Importantly, adzes can fall into either the chipped or ground stone industry, depending on their manufacture. Many but not all adzes are chipped and then ground to create a smooth surface and a smooth, beveled bit for wood working. However, some adzes, particularly examples from the Ocean Bay tradition, are only chipped. As such, adzes that are only chipped we assign to the chipped stone industry. In contrast, those that are both chipped and ground are included in the ground stone industry. Ground flakes (chips from adzes created from reworking or impacts associated with use) are assigned to the ground stone industry as well.

Similarly, some chipped stone projectile points display basal grinding. Craftspeople ground the sharp edges of the stem of a point or knife to dull these edges for hafting. This

technique is commonly observed on chipped stone projectiles in Late and Transitional Kachemak assemblages. Such treatment does not make the tool a ground stone object, but it is worth noting in the comment column of a catalog sheet.

### Brief History of Alutiiq Stone Chipping

As a proportion of Kodiak Alutiiq artifact assemblages, chipped stone objects become less and less prevalent over time (Table 3.1) (Clark 1982). In early Ocean Bay assemblages, most of the preserved artifacts are part of the chipped stone industry. In contrast, chipped stone artifacts are relatively rare in Koniag tradition assemblages. Ed Sargent, a long time advocational artifact collector, once told Patrick Saltonstall that local collectors recognized a ‘chipped stone culture’ that was often beneath a ‘ground slate culture’. This is an astute observation. As the chipped stone industry wanes, the ground tool industry grows. By the late prehistoric era, ground slate is ubiquitous and chipped stone rare.

**Table 3.1. Alutiiq chipped stone tool terms**

English	Alutiiq	Comment
Adze - planing	StRuusaq <sup>m</sup>	
Biface / Preform	Caqirkaq <sup>c</sup>	"future thing"
Blade	Nuusirkaq <sup>c</sup>	"future knife", adjective, an early stage of making something, not finished
Blade Core Rejuvenation Flake	Nuusirkam Call'rua*	"blade debris"
Burin		
Core	Qukaa <sup>c</sup>	"It's middle/center", for any type of core
Chipped Knife	Nuusiq <sup>m</sup>	
Chipped Point	Iquq <sup>m</sup> , Kukeglugaq <sup>h</sup>	
Drill	Ukit'suuteq; Napaaliaq	"thing to make holes"
Flake	Calleq*	"piece of debris"
Flake Tool	Yaamam ipgaa <sup>c</sup>	"rock's point / edge"
Graver	Ukicisuun*	"tool for making holes"
Microblade	Nuusiruanguk <sup>c</sup> Ipengcuk*	"kind of a tiny knife" "small blade"
Microblade Core Rejuvenation Flake	Ipengcugem call'rua*	"kind of trash from a microblade"
Ornament	Tang'rhnit'staaq <sup>m</sup>	
Pièce esquillée	Nengem klitaa*	"wedge for bones"
Scraper	K'ligsuun <sup>c</sup>	"to scrape it, to carve it"
Shatter	Calleq*	"piece of debris"
Side Blade	Ulukalleq*	"early ulu"
Utilized Flake or Blade	Yaamam ilakualiraq <sup>c</sup>	

m = term in modern usage, h = historic term, c = term created by Elder Alutiiq speakers

\* = suggested term needing additional review

On Kodiak there are no ground slate tools until about 6700 BP (calibrated). The earliest slate tools are ground slate rods and long, slender slate bayonets. Over time ground stone tool

classes replace their chipped stone equivalents. Flensing knives replace chipped stone knives around 5500 BP. Side blades are replaced by the ulu at about 4000 BP. Small chipped stone projectile points last the longest and are only replaced by ground slate point and end blades after about 1000 BP. In the late prehistoric era chipped stone is rare and largely confined to the bi-polar reduction of chalcedony nodules to make impromptu, sharp-edged flakes perhaps for incising pebbles. Chipped stone tools occur in late prehistoric assemblages, but at least some of them seem to have been collected from older sites as curios.

Kodiak archaeologists find chipped stone tools in sites where they are dramatically out of place. Sometimes these tools are thousands of years older than the site being studied. For example, a 6,000-year-old projectile point appears in a 500-year-old site. Often the pieces are waterworn, suggesting that they were tumbled in the waves and collected from the beach. Other times, the tools represent a totally different culture. At a Russian site on the shore of Afognak Bay, amid the glass beads and fragments of china plates, archaeologists found a few chipped stone tools probably made by people living on the Alaska Peninsula 3,000 years ago! Russian traders appear to have picked up the stone tools and carried them to Kodiak, perhaps to use as flints in their flintlock riffles.

The Ocean Bay tradition is the heyday of the chipped stone industry. The earliest Ocean Bay assemblages retain vestiges of ancient Siberian core and blade technology—both macro and micro (Clark 1979, Fitzhugh 2003, Steffian et al. 2002). Many tools are derived from reworked blades, and utilized blades are common. Early chipped stone lances were often made on blades. Blades drop out of the Ocean Bay chipped stone tool inventory around 7000 BP but microblades continue in use for at least another 500 years. Over time, craftspeople move to creating projectile points and other tools from nodules of material and projectiles become smaller.

The earliest assemblages also are full of off-island cryptocrystalline rocks—basalt, brightly colored cherts, and even fine-grained metatuffs are common materials (Fitzhugh 2004). A millennium later, local stone dominates assemblages. Particularly common are the radiolarian red chert and metatuffs from Kodiak's west side, and the tuffs from Kodiak's eastern shores.

Sea mammals were the focus of Ocean Bay subsistence and artifact assemblages from this tradition are full of utilized flakes, side blades, and flake tools likely used to butcher these animals. A particularly common tool is the stone wedge, or *pièce esquillée*, used to break open long bones. Also present, but rare are other tools designed for bone working—burins, drills, and graters. These three types of tools have never been found in large numbers on Kodiak, but there are clear examples in both Ocean Bay and Early Kachemak assemblages (Steffian et al. 2006).

Stone chipping continues in the Kachemak tradition. Early Kachemak assemblages have a variety of points, bifaces, scrapers, retouched and utilized flakes, and even an occasional burin or *pièce esquillée*. These assemblages are much like those of the preceding Ocean Bay II, with one exception. They have a variety of small carefully made scrapers—small, chipped stone tools with a steep, expertly prepared edge presumably for working small hides (birds?). These tools are reminiscent of Arctic Small Tool tradition (ASTt) forms from the Alaska Peninsula (cf. Dumond 1998:194-195).

Evidence of stone chipping is also present in the Late Kachemak assemblages (Figure 3.4). Again, however, the number of tool types as well as the quantity of chipped stone objects declines in assemblages. For example, after about 2500 BP utilized flakes and flake tools become gradually less common. Projectile points and retouched and utilized flakes are the typical

chipped stone objects. Although the tool types are less diverse, the raw materials used to make them encompass many non-local materials suggesting people traded for chippable stone, or even travel to the mainland to harvest raw material (Steffian 1992a).

After about 1000 years ago chipped stone objects are rare, but not absent, in Kodiak Alutiiq assemblages. The technology is still known, but easily re-sharpened slate tools have largely replaced chipped stone tools for cutting and piecing tasks.

**Figure 3.4. Chipped stone artifacts and tools for chipping.**



# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

English Names

Adze

Alutiiq Names

StRuusaq

Industry

Chipped Stone

Activity

Building/Woodworking

Function

Carving

Common  
Materials

Meta tuff (greenstone-MT1 and others), cryptocrystalline rock but not chert

LxWxD (cm)

Variable

Tradition



Ocean Bay



Kachemak



Koniag



Alutiiq

Miniature



Yes

Example Sites Found

Rice Ridge, Kashevarof, Salonie Mound, Zaimka Mound



No/Unknown

Description

Adzes are identified by their distinctive trapezoidal shape with a cutting edge at the wide, distal end. All adzes have a steep cutting edge formed by two intersecting planes. One of the planes is parallel to the longitudinal axis of the piece (flat), while the other is steep and forms the cutting edge. The cutting edge is generally fairly straight and perpendicular to the longitudinal plane of the adze, but it is often gently curved.

Prior to about 5,500 years ago Alutiiq adze bits were not ground. Later in time adzes become more of a ground stone tool and in the late prehistoric era are mostly made of a green variety of meta tuff (MT1). In the early Ocean Bay Tradition, adze are often made of the tan colored meta tuff or some sort of cryptocrystalline rock, but never chert. In contrast to later chipped stone adzes, Ocean Bay examples are more of a teardrop lozenge shape—with a narrow proximal tip and a broad, flat-tipped distal cutting edge. The steep edge is formed by unifacial flaking. These early adzes are also a little smaller than those found in later sites and range in size 4 and 8 cm.

References

This manual

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5-4-21

Updated By

Amy Steffian



ADZES







# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Biface		<b>Alutiiq Names</b>	Caqirqaq—Future Thing	
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing	<b>Function</b>	Tool Making
<b>Common Materials</b>	Red chert				
<b>LxWxD (cm)</b>					
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input checked="" type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag	<input type="checkbox"/> Alutiiq	
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Rice Ridge, Zaimka Mound, Blisky Site		
	<input checked="" type="radio"/> No/Unknown				
<b>Description</b>	<p>Bifaces are one of the most variable classes of tools and reflect projectile points, knives and scraping tools in different stages of manufacture. They are unfinished tools that exhibit bifacial flaking. We divide them into three classes to reflect stages of manufacture.</p> <p>Stage 1: This is the roughest group. It includes pieces that have been bifacially worked but that represent the earliest stages of tool manufacture. Cortex, striking platforms, and bulbs of percussion are often present on these pieces.</p> <p>Stage 2: These bifaces are pieces that are in more advanced stages of manufacture and exhibit semi-rough to moderate retouch. Generally, cortex, striking platforms, and bulbs of percussion are not present on these pieces.</p> <p>Stage 3: These bifaces represent whole and fragmentary preforms for projectile points, knives, side blades, and scrapers. These pieces exhibit moderate to fine retouch and range a great deal in size. Stage 3 bifaces are tools that were almost but not quite finished.</p> <p>Biface occur throughout assemblages associated with the Ocean Bay and Kachemak traditions. They are not indicative of Koniag tradition assemblages.</p>				
<b>References</b>	Clark, Donald W., 1979 Clark, Donald W., 1982				
<b>Last Update</b>	05/03/2021		<b>Updated By</b>	Amy Steffian	

BIFACES



# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Blade	<b>Alutiiq Names</b>	Nuusiqaq
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing
		<b>Function</b>	Tool Making
<b>Common Materials</b>	Exotic cherts		
<b>LxWxD (cm)</b>			
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag
			<input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Rice Ridge, Salonie Mound, Tanginak Spring
	<input checked="" type="radio"/> No/Unknown		
<b>Description</b>	<p>Blades are long, linear flakes with parallel sides. Typically a blade is at least twice as long as it is wide. Blades are created by a distinctive flint knapping technique. Each blade is removed f in the same direction (from the top of the core towards the bottom e), such that the ventral surface of one blade fits with the dorsal surface of the next. The long, linear line between blade scars on the dorsal surface is termed an aris. Blades from Kodiak Alutiiq assemblages have at least one aris and many have more than one.</p> <p>In Kodiak assemblages, blades are distinguished from microblades in that blades are at least 1 cm wide while microblades are always less than 1 cm wide. We came by the 1 cm cut off figure by first sorting the blades and microblades in various collections by eye, and then measuring their widths. There is a clear break in a bi-polar distribution.</p> <p>Blades are found in only the oldest assemblages from Kodiak, those of the earliest centuries of the Ocean Bay tradition (&gt;7000 BP).</p>		
<b>References</b>	Fitzhugh, Ben, 2003, The Evolution of Complex Hunter-Gatherers, Archaeological Evidence from the North Pacific. Kluwer Academic / Plenum Publishers, New York.		
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## Blade Manufacture & Use



Graphics From: <https://www.historymuseum.ca/cmhc/exhibitions/archo/hnpc/npvol12e.html>

## Example Blades from Alutiiq Museum Collections





# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Blade Core		<b>Alutiiq Names</b>	Qukaa—Its Center	
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing	<b>Function</b>	Tool Making
<b>Common Materials</b>	Exotic chert				
<b>LxWxD (cm)</b>	Variable				
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag	<input type="checkbox"/> Alutiiq	
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Salonie Mound, Qik'rtangcuk		
	<input checked="" type="radio"/> No/Unknown				
<b>Description</b>	<p>A definitive blade core has never been found on Kodiak. However, they must exist because assemblages contain blades. Blade cores from the Aleutians look like large microblade cores. They are shaped like a tapered glass (narrow bottom and wide top) with the blade scars running parallel to each other down the sides.</p> <p>High quality cryptocrystalline rock is relatively rare on Kodiak in comparison to the Aleutians and it's likely that blade cores are rare because they were further reduced after their use making blades. However, at two early sites where Alutiiq Museum archaeologists recovered blades but not microblades (Salonie Mound and the Qiktangurchuk site), there are cores that fit this general description. However, they lack the well-defined blade scars. Due to their small size they actually look like microblade cores. But given the lack of microblades (microblade cores were found at Salonie but not micro blades) at these sites perhaps they are actually spent blade cores?</p> <p>Blades are found in only the oldest assemblages from Kodiak, those of the earliest centuries of the Ocean Bay tradition (&gt;7000 BP).</p>				
<b>References</b>	Fitzhugh, Ben, 2003, The Evolution of Complex Hunter-Gatherers, Archaeological Evidence from the North Pacific. Kluwer Academic / Plenum Publishers, New York.				
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BLADE CORE



# Alutiiq Technological Inventory

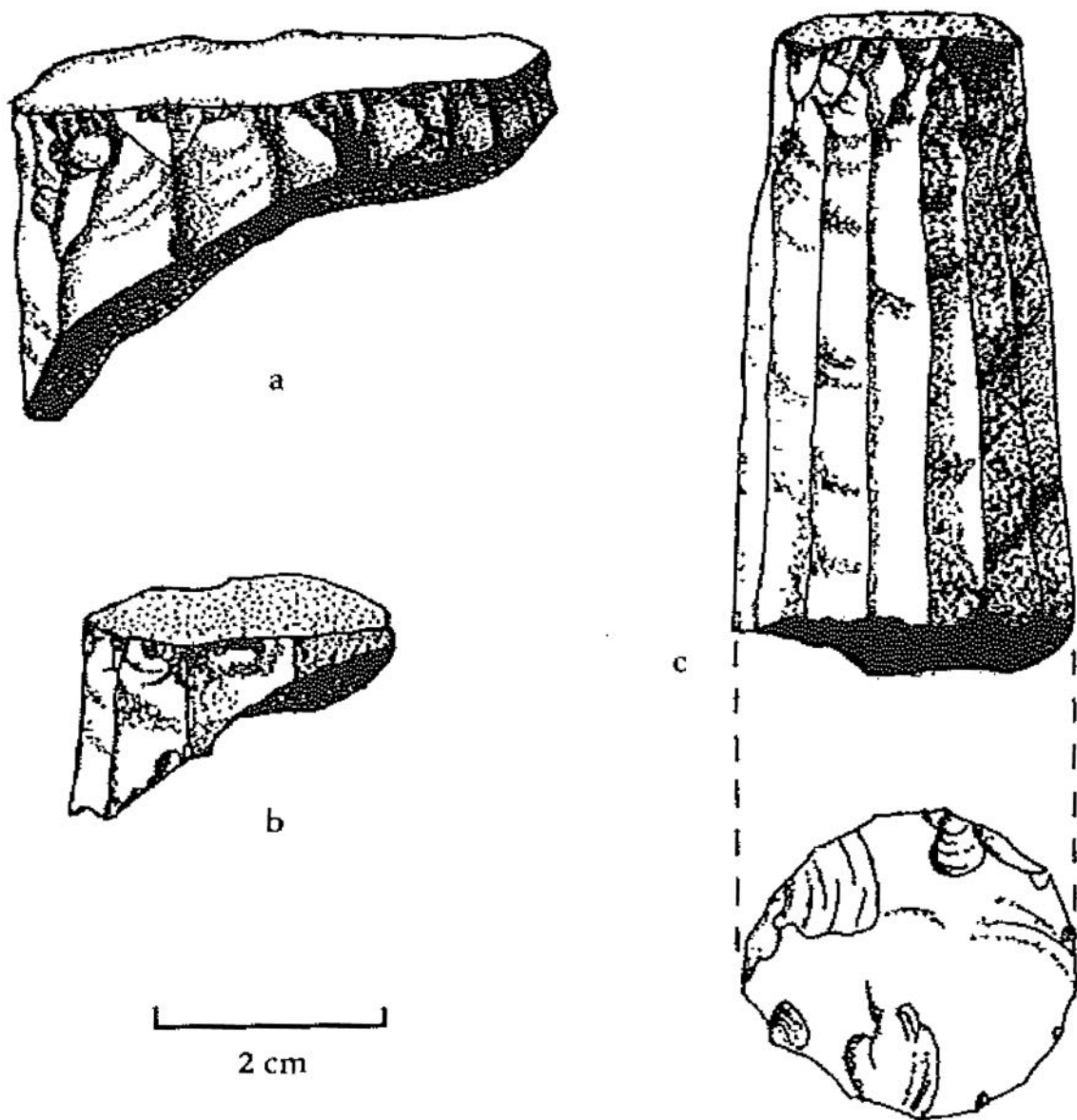
## Artifact Class Summary Sheet

<b>English Names</b>	Blade Core Rejuvenation Flakes	<b>Alutiiq Names</b>	Nuusiqam Call'rua—Blade Debris
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing
		<b>Function</b>	Tool Making
<b>Common Materials</b>	Exotic chert		
<b>LxWxD (cm)</b>			
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag
			<input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Qik'rtangcuk, Kashevarof Site
	<input checked="" type="radio"/> No/Unknown		
<b>Description</b>	<p>Blade core rejuvenation can take place in two ways - by knocking a spall off the face of the core (parallel to the blade scars = a core rejuvenation spall), or by knocking a spall off the top of the core to create a new surface for percussion (perpendicular to the blade scars = a core tablet)</p> <p>Core rejuvenation spalls are defined as large flakes (not narrow enough to be blades) knocked off the face of a blade core. These flakes have multiple, parallel blade scars on their dorsal surface. They are thought to represent an effort to rejuvenate the side of a blade core to make it suitable for continued blade production. Alternatively they may be the result of blade manufacturing accidents.</p> <p>Core tablets are a flakes taken off the top of a core - perpendicular to the orientation of the blade scars. These flakes typically have a battered edge down the center of the dorsal side with evidence of multiple blade removals on one side. In essence, these flakes are the top corner of a blade core. Blades are struck off the sides of the core at a right angle to the plane of the tablet. As a core is worked multiple tablets are struck off and, as a consequence, the core gets shorter and shorter. Core tablets are recognized by their distinctive shape as they retain the blade scars and the old spent working edge around their outer edge.</p> <p>Blades are found in only the oldest assemblages from Kodiak, those of the earliest centuries of the Ocean Bay tradition (&gt;7000 BP).</p>		
<b>References</b>	Fitzhugh, Ben, 2003, The Evolution of Complex Hunter-Gatherers, Archaeological Evidence from the North Pacific. Kluwer Academic / Plenum Publishers, New York.		
<b>Last Update</b>	05/06/2021	<b>Updated By</b>	Amy Steffian



BLADE CORE REJUVENATION FLAKES





**7.4 Three production rejuvenation by-products:**

*a*, single-facet core top removed by percussion rejuvenation;

*b*, pecked-and-ground core top removed by percussion

rejuvenation, *c*, pecked-and-ground core top removed by

bipolar rejuvenation. *Illustration prepared by Bradford Andrews*

Illustration of Mesoamerican blade core rejuvenation pieces from:

[https://escholarship.org/content/qt5n22p8rf/qt5n22p8rf\\_noSplash\\_f4c3f58668aff67579do2ofif44264a9.pdf?t=qbaovx](https://escholarship.org/content/qt5n22p8rf/qt5n22p8rf_noSplash_f4c3f58668aff67579do2ofif44264a9.pdf?t=qbaovx)

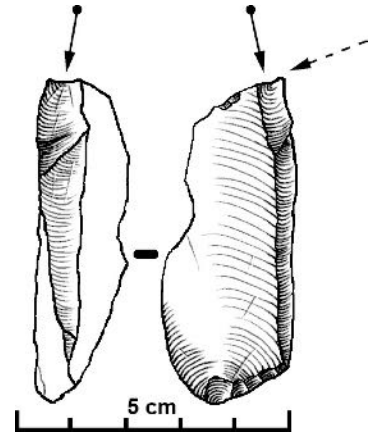
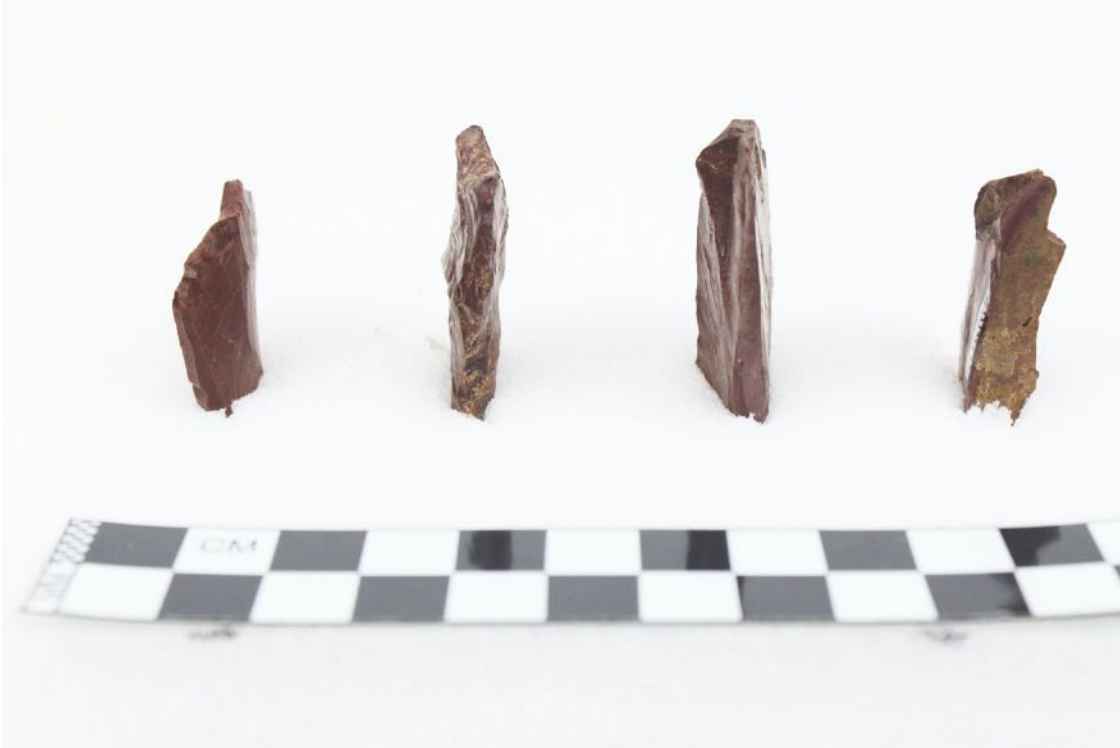


# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Burins	<b>Alutiiq Names</b>	Igagliq–has a slope
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Building/Woodworking
		<b>Function</b>	Scraping & Carving
<b>Common Materials</b>	Red Chert		
<b>LxWxD (cm)</b>			
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input checked="" type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag <input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Kashevarof Site
	<input type="radio"/> No/Unknown		
<b>Description</b>	<p>A burin is a tool with one with at least one steep, blunt edge formed by removing a "burin spall" laterally along the entire span of the tool margin. The defining characteristic of a burin is edge utilization along either the 'steep edge' or at the point formed by two intersecting burin spalls. In Kodiak's chipped stone tool assemblages there are a number of objects that look like they might be burins – especially in the utilized flake category – but we use this designation conservatively as there are only a handful of clear burins in Ocean Bay and Early Kachemak assemblages. While the use of the term 'burin' for these pieces may not be suitable they are definitely a tool type. It is questionable whether each utilized steep edge was intentionally made with a burin blow or whether the steep edges resulted from incidental damage.</p> <p>There are three types of burins – transverse, spalled, and mitten. Transverse burins are blades that has been snapped perpendicular to their long axis. On these pieces the utilized point is where the 'snapped' edge intersects the lateral margin of the blade. In most cases the utilization extends along the lateral margin as well. Spalled burins are characterized by one long burin spall scar with edge utilization. Many of these pieces have two intersecting burin spalls, but the point of their intersection is generally not utilized. Finally, mitten burins are the classic burin where the spalled surface ends in a 'step', and so creates a mitten-like shape with the 'thumb' as the spall step. This type of burin is very rare on Kodiak with only a couple ever found. However, this kind of burin is common ASTt assemblage which occur on the neighboring mainland.</p> <p>A burin spall is the piece of stone knocked off a tool to create a burin. These must be present in Kodiak Alutiiq assemblages, as people made burins, but they are hard to identify and have yet to be found.</p> <p>Note: A common type of burin on Kodiak is the burin-like-tool or 'BLT'. This tool is ground rather than spalled to create the sharp edge utilized for carving, and, as such, is described in the ground tools section.</p>		
<b>References</b>			
<b>Last Update</b>	05/04/2021	<b>Updated By</b>	Amy Steffian

BURINS



Burinated flake from: [https://en.wikipedia.org/wiki/Burin\\_\(lithic\\_flake\)](https://en.wikipedia.org/wiki/Burin_(lithic_flake))





# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

**English Names**  **Alutiiq Names**

**Industry** Chipped Cobble **Activity** Manufacturing **Function**

**Common Materials**

**LxWxD (cm)**

**Tradition**  Ocean Bay  Kachemak  Koniag  Alutiiq

**Miniature**  Yes  No/Unknown **Example Sites Found**

**Description**

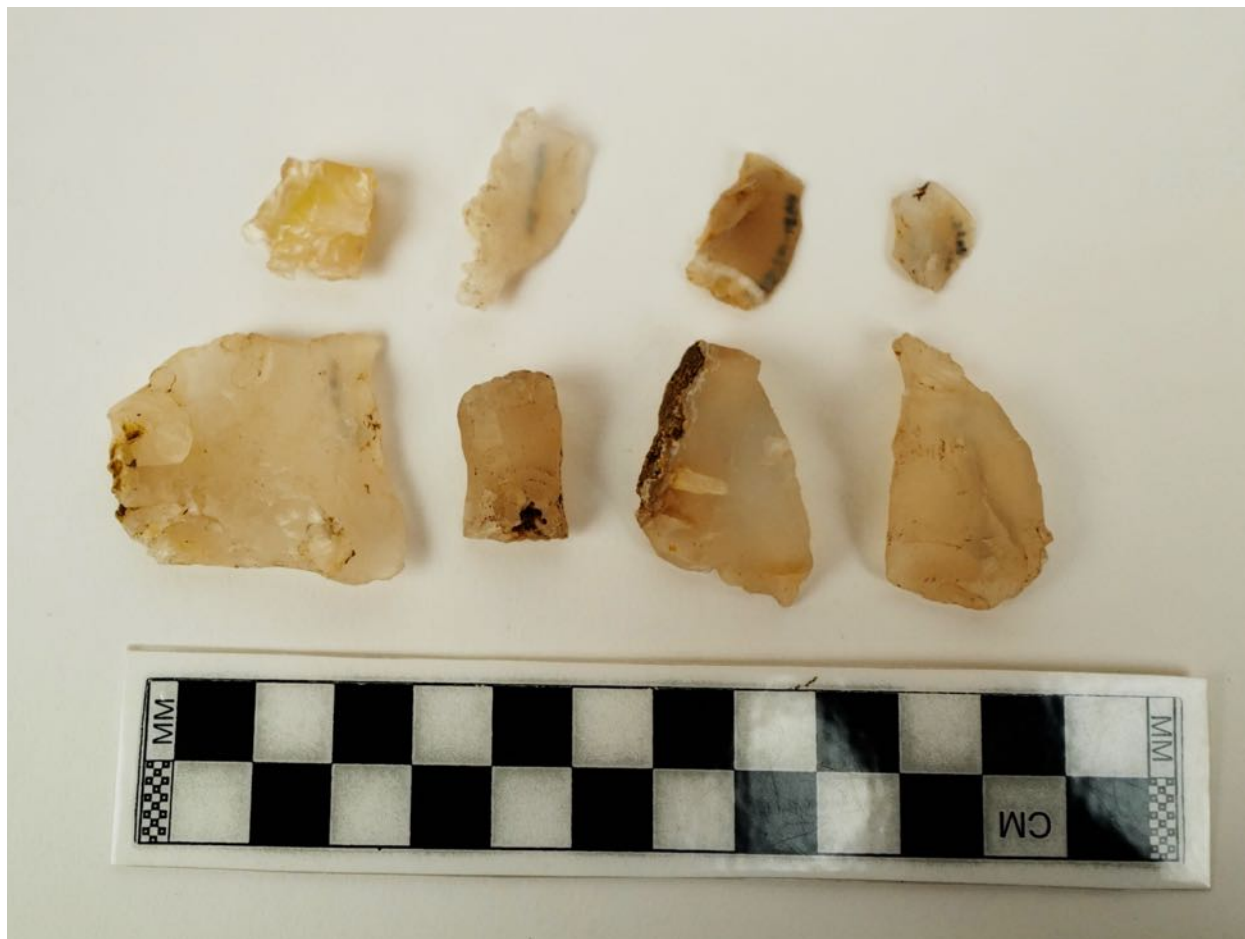
**References**

**Last Update**

**Updated By**

Alutiiq Technological Inventory—Chipped Stone

Bi-polar chalcidony flakes from Karluk One







# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Chipped knives	<b>Alutiiq Names</b>	Nuusiq
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<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing	<b>Function</b>	Cutting
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<b>Common Materials</b>	Chalcedony, metatuff, chert, basalt
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<b>LxWxD (cm)</b>	
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**Tradition**  Ocean Bay  Kachemak  Koniag  Alutiiq

<b>Miniature</b>	<input type="radio"/> Yes <input checked="" type="radio"/> No/Unknown	<b>Example Sites Found</b>	Rice Ridge, Kashevarof, Lighthouse, Qik'rtangcuk
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<b>Description</b>	<p>Chipped knives are characterized by several features. In contrast to chipped points and bifaces, knives are finished pieces that tend to be broad with rounded rather than with pointed tips. Some have stems. Furthermore, they are often asymmetric from being resharpened and tend to exhibit edge utilization. There are two general categories. Those with broad, rounded tips, and those with pointed tips. The latter are often asymmetric in shape with concave sides from being re-sharpened.</p> <p>A sub category of the chipped knife is the chipped knife scraper. The chipped knife scraper is bifacially chipped knife that exhibits steep unifacial retouch. Clearly they are made to be used as scrapers rather than knives. This sub-category of knife is not common on Kodiak where most scrapers seem to be flake tools, but they do occur and are especially common in assemblages from Chirikof Island.</p>
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<b>References</b>	
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<b>Last Update</b>	05/03/2021	<b>Updated By</b>	Amy Steffian
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CHIPPED KNIVES



Red chert knife from the Kashevaroff Site

# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Chipped point		<b>Alutiiq Names</b>	Iquq, Kukeglugaq	
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Hunting	<b>Function</b>	Projectile
<b>Common Materials</b>	Red chert, metatuff				
<b>LxWxD (cm)</b>	Highly varried				
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input checked="" type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag	<input type="checkbox"/> Alutiiq	
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Zaimka, Salonie, Kasheverof, Uyak, Rice Ridge, Blisky, Kiluda Bay		
	<input checked="" type="radio"/> No/Unknown				
<b>Description</b>	<p>Chipped points are finished, bifacial pieces characterized by their straight sides formed with fine retouch. They differ from chipped knives in that they tend to be narrow, symmetrical and always have a sharp, pointed tip. A number or projectile point also feature a stem.</p> <p>In the very oldest assemblages chipped points are made on blades. These pieces tend to be gently curved, are bifacially worked, and have an aris on the dorsal side of the blade. The practice of using blades for projectile point blanks ends around 7,000 years ago, when chipped point are made from nodules of raw material, particularly red chert.</p> <p>The styles of chipped stone points in Alutiiq assemblages varies over time. Large, leaf-shaped points are common in Ocean Bay assemblage, and smaller square-based point with small "lugs" on the sides are common in Kachemak tradition assemblages.</p>				
<b>References</b>					
<b>Last Update</b>	05/04/2021		<b>Updated By</b>	Amy Steffian	

Chipped Stone point on blade from early Ocean Bay tradition



Ocean Bay Tradition Chipped Points from the Rice Ridge Site



Red Chert points from the Ocean Bay levels at the Kashevaroff Site



Lugged, square-based chipped points from the Kachemak Tradition



# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Drills	<b>Alutiiq Names</b>	Ukit`suuteq, Napaaliaq
<b>Industry</b>	Chipped Cobble	<b>Activity</b>	Manufacturing
		<b>Function</b>	Drilling holes
<b>Common Materials</b>	Chert		
<b>LxWxD (cm)</b>	4 to 6 cm long		
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag
			<input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Rice Ridge
	<input checked="" type="radio"/> No/Unknown		
<b>Description</b>	<p>Drills are long narrow chipped stone objects with a sharp and pointed. In contrast to graters and awls, drills were intended to be hafted in a shaft and used with a bow drill. They tend to be thick, almost round in cross section, and exhibit use wear at the tip. The only known examples are from the Ocean Bay era. They are bifacial tools often with a distinctive 'wing-shaped' flare at their proximal end and long, thin, bifacially flaked tips. This tip is often rounded from use. Formal drills are very rare in Alutiiq sites, and the three known specimens are all from the Rice Ridge site.</p>		
<b>References</b>	This manual		
<b>Last Update</b>	05/04/2021	<b>Updated By</b>	Amy Steffian



Chipped stone drills from the Rice Ridge site.





# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Flake	<b>Alutiiq Names</b>	Calleq—piece of debris
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<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing	<b>Function</b>	Tool making
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<b>Common Materials</b>	Red chert, meta tuff, tuff, greenstone (MT1)
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<b>LxWxD (cm)</b>	
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<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input checked="" type="checkbox"/> Kachemak	<input checked="" type="checkbox"/> Koniag	<input type="checkbox"/> Alutiiq
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<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Salonie Mound, Blisky Site, Uyak Site, Old Karluk and many others.
	<input checked="" type="radio"/> No/Unknown		

<b>Description</b>	<p>Flakes are the manufacturing debris created during chipped stone tool production. As flintknapping is a reductive process, where flakes are removed from a core both to shape objects and to create smaller pieces for shaping, these are one of the most common chipped stone artifacts. They are found</p> <p>In contrast to cobble tools, chipped stone flakes were created from cryptocrystalline materials. A complete flake will have a striking platform, bulb of percussion and clear ventral and dorsal surface.</p>
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<b>References</b>	
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<b>Last Update</b>	05/05/2021
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<b>Updated By</b>	Amy Steffian
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Flakes from the Malriik Site, Kiliuda Bay



Flakes from Salonie Mound, Womens Bay

## ANATOMY OF A FLAKE

A "flake" is a slice of stone which was broken off of a larger piece of rock. This larger piece of rock is generally then called a "core." The breaking off of flakes from cores is called "percussion flaking." It is done by hitting the core with a type of hammer. These hammers can be another stone, hence "hammerstone," or another "billet." The flakes taken off in this manner by a person, rather than by a natural event, possess certain anatomical features (markings) listed below. Not all flakes, however, bear all of these features. Which features the flakes do or do not possess tell the archaeologist something about how those flakes were produced. Look at the flake provided to match up the features with the description (it should possess all of the ones listed).

**Cortex**- the outer skin of the original piece of rock, generally it is of a lighter color than the inside of the rock as well as much less glossy. This skin is created by the effect of the environment (wind, sun, and rain) upon the rock.

**Dorsal side**- the back of the flake which was originally on the outside of the core, generally there is a ridge down the middle of this side which the force of the striking hit followed to remove the flake from the core. The scars of flakes taken off the core prior to this one should be visible on this side of the flake.

**Ventral Side**- the "belly" of the flake which was where the flake was removed from the core, it is on the inside of the natural curve of the flake. Most of the key anatomical features of a flake are found on this side of the flake.

**Striking Platform**- this is where the core was hit to remove the flake, it stays with the flake and generally shows the effect of battering (whitened). This is the top of the flake as well as the thickest end. Sometimes this edge shows cortex.

**Bulb of Percussion**- this is the bulge on a flake where the force from the percussion exerted its full power. When the core is struck, a cone of force expands out from the striking point- thus creating a bulge on the flake.

**Bulbar Scar**- this is the scar left by a small flake which broke off the bulb of percussion during the percussion event. The size of the scar is a reflection of the strength of the force exerted upon the core.

**Undulations**- these are the ripples upon a flake perpendicular to the direction of force (shown by the position of the striking point/ platform) and below the bulb of percussion. The magnitude of these ripples reflect the composition of the material and the strength of the blow delivered.

**Striations**- these are tiny fracture lines parallel to the direction of force and seen best near the edges of the flake. These fissures (like the undulations) reflect material composition and striking force.

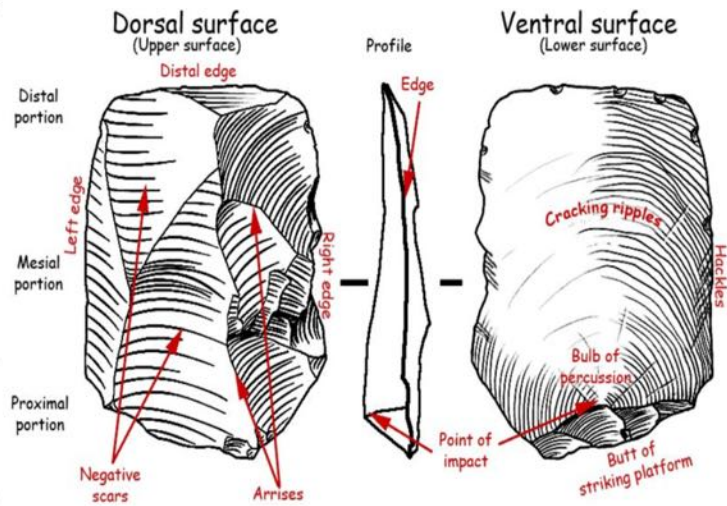


Illustration from: From: <https://slidetodoc.com/anatomy-of-a-flake-a-flake-is-a/>



# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Flake core	<b>Alutiiq Names</b>	Qukaa—its middle	
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing	
		<b>Function</b>	Tool production	
<b>Common Materials</b>	Red chert, Metatuff, Exotic Chert, Tanginak chert, Rhyolite			
<b>LxWxD (cm)</b>				
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input checked="" type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag	<input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Salonie Mound, Uyak Site	
	<input checked="" type="radio"/> No/Unknown			
<b>Description</b>	<p>Flake cores are irregular nodules of cryptocrystalline stone with flake scars. It is often hard to determine whether a chipped nodules is a core or a biface. A biface is a piece that has been chipped and shaped to form a tool—typically creating an edge with flaking on either side. In contrast, a core is the raw material from which flakes were struck to create smaller pieces for shaping into tools. Evaluation involves determining whether a blocky, often bifacially flaked piece of stone, was intended to be a tool or a source of large flakes.</p> <p>Cores can be divided into three classes.</p> <p>Class 1 cores have been minimally worked. They are characterized by few flake removals and the presence of cortex, often in multiple areas on the nodule.</p> <p>Class 2 cores are midway through the stages of reduction. Cortex is not generally evident, and the cores are still large enough to provide useful flakes.</p> <p>Class 3 cores have reached the final stages of reduction. These pieces are small and/or fragmentary making them unsuitable for further reduction. They are essential debitage.</p>			
<b>References</b>				
<b>Last Update</b>	05/04/2021	<b>Updated By</b>	Amy Steffian	

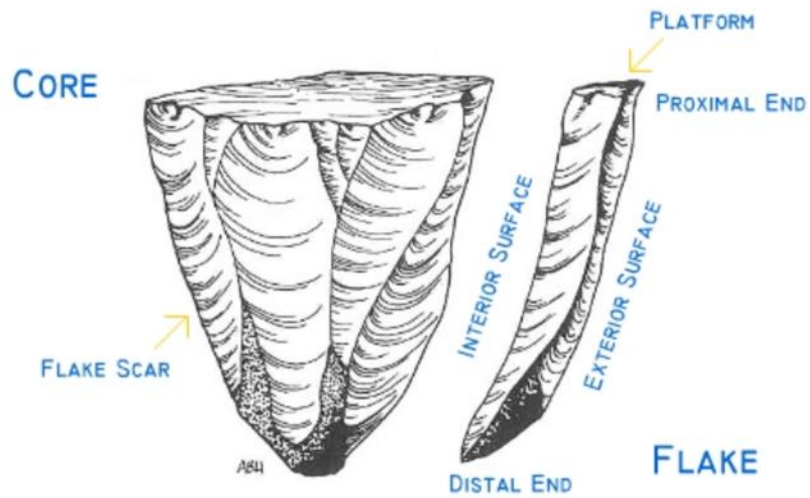


Illustration from: <https://la.utexas.edu/users/denbow/labs/lithic2.htm>

# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

**English Names**  **Alutiiq Names**

**Industry** Chipped Stone **Activity** Manufacturing **Function**

**Common Materials**

**LxWxD (cm)**

**Tradition**  Ocean Bay  Kachemak  Koniag  Alutiiq

**Miniature**  Yes  No/Unknown **Example Sites Found**

**Description**

Flake tools are flakes with retouch modification along one or more margins. All flakes have an obvious ventral surface that is largely unscarred by flake removal. If the ventral surface is largely obscured, the piece is a biface. Retouch is generally unifacial, but to some degree can also be bifacial. However, if it is bifacial the flake scars do not travel far from the margins. It can be difficult to determine whether a piece should be classified a biface or flake tool. Flake tools generally exhibit moderate to fine retouch and almost always have been utilized. Flake tools were probably used as generalized hand-held cutting implements.

Flake tools can be divided into two general categories:

- 1) flake knives have margin(s) that are retouched at a shallow angle – this retouch can be either unifacial or bifacial; and
- 2) flake scrapers are pieces with steep, unifacial retouch and utilization along one or more margins. Small, formal scrapers are typical of Early Kachemak assemblages.

**References**

**Last Update**

**Updated By**



## FLAKE TOOL



Flake tool from Salonie Mound

Dorsal

Ventral

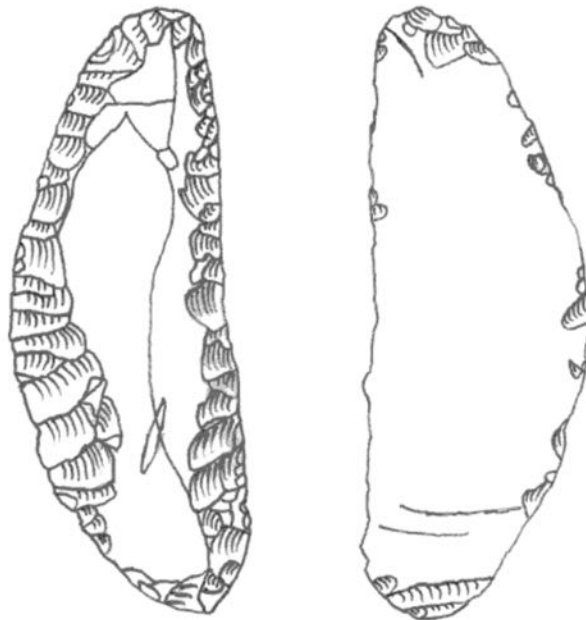


Illustration from [https://en.wikipedia.org/wiki/Retouch\\_\(lithics\)](https://en.wikipedia.org/wiki/Retouch_(lithics))





# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

**English Names**  **Alutiiq Names**

**Industry** Chipped Stone **Activity** Manufacturing **Function**

**Common Materials**

**LxWxD (cm)**

**Tradition**  Ocean Bay  Kachemak  Koniag  Alutiiq

**Miniature**  Yes  No/Unknown **Example Sites Found**

**Description**

**References**

**Last Update**

**Updated By**

## GRAVERS



Gravers from the Kashevaroff site and Refuge Rock



# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Microblade	<b>Alutiiq Names</b>	Nuusiruancuk		
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Hunting	<b>Function</b>	Inset it hunting lances
<b>Common Materials</b>	Red chert, exotic chert				
<b>LxWxD (cm)</b>					
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag	<input type="checkbox"/> Alutiiq	
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Zaimka, Rice Ridge, Kashevarof		
	<input checked="" type="radio"/> No/Unknown				
<b>Description</b>	<p>Microblades are long, linear flakes with parallel sides. They are created by a distinctive technique whereby linear flakes are struck off of a wedge-shaped core. In this technique the microblades are all struck off in the same direction (from the top towards the bottom of the core), such that the ventral surface of one microblade fits with the dorsal surface of the next microblade. The long, linear line between microblade scars on the dorsal surface is termed an aris. All microblades have at least one aris and some have several.</p> <p>In Kodiak assemblages, blades are distinguished from microblades in that blades are at least 1 cm wide while microblades are always less than 1 cm wide. We came by the 1 cm cut off figure by first sorting the blades and microblades in various collections by eye, and then measuring their widths. There is a clear break in a bi-polar distribution.</p> <p>Microblade are found in only the oldest assemblages from Kodiak, those of the earliest centuries of the Ocean Bay tradition. They persist longer than blades, which drop out of assemblages by about 7,000 BP. Microblades were used for at least another 500 years and at in the Rice Ridge assemblage there are long narrow pieces of bone with slots along the sides likely intended to hold these small blades and form lances.</p>				
<b>References</b>	Clark, D. W., 1979 and 1982				
<b>Last Update</b>	05/07/2021	<b>Updated By</b>	Amy Steffian		

MICROBLADES



# MICROBLADES

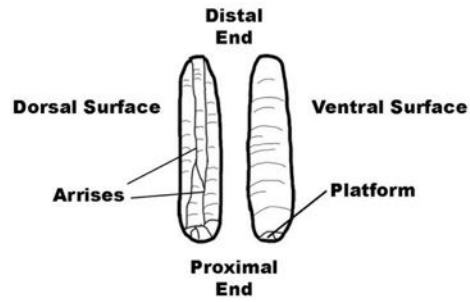
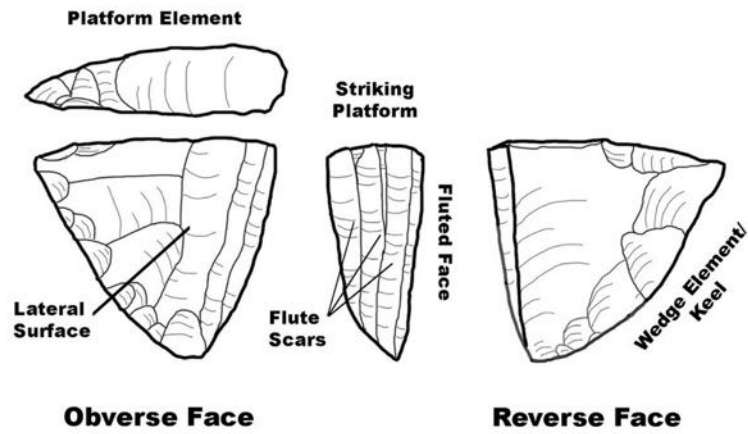


Illustration from:

[https://www.researchgate.net/figure/Microblade-and-microcore-characteristics\\_fig1\\_270570781](https://www.researchgate.net/figure/Microblade-and-microcore-characteristics_fig1_270570781)







# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Microblade core	<b>Alutiiq Names</b>	Ipengcugem kangia
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing
		<b>Function</b>	
<b>Common Materials</b>	Red chert,		
<b>LxWxD (cm)</b>			
<b>Tradition</b>	<input type="checkbox"/> Ocean Bay	<input type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag <input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Rice Ridge, Salonie, Afognak
	<input checked="" type="radio"/> No/Unknown		
<b>Description</b>	<p>Microblade cores have a distinctive trapezoidal shape – a flat, often ovate in shape top surface (striking platform) with sides that slope down to a ridge on the bottom. The microblades are struck off of the sides and the parallel microblade scars are often immediately apparent. But this is not always true – often spent cores and preforms do not exhibit the parallel scars.</p> <p>Kodiak Alutiiq microblade cores are quite distinctive in comparison with those associated with different cultural traditions and found elsewhere in the state (Steffian et al APUA). Kodiak microblade cores tend to be more crudely made with poorly prepared striking platform, smaller in size with shorter sides, and a more oblique angle between the sides and striking platform. On Kodiak you rarely find a microblade core with parallel flake scars extending all the way around the sides. Typically the microblade scars are just at one end.</p>		
<b>References</b>			
<b>Last Update</b>		<b>Updated By</b>	

# MICROBLADE CORES

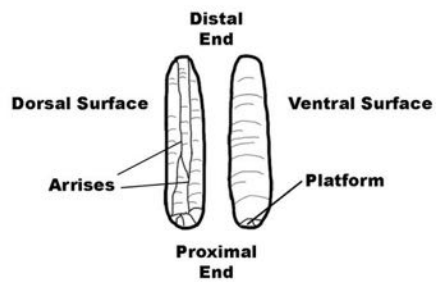
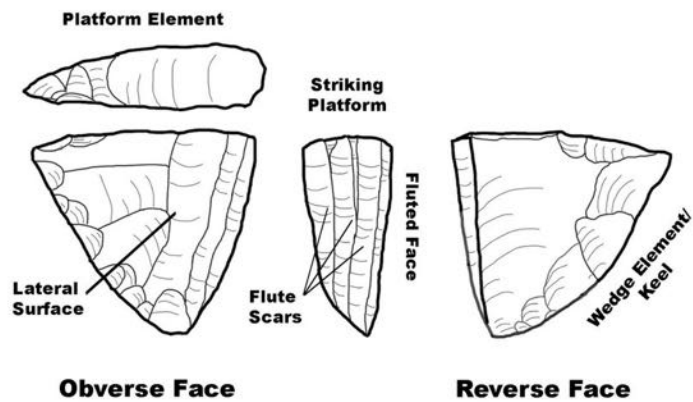


Illustration from:

[https://www.researchgate.net/figure/Microblade-and-microcore-characteristics\\_fig1\\_270570781](https://www.researchgate.net/figure/Microblade-and-microcore-characteristics_fig1_270570781)



# Alutiiq Technological Inventory

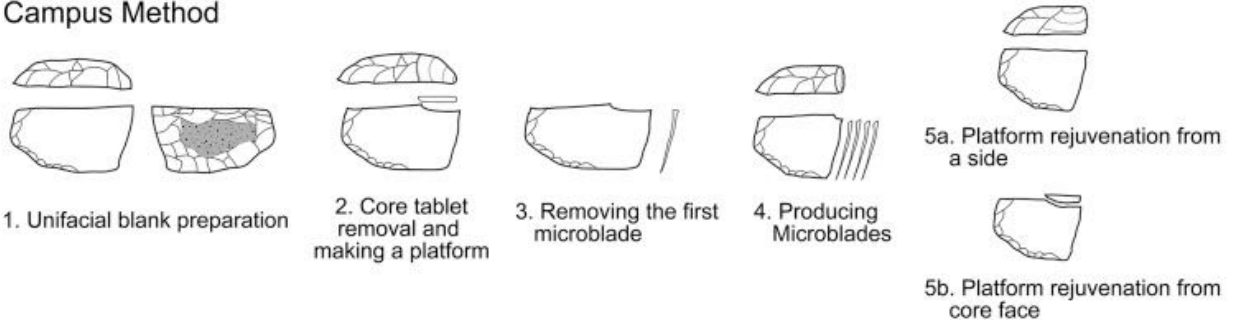
## Artifact Class Summary Sheet

<b>English Names</b>	Microblade Core Rejuvenation Flakes	<b>Alutiiq Names</b>	Ipengcugem Call'rua—kind of trash from a
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing
		<b>Function</b>	Tool Making
<b>Common Materials</b>	Red chert, exotic chert		
<b>LxWxD (cm)</b>			
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag
			<input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Kashevaroff site, Rice Ridge
	<input checked="" type="radio"/> No/Unknown		
<b>Description</b>	<p>Microblade core rejuvenation can take place in two ways - by knocking a spall off the face of the core (parallel to the blade scars = a core rejuvenation spall), or by knocking a spall off the top of the core to create a new surface for percussion (perpendicular to the blade scars = a core tablet)</p> <p>Microblade core rejuvenation spalls are defined as large flakes (not narrow enough to be blades) knocked off the face of a blade core. These flakes have multiple, parallel blade scars on their dorsal surface. They are thought to represent an effort to rejuvenate the side of a blade core to make it suitable for continued blade production. Alternatively they may be the result of blade manufacturing accidents.</p> <p>Microblade core tablets are a flakes taken off the top of a core - perpendicular to the orientation of the blade scars. These flakes typically have a battered edge down the center of the dorsal side with evidence of multiple blade removals on one side. In essence, these flakes are the top corner of a microblade core. Microblades are struck off the sides of the core at a right angle to the plane of the tablet. As a core is worked multiple tablets are struck off and, as a consequence, the core gets shorter and shorter. Core tablets are recognized by their distinctive shape as they retain the microblade scars and the old spent working edge around their outer edge.</p>		
<b>References</b>	Clark, D. W. 1979 and 1982		
<b>Last Update</b>	05/04/2021	<b>Updated By</b>	Amy Steffian

## Microblade Core Rejuvenation Flakes

### Illustration of microblade core rejuvenation techniques

#### Campus Method



Graphic from: <https://www.sciencedirect.com/science/article/abs/pii/S1040618216302166>

Hirasawa, Yu and Charles E. Holmes, 2017, The relationship between microblade morphology and production technology in Alaska from the perspective of the Swan Point site. *Quaternary International*, 442, Part B:104-117.



# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Ornament	<b>Alutiiq Names</b>	Tang'rhnit'staaq
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<b>Industry</b>	Chipped Stone	<b>Activity</b>	Celebrations	<b>Function</b>	Spiritual?
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<b>Common Materials</b>	Red chert
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<b>LxWxD (cm)</b>	
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<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag	<input type="checkbox"/> Alutiiq
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<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Rice Ridge
	<input checked="" type="radio"/> No/Unknown		

<b>Description</b>	<p>Freestyle chipped stone objects are a rare find in Ocean Bay Tradition sites. The small pieces lack an obvious function and appear to be art objects or perhaps amulets. They are typically small and have been shaped to represent animals and people. Basically they are chipped stone sculptures.</p> <p>Similar chipped stone sculptures were made by the Inupiat. Richard H. Jordan published an article on examples preserved in the collections of the University of Pennsylvania which he interprets as amulets. The Kodiak examples are much older than these pieces.</p>
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<b>References</b>	Jordan, Richard H. 1982 The University of Pennsylvania Museum Collection of Chipped Stone Amulets from Point Barrow, Alaska. Anthropological publications of the University of Alaska 19(2):33-41.
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<b>Last Update</b>	05/07/2021	<b>Updated By</b>	Amy Steffian
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## ORNAMENTS



Red chert ornaments from the Kashevaroff site (right – human torso?) and Rice Ridge (fish)

# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Piece Esquillee	<b>Alutiiq Names</b>	Nengem Klitaa —Wedge for bones
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Cooking/Storage
		<b>Function</b>	Wedge for bone working
<b>Common Materials</b>	Red chert, exotic chert, tuff		
<b>LxWxD (cm)</b>	Highly variable		
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag
			<input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Kashevarof, Rice Ridge
	<input checked="" type="radio"/> No/Unknown		
<b>Description</b>	<p>Piece Esquillees are stone wedges used to break open bone to get at the marrow for food, or for the creation of raw material in the form of bone shards. The wedges are pounded into the bone to split it open and are identified by their distinctive bipolar percussion use wear. They reflect the battering on one side from a hammer and on the opposing side from the bone itself. The battering on the edge is quite distinctive and reflects direct – head on, blunting. There are also often numerous step fractures back from the edge.</p> <p>Piece esquillees vary a great deal in size (from fist-sized to thumbnail-sized) and can be formally shaped. Formal piece esquillees appear to have been chipped to shape and are typically square with four opposing, battered sides. However, many piece esquillees are informally made and appear to be simple flakes used to break open bone.</p>		
<b>References</b>			
<b>Last Update</b>	05/04/2021	<b>Updated By</b>	Amy Steffian

Pièce Esquillée



Pièce esquillée from the Kashevaroff Site (top row) and Rice Ridge (bottom row)



# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Scaper	<b>Alutiiq Names</b>	K`lignsuun
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing
		<b>Function</b>	Hide working
<b>Common Materials</b>	Red Chert		
<b>LxWxD (cm)</b>			
<b>Tradition</b>	<input type="checkbox"/> Ocean Bay	<input checked="" type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag
			<input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Blisky, Horseshoe Cove
	<input checked="" type="radio"/> No/Unknown		
<b>Description</b>	<p>Scrapers are a form of flake tool that have been purposefully shaped and have steep, unifacial retouch and utilization along one or more margins. Small, formal scrapers are typical of Early Kachemak assemblages. They are distinct from flake knives which have flatter retouched edges and from flake tools used for scraping. Flake tools have a steeply retouched edge, but they have not been purposefully retouched.</p> <p>Scrapers can be further subdivided into three categories:</p> <ul style="list-style-type: none"><li>(1) side scrapers are characterized by steep retouch along their margins;</li><li>(2) end scrapers exhibit the retouch at the distal margins of the pieces; and</li><li>(3) concave side scrapers which are characterized by their concave retouched edge(s).</li></ul>		
<b>References</b>			
<b>Last Update</b>	05/04/2021	<b>Updated By</b>	Amy Steffian



## SCRAPERS



Red chert scraper from the Horseshoe Cove site – ca. 3 cm tall.



Red chert scrapers from Refuge Rock



# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	<input type="text" value="Shatter"/>	<b>Alutiiq Names</b>	<input type="text" value="Calleq—piece of debris"/>
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<b>Industry</b>	<input type="text" value="Chipped Stone"/>	<b>Activity</b>	<input type="text" value="Manufacturing"/>	<b>Function</b>	<input type="text" value="Tool Making"/>
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<b>Common Materials</b>	<input type="text" value="Red Chert"/>
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<b>LxWxD (cm)</b>	<input type="text"/>
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<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input checked="" type="checkbox"/> Kachemak	<input type="checkbox"/> Koniag	<input type="checkbox"/> Alutiiq
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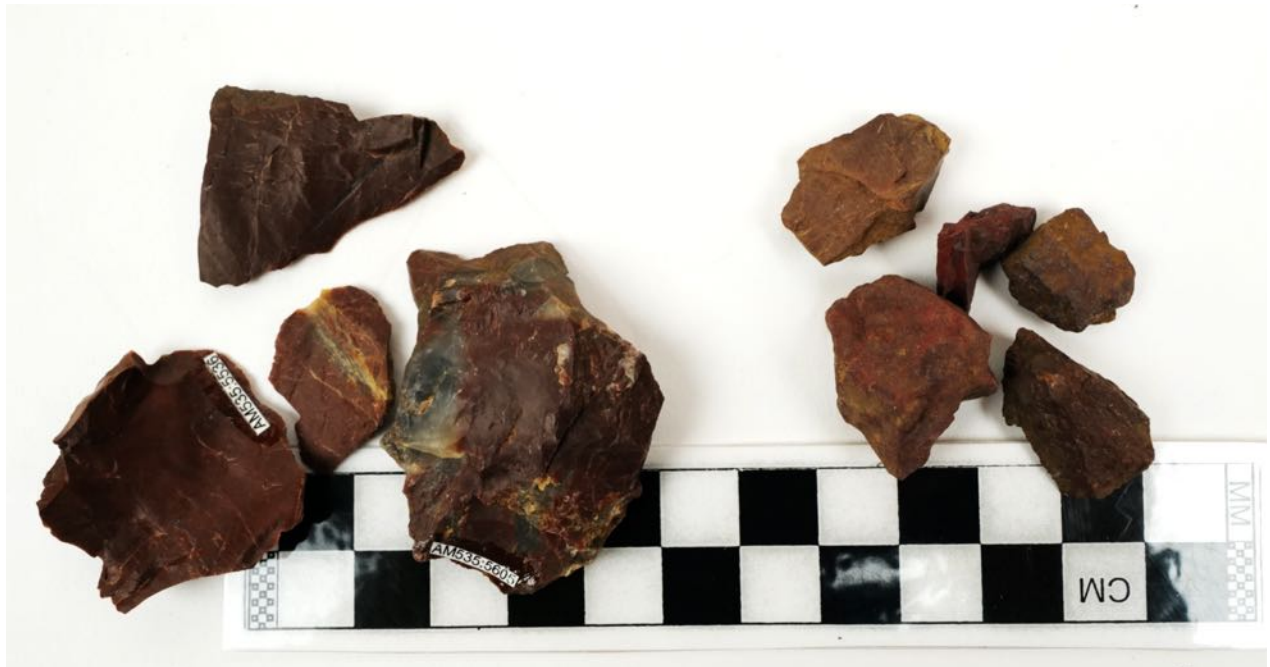
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	<input type="text" value="Many"/>
	<input checked="" type="radio"/> No/Unknown		

<b>Description</b>	<p>Shatter is a form of manufacturing debris—blocky debitage from the production of chipped stone tools. Unlike flakes, pieces of shatter are angular fragments of chipped stone that do show a bulb of percussion, striking platforms, or dorsal flake scars. It represents unintentional fracture—a shard of material that broke off during manufacture.</p>
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<b>References</b>	<input type="text"/>
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<b>Last Update</b>	<input type="text" value="05/04/2021"/>	<b>Updated By</b>	<input type="text" value="Amy Steffian"/>
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SHATTER



Chipped stone flakes (left) and shatter (right) from Salonie Mound.



# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Sideblade	<b>Alutiiq Names</b>	Ulukalleq
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<b>Industry</b>	Chipped Stone	<b>Activity</b>	Hunting	<b>Function</b>	
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<b>Common Materials</b>	
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<b>LxWxD (cm)</b>	
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**Tradition**    Ocean Bay    Kachemak    Koniag    Alutiiq

<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Salonie, Kashevarof, Rice Ridge,
	<input checked="" type="radio"/> No/Unknown		

<b>Description</b>	<p>Sideblades are chipped stone knives intended to be hafted on the side rather than on the end. They are basically the chipped stone version of an ulu. Typically sideblades predate and are replaced by ulus. However, in late prehistoric sites on Chirikof where slate is hard to come by there are chipped stone 'ulus'.</p> <p>Sideblades are characterized by their distinctive assymetric shape – with a longer and more flat finely flaked edge opposing a shorter, less finely finished and often 'humped' edge. The latter edge was intended to be hafted with the longer opposing side representing the cutting edge. Sideblades are typically formal bifacially flaked tools. But there are 'flake tool' sideblades that were clearly made on a flake where the ventral surface was not entirely flaked away. It is often difficult to classify such pieces as either flake knives or sideblades. The judgement call comes down to whether the piece looks like it was intended to be hafted or not. If hafted then it is considered a sideblade while if intended to be hand held then a flake knife.</p>
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<b>References</b>	
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<b>Last Update</b>	05/07/2021	<b>Updated By</b>	Amy Steffian
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SIDE BLADES





# Alutiiq Technological Inventory

## Artifact Class Summary Sheet

<b>English Names</b>	Utilized Flake or Blade	<b>Alutiiq Names</b>	Yaamam ilakualiraq	
<b>Industry</b>	Chipped Stone	<b>Activity</b>	Manufacturing	
		<b>Function</b>	Cutting	
<b>Common Materials</b>	Red chert, chalcedony			
<b>LxWxD (cm)</b>				
<b>Tradition</b>	<input checked="" type="checkbox"/> Ocean Bay	<input checked="" type="checkbox"/> Kachemak	<input checked="" type="checkbox"/> Koniag	<input type="checkbox"/> Alutiiq
<b>Miniature</b>	<input type="radio"/> Yes	<b>Example Sites Found</b>	Almost any site with chipped stone	
	<input type="radio"/> No/Unknown			
<b>Description</b>	<p>This artifact category is composed of flakes and blades that show edge damage from utilization (small chips along one of more edges) but lack intentional modification. Utilized flakes came in a variety of sizes and weights. Most of the pieces have unifacial edge modification, and were probably used for scraping and cutting. Microblades, blades, bifaces and other chipped stone artifacts also often exhibit edge utilization. These pieces are noted as utilized in a sub categorization but remain as designated.</p> <p>Utilized flakes can be roughly divided into three categories:</p> <ul style="list-style-type: none"><li>(1) flakes with utilization along one margin;</li><li>(2) flakes with multiple utilized edges (uniform utilization suggests a general scraping function); and</li><li>(3) flakes with a specialized utilization resulting in steep, u-shaped indentations with thick, crushed edges. These specimens may have been used as spoke shaves.</li></ul>			
<b>References</b>				
<b>Last Update</b>	09/26/2021	<b>Updated By</b>	Amy Steffian	