

**FOOD FROM THE SEA: SEA LION HUNTER GR: 3-5 (LESSONS 1-2)**

**Elder Quotation:** “You can feed a village with a single shot.”

- ‘Sea Lion Murphy’ (Joe Kompkoff, Sr.) as quoted by John F.C. Johnson

Joe Kompkoff, Sr., raised in Chenega, was a great hunter, especially famous for his prowess in hunting sea lions. He became known as ‘Sea Lion Murphy.’ The Chenega Bay subsistence building is officially named after him.

**Grade Level:** 3-5

**Overview:** Sugpiat hunters traditionally focused on sea lions because of the enormous amount of protein and subsistence lifestyle resources they offered. The Sugpiat developed specialized techniques for the hunting, retrieval, processing, and preservation of this valuable sea mammal.

**Standards:**

<i>AK Cultural:</i>	<i>AK Content:</i>	<i>CRCC:</i>
D1: Acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders.	Science C (3,4): A student should understand and be able to apply the concepts, models, theories, facts, evidence, systems, and processes of life science and should (3) develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms:.	L1: Students should understand the value and importance of the Sugt’stun language and be actively involved in its preservation.

**Lesson Goal:** Students learn about the tremendous value represented by sea lions for Sugpiat villages and how they were hunted, shared, consumed, and used.

**Lesson Objectives:** Students will:

- Decode the conservation message in a Chugach legend.
- Consider the specialized techniques involved in subsistence sea lion hunting and usage.
- Generate an informational presentation based on knowledge gained from oral interviews.
- Learn the Sugt’stun and/or Eyak vocabulary listed below.

Sugt’stun Dialects

**Vocabulary Words:**

English:	PWS:	Lower Cook Inlet:	Eyak:
sea lion	<i>wínaq (pl: wínat)</i>	<i>wínaq (pl: wínat)</i>	<i>k’umah</i>
hunter		<i>pisurta (1); pisurtek (2) pisurtet (3+)</i>	<i>k’uch’iya’ (Good hunter)</i>

**Materials/Resources Needed:**

- Access to web video projection screen
- Nick Tanape Interview Keywords Worksheet (See below)
- Nick Tanape Interview Answer Sheet (See below)

- Sea Lion Hunter Interview Project Guidelines (See below)
- Bentwood visor prop for ‘Sea Lion Hunter’ to wear during interviews
- Video camera to record student interviews

### **Kit Library:**

- Johnson, John F.C., et al. *Chugach Legends* pp.67-68
- Stamp, Bobby A. *Chenega as I Saw It – It’s People*

### **Web Resources:**

#### Sea Lion Hunter Interview

<http://jukebox.uaf.edu/NanPG/nanwalek/html/23503.html> Retrieved 11.7.2017 Interview with Nanwalek sea lion hunter Nick Tanape, Sr. (1946-2018)

Section 1 (2:03) Personal Introduction

Section 6 (2:38) Seal and sea lion hunting, sharing, flippers

Section 7(3:08) When and where to hunt sea lion, retrieval considerations, sharing

Section 8 (2:20) Sea lion sharing, pelt preparation, freezing

Section 10 (First 1:20 of 2:55) Sea lion whisker use

#### Sea Lion Facts

[http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view\\_article&articles\\_id=325](http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=325)

‘Traditional Uses of Sea Lion’ article by M. Turek (See below)

<http://www.seaotter-sealion.org/stellersealion/index.html> Sea lion facts

**Scientific name:** *Eumetopias jubatus*

**Family:** Steller sea lions are the largest of the otariids and the fourth largest of the pinnipeds, meaning “feather” or “fin” footed.

**Lifespan:** Males rarely live beyond mid-teens; females may live as long as 30-years.

**Length and weight:** The average adult male Steller sea lion is about 1,250 lbs. They grow up to 10-11 ft in length and weigh up to 2,500 lbs! Adult females are from 7.5-9.5 ft in length and weigh up to 770 lbs. At birth, Steller sea lions weigh 35-50 lbs and are about 3 feet in length.

**Body:** Steller sea lions have large, bulging eyes, and flat, square noses and long whiskers used to navigate underwater and find prey. The ears are visible and are turned downwards so that water does not enter them when the sea lions go underwater. When adult males age, they develop a “mane” of long, coarse hair. Steller sea lions are particularly agile on land and swim using their foreflippers. Males grow 2-3 times as large as an adult female.

**Food habits:** Steller sea lions are opportunistic and eat a wide range of fish including herring, pollock, salmon, cod and rockfishes, sculpin, Atka mackerel, capelin, as well as squid, shrimp and other fish. To survive, an adult sea lion needs to eat 5-6% of its body weight each day, but young animals need twice that amount. When males are defending their territories on the rookeries, they may go without eating for over a month! Interestingly, Steller sea lions do not need to drink water: the food they eat provides them with all the water they need. They do not chew their food; most is swallowed whole. Feeding often occurs in groups; often feed at night between 9 PM and 6 AM.

**Predators:** Include humans, sharks, and killer whales

<https://www.smithsonianchannel.com/videos/how-are-seals-different-from-sea-lions/35377>

(1:14) Quick review of physical differences between seals and sea lions

### **Teacher Preparation:**

- Review Activity Plan and practice Sugt'stun or Eyak vocabulary.
- Contact your Local Education Coordinator or local Tribal Council for a list of Elders that could share his or her expertise on how to hunt sea lion and its subsistence uses.
- Before the Elder or Recognized Expert arrives, review with students how to respectfully interact with the Elder during his or her visit.
- Review Sea Lion data.
- Review attached article 'Traditional Uses of Steller Sea Lions' by M. Turek, 2007, October. *Alaska Fish and Wildlife.*)

**Opening:** Sea lions/*Wínat* are an incredible source of subsistence food and resources. A two year old sea lion/*wínaq* provides enough meat to feed a family of three 2 meals a day for two months.<sup>1</sup> An average adult male weighs over half a ton (1250 lbs.), a female 750 lbs. Is it any wonder that Sugpiat hunters went after sea lions/*wínat* to feed their villages? Sea lions/*wínat* continue to be valued and honored today.

### **Class 1 – Activities: Traditional Sea Lion Hunting**

1. Have students listen to legend of “The Man and the Sea Lions” as told by Makari in *Chugach Legends* for some insight as to how the Sugpiat saw their relationship to sea lions/*wínat*. Read aloud the first half of the legend, pp.67-68, through the end of the second full paragraph which concludes *‘Tell me who owns this harpoon head. I found it in the wounded sea lion, but I do not know to whom it belongs.’* Conclude with the first line of the next paragraph, *“Afterwards they lived as before.”* [Note: The second half of the legend is more problematic and focuses more on the deliberate marooning of a hunting partner in order to steal his wife.]
2. Discuss legend content with class.
  - How do the sea lions/*wínat* treat the marooned hunter/*hunter*?
  - Sea lion invited hunter to warm up in sea lion house under the sea.*
  - How does the hunter/*hunter* respond?
  - He dives into the sea to the sea lions' house and offers to cure their wounded chief. Without explaining what the chief's problem is, the hunter bathes the wound and removes the harpoon head from the sea lion and hides it out of sight. The sea lions thank him with a trip home via a 'great stomach' that was the chief's baidarka.*
  - How does this story demonstrate the importance of respect for sea lions/*wínat* and sea lion hunters?
  - Demonstrations of hospitality, mutual assistance. The Sugpiat believed that all animals had a suq or spirit which permitted animals to change into humans and humans into animals. In this story sea lions and men showed each other respect through demonstrations of hospitality (the sea lions invited the cold hunter to their undersea home to warm up), kindness (the hunter cured the wounded sea lion chief), and gratitude (repaying the hunter with a stomach/baidarka to travel back to his village).*

Additional Elder Quotation regarding not leaving a wounded sea lion:

*“I still hunt seal and sea lions. There’s a trick to it. I drop off someone with a rifle on the rocks where there are seals. Then I drive the boat away from the area. The seals think we have left, and they come back up to the surface where the person on the rocks shoots them. Sometimes, I’m the one to stay o(n) the rocks. You have to retrieve them before they sink. We get sea lions the same way.....If we shoot something and kill it, then we do everything we can to bring it home. There have been times when it seemed like we were out there for hours trying to get something off the bottom. We just don’t like to waste anything. That’s not our way.”*

- Michael Vigil, *We Are the Land We Are the Sea*, pp.128-129

3. Direct students to listen carefully to Nanwalek sea lion hunter/hunter Nick Tanape, Sr. (1946-2018) in a Nanwalek Juke Box Interview describe sea lion hunting techniques and uses. Inform students that they will be writing a script of an interview with a fictional sea lion hunter/*pisurta*, then they will then perform and record. Distribute the Keywords handout (FFS 3-5 Sea Lion Hunter 1.1 Keywords)
  
4. Instruct students to complete the appropriate section of the handout as they listen to each of the Jukebox sections listed below.
 

Section 1 (2:08) Here the sea lion hunter/hunter introduces himself. He speaks softly so students will need to listen carefully. Who is the hunter/hunter and where is he from? (*Nick Tanape, Sr. from Nanwalek*) Why did he leave the village and why did he return? (*Left to go into the service, lived in New Jersey but returned because he didn’t want to lose connection with Native foods.*)

Section 6 (2:38) Why do people like seal? (*Especially enjoy seal fat to render into oil.*) What did the father of the hunter/hunter do with the sea lions he killed? (*His dad would bring one up to the village beach and everyone would come down to take some.*) What’s special about the flippers? (*The flippers go to the hunter.*) Was there any waste? (*Most every part was used.*) How did sea lion meat keep him connected to his village? (*His dad would send him salted sea lion when he lived in the Lower 48.*)

Section 7 (3:07) What is the difference between hunting seal and hunting sea lion? (*Dead sea lions sink faster than seals and must be hooked or sunk in place near the village where it can be collected at low tide.*) Why harvest a sea lion close to town? (*It’s difficult to tow sea lions very far.*) When does the hunter/hunter go out after sea lions? (*November, December, January*) What does the hunter do once he’s harvested the sea lion? (*Calls out on CB radio to invite villagers to come down to share the sea lion.*) If the students do not know what a CB is, then explain how it is a radio transmitter, a sort of public cellphone channel.
  
5. Review how interviews are conducted. Planning and research about the interview topic or person make for better interviews. In this case listening to Nick Tanape’s Jukebox interview is your research. Think about how to make an interview interesting. Too many obvious or closed questions with predictable yes or no or one-word answers are dull. *What’s your name? Where do you live? Are you a sea lion hunter?* Good questions are open-ended. Open-ended questions like; *“How did you feel when you killed your first sea lion? How did you learn*

*about the tradition of sharing sea lion meat?”* makes a more interesting interview. Follow-up questions build on an interviewee’s answer and go deeper into a topic of interest.

6. Announce that research and writing of Sea Lion Hunter Interview will begin next class.



Sea lions chasing spring hooligan (eulachon) in Alaganik Slough in the Copper River Delta.

### **Class 2 – Sea Lion Hunter Interview**

1. Assign students into interview script teams.
2. Distribute ‘Interview Guidelines’ handout (FFS 3-5 Sea Lion Hunter 1.2) and review standards for interview project.
3. Allow students time to brainstorm, write, and practice script.
4. Explain that scripts must be checked to ensure that they meet the guidelines before the students can make their presentation.
5. Present and record interviews for use at final Food from the Sea lesson. If possible, have each ‘Sea Lion Hunter’ wear the bentwood visor (or make hunting hat- see attached pattern) for his or her interview. Interviewers may choose to use a ‘microphone’ prop.

### **Assessment:**

- Students can explain the conservation message in the Chuagch legend “The Man and the Sea Lions.”
- Students successfully describe subsistence sea lion hunting techniques and traditions from an oral history interview.
- Students wrote and presented an informational interview with a sea lion hunter.
- Students correctly pronounced Sugt’stun or Eyak vocabulary words.

### Traditional Uses of Steller Sea Lions Archaeologists Document Importance of Stellers

By Mike Turek



A 19th century painting by a Russian artist depicts a Steller sea lion hunter near a haulout. Alaska State Library Historical Collection, PCA 139-48.

**A**rchaeological digs at prehistoric sites in Alaska are revealing that

Steller sea lions were profoundly important to Alaska's Native people.

Sea lions were harvested for meat, oil and blubber. Bone and whiskers were used for tools, sinews for cordage, intestines and stomachs for waterproof containers and clothing, and the skins were used for baidarkas (kayaks). Unalaska sites have yielded implements and decorative pieces fashioned from sea lion bone.

In prehistoric archaeological sites, sea lions appear to have replaced walrus as a distinct marine mammal species in coastal areas of Alaska dominated by a Pacific maritime climate. These areas include the Pacific coast of the Alaska Peninsula, Prince William Sound, the tip of the Kenai Peninsula, the Kodiak Island archipelago, and the Aleutian Islands. Aleutian Island sites with sea lion remains date to 3,000 years b.p. - before the present - (Anangula Island) and 4,000 years b.p. (Chaluka Village). Sea lions appeared to be the principal sea mammal in the latter site, comprising some 10 to 20 percent of all sea mammal bones found.

From four well-preserved sites on southwest Umnak Island in the eastern Aleutians, about 70 per cent of the archaeological biomass (meat weight) was represented by sea lions. The Lower Alaska Peninsula and the Sanak Island

projects have generated data over 12 field seasons, documenting 300 ancient village sites spanning the last 6,000 years. Nearly 100,000 marine mammal, bird and fish bones have been collected. Archaeological sites have also been found on Marmot Island, home to Alaska's largest Steller sea lion rookery.

Long-term changes in the North Pacific and Bering Sea ecosystems have been the subject of scientific investigations relying on archaeological and anthropological analyses. Data indicate that there have been significant variations in the distribution of key species over the last 5,000 years. During cooler periods the harvests of sea lions appears to have been greater than during warmer periods. Archaeological evidence from the Medieval Warm Period, 900 to 700 years ago, includes very few samples of sea lion remains. After 1400 a.d., well into the Little Ice Age, evidence indicates that harvests rose to levels not seen in the previous 4,000 years.

Anthropologists have estimated that the approximately 25,000 Aleut living in the region 400 years ago probably required between 5,000 and 10,000 Steller sea lions per year to meet basic subsistence needs. Other estimates more than double that number.

Sea lion hunting occurred between the middle of September and November, after the fur seals left the rookeries for the season. Hunting was done on the rocks at night by moonlight, and selected animals were captured and herded into corrals. After several nights of corralling, two or three hundred animals were driven or herded overland by the hunters. Herding the animals could take from five days to three weeks. The sea lions were driven to a village before hunters killed them with sticks and spears.



A Steller sea lion pup and mother and a haulout in Southeast Alaska.

Ivan Veniaminov, the Russian Orthodox missionary wrote of Pribilof Islanders in the 1830s harvesting as many as 2,000 Steller sea lions on St. George Island alone.

The Russian word, baidarka, referred to the Aleut's distinctively hatched, decked, skin boats. At the time of European contact, one and to a lesser extent, two hole baidarkas were common, the three-hole boat was likely developed by the Russians. Sea lion skins from sub-adult males were the preferred baidarka covering. A single hatch baidarka required four to six sea lion skins which were replaced three to four times per year.

Although the Aleut population dropped significantly following the Russian invasion, the need for baidarkas in the sea otter industry kept the numbers of boats and sea lion skins high. Russian sea otter hunting expeditions required several hundred baidarkas, expeditions with 600 to 800 boats are mentioned in the literature.

According to George Dyson, baidarka builder and scholar, "Baidarkas were being built by the thousands in the Russian-American colonies for close to 100 years." These skin boats were the key to Russian activity during the entire pre-American period. Almost anywhere they went, hunting, trading, or exploring, the Russians depended on the baidarka. Following the 1867 purchase of Alaska, the Americans took over the sea otter trade, which still required deck loads of baidarkas.

By the late 19th century the marine mammal populations in the Gulf of Alaska and Bering Sea had collapsed. Petroff, collecting data for the 1880 US census described much smaller sea otter hunting parties consisting of "from 4 to 20 (two-hatch) baidarkas."

The collapse of the Steller sea lion populations in the late 19th century was so serious that the United States Government imported sea lion skins from California to Alaska so baidarka construction could continue.

Waldemar Jochelson, an ethnographer working in the Aleutians during 1909-1910 commented on the scarcity of marine mammals and skin boats, "The Atka Aleut still use skin-boats. . . but the Attu Aleut have no skins to cover their boats. . . ." Wooden skiffs had now taken the place of skin boats.

In 1910 the last sea otter hunt was conducted in 12 two-hatch baidarkas. Due to the economic depression and costs for fuel baidarkas saw a brief revival in the 1930s. In 1933 the anthropologist, Birket-Smith described construction of baidarkas, "Six large skins of spotted seal were necessary [single hole baidarka], for a two-hole baidarka, nine, and for a three-hole twelve skins. Skin of young sea lions might also be used . . ."

Today, Michael Livingston, Aleut master kayak builder has experimented widely with kayak construction finding that the hide of the Steller sea lion is the best marine mammal skin for covering kayaks.

*Mike Turek works with the Subsistence Division at the Alaska Department of Fish and Game*

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## Nick Tanape, Sr. Jukebox Project Interview (1996)

Name: \_\_\_\_\_

### **Section 1 (2:03) Personal Introduction**

Nick Tanape, Sr. grew up in English Bay (*Nanwalek*) with \_\_\_\_\_ brothers.

His family didn't go to stores they lived a \_\_\_\_\_ life.

He left the village for a few years to \_\_\_\_\_.

But he always came back to the village in the summers to \_\_\_\_\_.

He moved back to the village in 1980 because he wanted to live \_\_\_\_\_.

### **Section 6 (2:38) Seal and sea lion hunting, sharing, flippers**

That summer Nick Tanape shot a seal eating fish from his salmon net and then \_\_\_\_\_.

He likes the seal's \_\_\_\_\_ and heart. Many others really like the seal \_\_\_\_\_.

He and his father used to hunt for sea lions in the months of \_\_\_\_\_ and \_\_\_\_\_.

His father shot a sea lion and \_\_\_\_\_ it back to the beach in town for folks to \_\_\_\_\_.

The hunter gets to keep the sea lion's \_\_\_\_\_.

### **Section 7(3:08) When and where to hunt sea lion, retrieval considerations, sharing**

When Nick Tanape brings home a sea lion he keeps it for himself OR shares it with the village.

Sea lions are heavy and, unlike seals, usually \_\_\_\_\_ after you shoot them.

He tries to shoot sea lions at high OR low tide.

He doesn't hunt sea lions too far away from the village because \_\_\_\_\_.

### **Section 8 (2:20) Sea lion sharing, pelt preparation, freezing**

Nick Tanape observes that the sea lion population is steady OR changing.

The skin is eaten. First you have to \_\_\_\_\_ the hair off the hide.

Then you cut up the skin in small pieces and \_\_\_\_\_ it.

He doesn't salt the skin the way people used to before they had \_\_\_\_\_.

### **Section 10 (First 1:10 of 2:55) Sea lion whisker use**

Nick Tanape keeps the seal and sea lion \_\_\_\_\_ to use on the traditional  
\_\_\_\_\_ that work like a \_\_\_\_\_.

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If the whiskers are on the right side of the hat it means that the hunter \_\_\_\_\_.

## Tanape Interview Key Words - Answer Key

Jukebox Project Interview with Nick Tanape, Sr. (1946-2018) of Nanwalek (formerly English Bay) <http://jukebox.uaf.edu/NanPG/nanwalek/html/23503.html>

### **Section 1 (2:03) Personal Introduction**

Nick Tanape, Sr. grew up in English Bay (*Nanwalek*) with \_\_\_\_\_ (6) brothers.  
His family didn't go to stores they lived a \_\_\_\_\_ (*subsistence*) life.  
He left the village for a few years to \_\_\_\_\_ (*to serve in the military*)  
But he always came back to the village in the summers to \_\_\_\_\_ (*hunt and fish*).  
He moved back to the village in 1980 because he wanted to live  
\_\_\_\_\_. (*the subsistence lifestyle, enjoy Native foods*)

### **Section 6 (2:38) Seal and sea lion hunting, sharing, flippers**

That summer Nick Tanape shot a seal eating fish from his salmon net and then \_\_\_\_\_  
(*gave most of it away*)  
He likes the seal's \_\_\_\_\_ (*liver*) and heart. Many others really like the seal \_\_\_\_\_ (*oil*).  
He and his father used to hunt for sea lions in the months of \_\_\_\_\_ and \_\_\_\_\_ (*Nov, Dec*)  
His father shot a sea lion and \_\_\_\_\_ (*towed*) it back to the beach in town for folks to  
\_\_\_\_\_ (*share*).  
The hunter gets to keep the sea lion's \_\_\_\_\_ (*flippers*).

### **Section 7(3:08) When and where to hunt sea lion, retrieval considerations, sharing**

When Nick Tanape brings home a sea lion he keeps it for himself/lets everyone know they can share in the meat.

Sea lions are heavy and, unlike seals, usually \_\_\_\_\_ (*sink*) after they are shot.  
He tries to shoot sea lions at high/low tide.  
He doesn't hunt sea lions too far away from the village because \_\_\_\_\_  
(*he can't haul the large animal in his skiff or tow it more than a few miles.*)

### **Section 8 (2:20) Sea lion sharing, pelt preparation, freezing**

Nick Tanape observes that the sea lion population is steady/changing.  
The skin is eaten. First you have to \_\_\_\_\_ (*singe*) the hair off the hide.  
Then you cut up the skin in small pieces and \_\_\_\_\_ (*cook, boil*) it.  
He doesn't salt the skin the way people used to before they had \_\_\_\_\_ (*freezers*).

### **Section 10 (First 1:10 of 2:55) Sea lion whisker use**

Nick Tanape keeps the seal and sea lion \_\_\_\_\_ (*whiskers*) to use on the  
traditional \_\_\_\_\_ (*Aleut bentwood hats*) that work like a \_\_\_\_\_ (*sun visor*).  
If the whiskers are on the right side of the hat it means that the hunter \_\_\_\_\_ (*is right-handed*).

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## Sea Lion Hunter Interview Project Guidelines

**Interview site:** \_\_\_\_\_

Decide where your interview is taking place. Maybe it is a TV evening news item, a YouTube video, a Sea Mammal Hunter training video, or possibly a National Geographic episode?

**Audience:** \_\_\_\_\_

Who's listening to your interview? Different audiences require different presentations. You would use simpler vocabulary for preschoolers than you would for adults. The general public might need more information about the Sugpiat subsistence lifestyle than Alaskans would.

**Introduction:**

Introduce yourself as the interviewer by name and & your employer, i.e., Jane Doe of Channel 2 News. Introduce the hunter by name and village. Note that you may create a fictional sea lion hunter to interview. You do not need to follow the Jukebox interview exactly.

**Content:** The interview should provide your audience with at least three to five details of interest about sea lion hunting, sharing, and traditional use. Here are two sample questions that you may choose to use or not.

- 1) \_What was your first sea lion hunting experience like? \_
- 2) \_What's the hardest part about hunting for sea lion? \_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_
- 6) \_\_\_\_\_
- 7) \_\_\_\_\_
- 8) \_\_\_\_\_
- 9) \_\_\_\_\_
- 10) \_\_\_\_\_
- 11) \_\_\_\_\_
- 12) \_\_\_\_\_

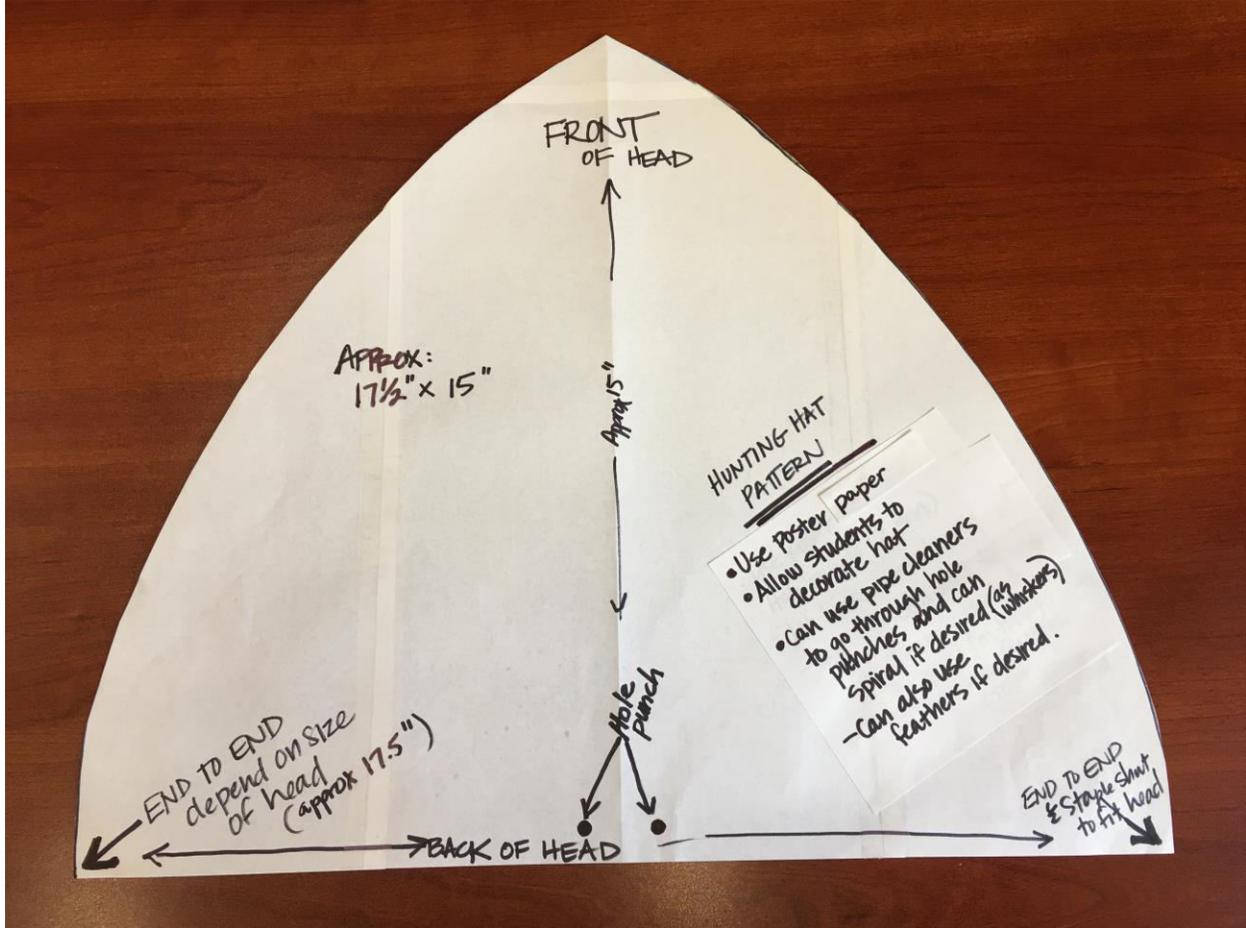
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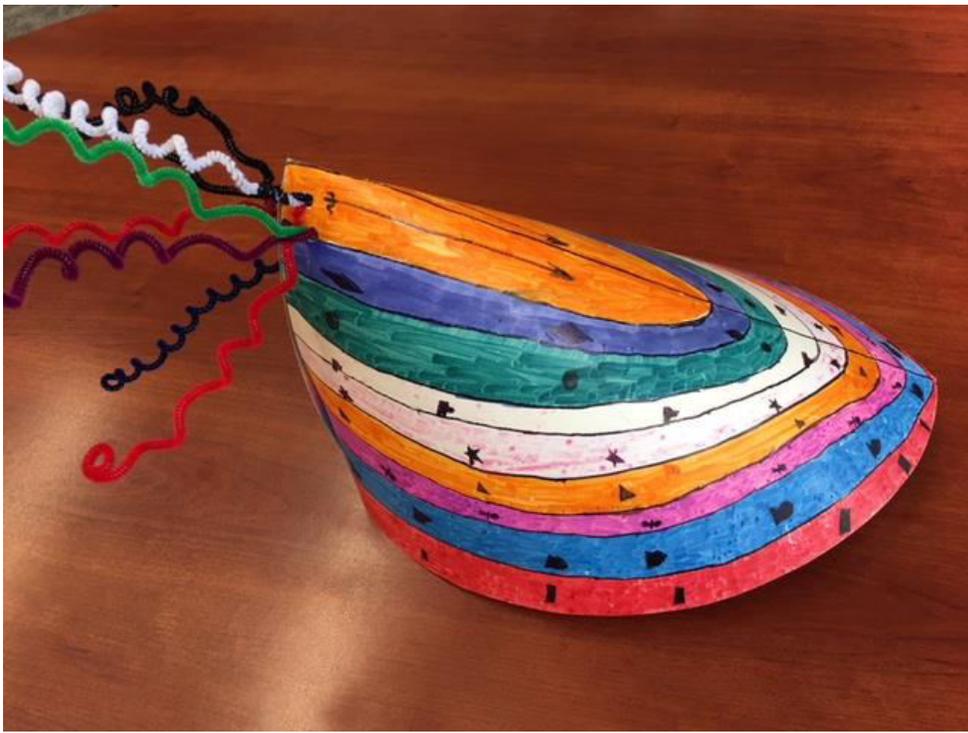
**Questions:** The interview should include 10 -12 questions using a variety of open and closed questions. There should be at least one follow-up question, i.e., a question that builds on the hunter's answer to a previous question.

**Close:** The interview should conclude with a thank you (*Quyana!*) to the hunter and a brief summary statement to the audience about what they have just learned.



Hunting Hat Pattern





Side view of hat



Back view of hat

**FOOD FROM THE SEA: SEA LION SAVVY 3-5 (LESSON 3-5)**

**Elder Quotation:** “Whenever somebody in the old village went out hunting, they’d bring back a seal or a sea lion. They’d leave it on the beach, and the people would go down there and help themselves. That’s how we all helped one another. First, people from the family that caught it would come down to the beach and cut off a chunk of meat. Then everybody else would go down and get whatever they needed. Everyone was invited to take home some of the seal or sea lion.”

- Margaret Borodkin<sup>i</sup>

**Grade Level:** 3-5

**Overview:** Sea lions were an extremely valuable resource in the traditional subsistence life. From the flippers to the kidneys to the pelt the Sugpiat made use of the entire animal. This was possible due to careful observations of sea lion behavior and habitat, the development of specialized hunting techniques and successful preservation and processing methods.

**Standards:**

<i>AK Cultural:</i>	<i>AK Content Science:</i>	<i>CRCC:</i>
D1: Acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders.	Science C3: A student should understand and be able to apply the concepts, models, theories, facts, evidence, systems, and processes of life science and should (3) develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.	L1: Students should understand the value and importance of the Sugt’stun language and be actively involved in its preservation.

**Lesson Goal:** To research aspects of sea lions as a subsistence resource and share the information gained in a scripted interview format.

**Lesson Objectives:** Students will:

- Research sea lions and subsistence topics
- Generate an informational presentation about their research
- Observe the relative value of various interview techniques
- Learn the related Sugt’stun or Eyak vocabulary

**Vocabulary Words:** Sugt’stun Dialects

English:	Prince William Sound:	Lower Cook Inlet:	Eyak:
What is this?		<i>Caacaq una?</i>	
What is that?		<i>Caacaq mi taugna?</i>	
Thank you.	<i>Quyana</i>	<i>Quyana</i>	<a href="#"><u>AwA'ahdah</u></a>
You’re welcome.	<i>Qyanaituten</i>	<i>Quyanaaituten</i>	

Sea lion	<i>wínaq (pl: wínat)</i>	<i>wínaq (pl: wínat)</i>	k'umah
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**Materials/Resources Needed:**

- FFS Sea Lion Savvy Anatomy and Vocab 2.1 (See below)
- FFS 3-5 Sea Lion Savvy Research Sources 2.2 (See below)
- FFS Sea Lion Savvy Interview Guidelines 2.3 (See below)
- FFS Sea Lion Savvy Traditional Recipes 2.4 (See below)

**Kit Library:**

- Poling, Donald Robert. *Chenega Daries: Stories and Voices from the Past: Life and Times in Chenega, Alaska 1944-48*
- Smelcer, John E. and Morgen A. Young. *We Are the Land We Are the Sea: Stories of Subsistence from the People of Chenega*
- Stamp, Bobby.A. *Chenega as I Saw It – It’s People*
- Unger, Suanne. *Oaqamiigux: Traditional Foods and Recipes from the Aleutian and Pribilof Islands; Nourishing Our Mind, Body and Spirit for Generations*

**Web Resources:** See ‘Sea Lion Research Sources’ below.

**Teacher Preparation:**

- Review Activities and practice Sugt’stun or Eyak vocabulary.
- Contact your Local Education Coordinator or local Tribal Council for a list of Elders that could share his or her expertise on the subsistence lifestyle and adaptations from traditional practices to today.
- Invite the Elder of Recognized Expert to the class and outline the student interview format with its testing of the usefulness of open and closed questions. Ask Elder to recall a special story or experience that could be hinted at to help direct student questions to elicit that story.
- Decide on size and number of student research groups and how to divide the topics. Note that each topic has suggested interviewees or decide on alternative interviewees.
- Before the Elder or Recognized Expert arrives, review with students how to interact respectfully with the Elder during his or her visit.

**Opening:** Introduce Elder/Expert to the class and explain that he or she knows a lot about local subsistence resources and how traditional Sugpiat practices have been adapted to today’s world. Ask students how they can find out what the Elder knows. (*Direct student answers to a review of good interview techniques and the use of open and closed questions.*)

**Activities:**

**Class 1:**

1. Divide students into small groups to brainstorm one closed and three open questions to ask the Elder about his or her experiences. Questions like ‘What is this?’/”*Caacaq una?*” or “What is that?”/”*Caacaq mi taugna?*” can be helpful if you just need one word answers. The challenge is for each group to come up with at least one relevant open question that is unique to their group. Hint there is a special story that the Elder would like to share if he or she is asked right question.

2. Have groups take turns asking the Elder their questions: first the closed question then the open-ended questions. Ask the Elder to provide a direct answer without elaboration, i.e., make the question do the work, not the interviewee.
3. What did students learn from the Elder's answers?
4. Discuss which questions led to the most interesting answers, which questions were dead ends, which were repetitive and which were new.
5. Divide students into groups and assign each one of the following topics:
  - Habits and Haulouts of Sea Lions/*Winat* [Interview with actual Sea Lion(s)]
  - Hunting Methods [Interview Sea Lion Hunter(s)]
  - Sharing, Preservation then & now [Interview with Trad. & Modern Subsistence Users]
  - Food Uses [Interview with Subsistence Chef(s)]
6. Distribute Sea Lion Interview Topics and Guidelines and Sea Lion Research Sources handouts and describe the assignment. Each group will research their assigned topic and then, using their interview skills with closed and open questions, write an interview script to share their research results, and present the interview to the class. (*Each topic has suggested interviewees though students may choose alternative interviewees.*)
7. Direct Groups to begin their research.



Sea lion haul out on Montague Island, Prince William Sound

### **Class 2:**

1. Review assignment and remind students that their interviews should include at least eight to ten interesting facts that they have learned from their research.
2. Direct groups to continue their research and using the project guidelines to begin writing their interview scripts.
3. Check to see that each group has at least eight to ten facts that their interviews will include.
4. Encourage students to bring in any interview props that would add visual interest to their presentations for the next class.

### **Class 3:**

1. Allow students time to complete their scripts. Check scripts for adherence to guidelines. If need be, ask “What is this?”/”*Caacaq una?*” or “What is that?”/”*Caacaq mi taugna?*” for clarification.
2. Have students practice their scripts with props.
3. Have groups present their interviews. Ask class to listen for facts in preparation for final discussion. (OR *Have groups compete to list as many facts as they learned from the interviews.*)
4. Invite Elder to comment on interview highlights.
5. What did students find most interesting in these interview? Discuss how information is transmitted through interviews and storytelling and the importance of the oral tradition to Sugpiat culture.

### **Assessment:**

- Students collectively interviewed an Elder about subsistence experiences.
- Students independently researched assigned sea lion related topics.
- Students presented original interview scripts which included eight to ten topic related facts.
- Students compared usefulness of open and closed questions in interviews.
- Students correctly pronounced the Sugt’stun or Eyak vocabulary.

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<sup>i</sup> Smelcer, J. E., and Young, M. A. *We Are the Land We Are the Sea: Stories of Subsistence from the People of Chenega*. Chenega Heritage, Inc., 2007. p.14



Sea Lion meat laid out in smokehouse, Tatitlek

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## FFS 35 Sea Lion Research Sources 2.2

### Sea Lion Facts

<https://oceanservice.noaa.gov/facts/seal-sealion.html> Differences between seal and sea lion

<http://www.sealion-world.com/> Sea lion species, facts

<http://www.sealion-world.com/galapagos-sea-lion-gives-birth/> (1:46) Video of sea lion birth in front of Galapagos tour group

<http://www.sealion-world.com/hunting-with-sea-lions/> (6:28) Video of young sea lions training, adults hunting 'bait ball' – last 30 seconds marlin & whale

<http://www.seaotter-sealion.org/stellersealion/index.html> Sea lion facts

### Sea Lion Harvest and Use

[http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view\\_article&articles\\_id=325](http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=325)

'Traditional Uses of Sea Lion' article by Mike Turek

<http://www.seaotter-sealion.org/downloads/TASSC%20Hunting%20Guide.pdf> Sea Lion Hunter's Guide includes anatomy cut-away, distribution map, uses, how to butcher

<http://www.subsistence.adfg.state.ak.us/download/indexing/Technical%20Papers/tp198.pdf>  
"The Subsistence Harvest and Use of Steller Sea Lions in Alaska" (1991)

Book: Smelcer, John E. and Morgen A. Young. *We Are the Land We Are the Sea: Stories of Subsistence from the People of Chenega*. Chenega Heritage, Inc., 2007.

Life in Old Chenega – Margaret Borodkin, pp14-18 (Sea lion sharing p.14)

The Hunter and the Fisherman – Paul Kompkoff, Jr., pp 62-67 (Sea lion hunt p.63)

The Sneakiest Prey – Andy Selanoff, pp 90-94 (Sea lion hunt p.94)

Subsistence in Tatitlek – Jessie Tiedemann, pp.111-119 (Sea lion sharing, recipe p.114-5)

Providing for Elders – Michael Vigil, pp.124-129 (Sea lion 128-129)

Book: Poling, Donald Robert. *Chenega Diaries: Stories and Voices from the Past: Life and Times in Chenega, Alaska 1944-48*. Chenega Future, Inc., 2011.

Sea lion hunt description p.83

Sea lion recipe p. 157

Sea lion meat preservation p.262

Sea Lion Murphy nickname origin p.274

### Sea Lion Subsistence Regulation

<http://www.seaotter-sealion.org/> [Sea lion facts, subsistence regulations, recipes](#)

<http://www.adfg.alaska.gov/index.cfm?adfg=stellersealion.main> Sea Lion facts, subsistence management, rules

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## FFS 3-5 Sea Lion Savvy Interview Guidelines 2.3

### **Class 1:**

Possible Topics:

- Habits and Haulouts of Sea Lions/*Winat* [Interview with actual Sea Lion(s)]
- Hunting Methods [Interview Sea Lion Hunter(s)]
- Sharing, Preservation then & now [Interview with Trad. & Modern Subsistence Users]
- Food Uses [Interview with Subsistence Chef(s)]

Use the Research Sources handout to begin research into your topic. This research will be used to write an interview with closed and open questions. Your group will present your interview in Class 3

### **Class 2:**

Continue your research. Each interview should include at least eight to ten interesting facts that you have learned from your research. Pick the most interesting facts and write a rough draft of 10 interview questions and answers. You should use a combination of open and closed questions. Discuss which group members will play which parts. Brainstorm possible props to add interest to the final presentation. Bring these props to the next class.

### **Class 3:**

Complete any needed research and review interview script. Practice the script with props. Present your interview.

1) Introduction – Who is the interviewer? Who is the interview subject?

2) \_\_\_\_\_

Answer: \_\_\_\_\_

3) \_\_\_\_\_

Answer: \_\_\_\_\_

4) \_\_\_\_\_

Answer: \_\_\_\_\_

5) \_\_\_\_\_

Answer: \_\_\_\_\_

6) \_\_\_\_\_

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Answer: \_\_\_\_\_

7) \_\_\_\_\_

Answer: \_\_\_\_\_

8) \_\_\_\_\_

Answer: \_\_\_\_\_

9) \_\_\_\_\_

Answer: \_\_\_\_\_

10) \_\_\_\_\_

Answer: \_\_\_\_\_

11) \_\_\_\_\_

Answer: \_\_\_\_\_

12) Thank you (*Quyana!*) [Answer: You're welcome (*Quyanaaituten*)] and Conclusion.

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## FFS Sea Lion Savvy Traditional Recipes 2.4



Sea Lion Stew, Tatitlek

Sea Lion Stew: Cut sea lion ribs or joints into individual portions and rub with salt and pepper. Boil gently with chopped onions, carrots, and potatoes until tender. Season to taste.

- Kimber Moonin, Tatitlek

Sea Lion Neck: Cut the hide, blubber meat and bone the neck of the sea lion. Then burn off the hair and scrape the hair side clean. This forms a kind of ball which is boiled. Eat it hide and all.

- Stamp, Bobby A. *Chenega as I Saw It – Its People*, p.24

Sea Lion Kidneys: Cut up kidneys into thin strips. Soak them in fresh water and eat raw.

- Stamp, B. p.24.

Seal Intestines (Same technique used for as Sea Lion Intestines)

Clean the intestines and braid around a strip of blubber. Smoke it for a few days and then boil or bake it. - Stamp, B. p.24.

“You take the seal gut, clean it out, and soak it in baking soda and vinegar for a while. You cut the gut every three inches and clean it out real good. Then you take fresh seal fat, cut it into chunks and you take the gut and the fat and you braid it together of three fingers. “

- Smelcer, John E. and Morgen A. Young. *We Are the Land We Are the Sea: Stories of subsistence from the people of Chenega*. Chenega Heritage, Inc., Jessie Tiedeman, 2007. p. 118

Sea Lion Quarter Feast: In the summer time take an entire quarter of the sea lion to the beach and bury it in about a foot of gravel. Build a fire over it and then cover the fire with hide. Bake until done. -Stamp, B. p.25.

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### Sea Lion Skin and Flippers

“When you skin a sea lion, leave the fat on. It is not as oily as seal fat. Leave the skin on the flippers.

Build a fire outside or use a torch to singe off the hair. Occasionally scrape off the burned hair. When completely singed cut into 2 in. pieces and placed in boiling water with salt to taste. Bring to boil again and simmer for an hour or until tender.

Drain and serve with rice or boiled potatoes.

This recipe can be used as a bacon for breakfast and served cold with home-made bread.”

Sawden, Fiona (1982, March). Sea Lion Skin and Flippers. *Fireweed Cillqaq*, (No.3), p. 42

### Sea Lion Roast

Several pounds sea lion meat

3 onions, 4 potatoes, 3 carrots

Garlic powder

Salt and Pepper to taste

Rub the sea lion meat with garlic powder, salt and pepper. Place the meat in a roasting pan. Peel and roughly chop all the vegetables: add to the pan. Bake in a 350° oven for about two hours

Smelcer, John E. & Morgen A. Young. *We Are the Land, We Are the Sea: Stories of Subsistence from the People of Chenega*. Chenega Heritage, Inc., 2007. p. 146.

### Sea Lion Ribs

Several pounds sea lion ribs

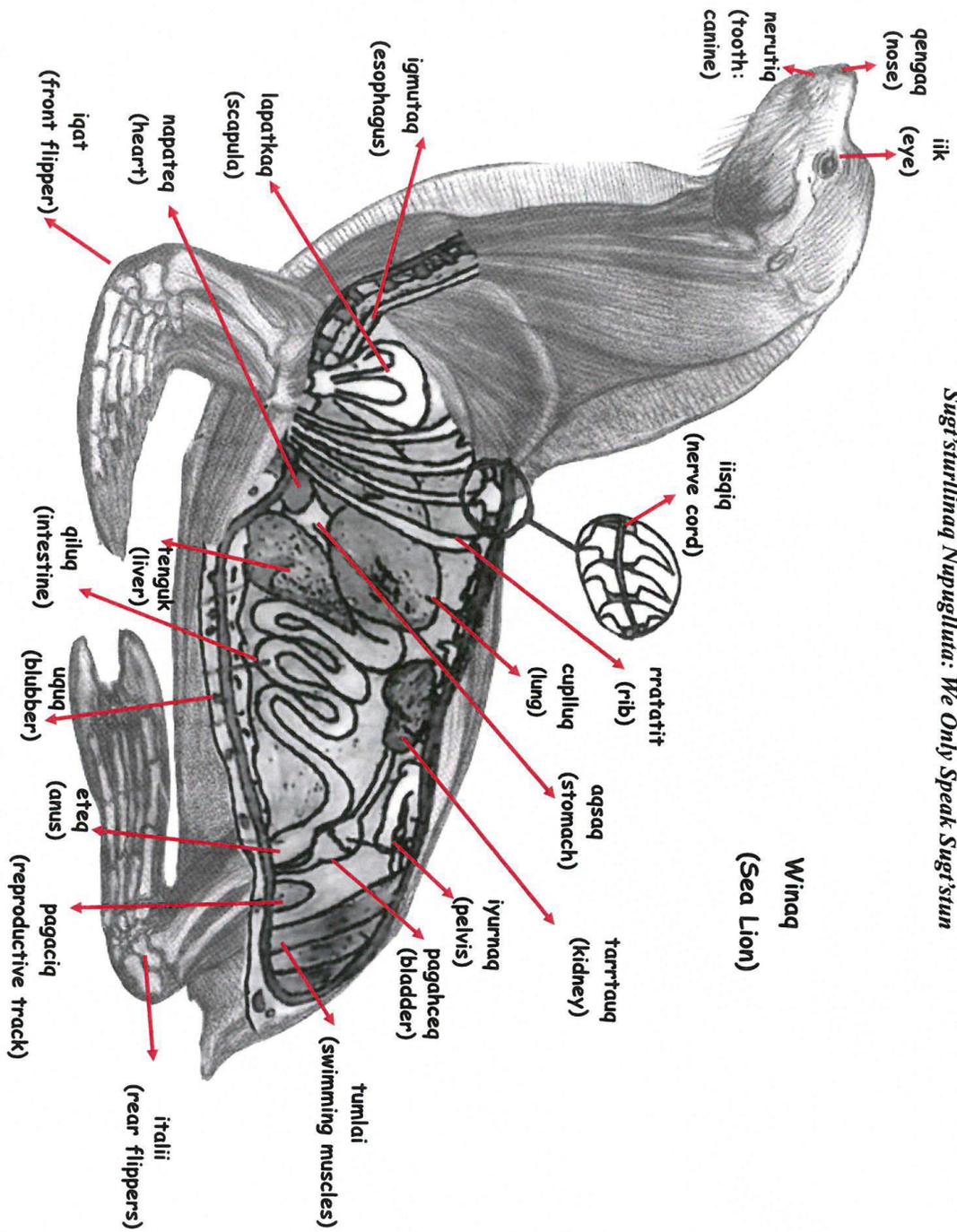
Salt and pepper

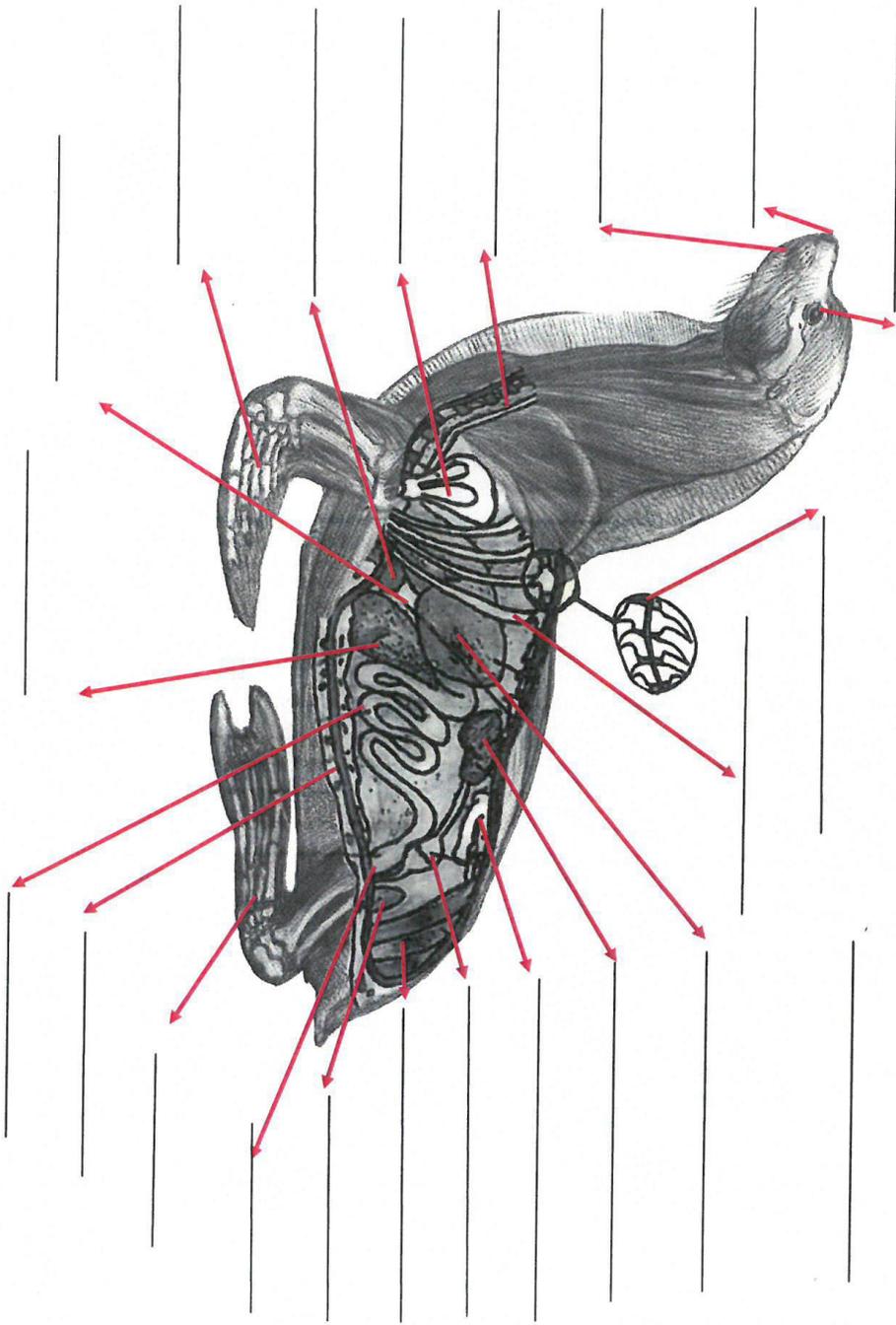
Barbecue sauce (optional)

Cut the Ribs into individual portions. Rub each rib with salt and pepper. Broil in the oven until the meat is crispy. The ribs can also be cooked over an open fire. Serve plain or with barbecue sauce.

*We Are the Land We Are the Sea*, p.146.

*Sugt'surllinaq Nupugllua: We Only Speak Sugt'sim*





*Sugt'surllinaq Nupugllua: We Only Speak Sugt'sium*

## FOOD FROM THE SEA: FERMENTATION GR: 3-5 (LESSON 6)

**Elder Quotation:** “We ate everything when I was growing up. I don’t ever remember a hungry moment...Some things I wouldn’t eat. They used to make these spoiled fish eggs. My uncle Jack had a dried, blown-up seal stomach in his shed. They’d put the fish eggs in there and make them like Limburger cheese, totally rotten and smelly. Then they’d put them on a plate and mix in blueberries and eat it. I couldn’t do it.”

- Avis Kompkoff<sup>i</sup>

**Grade Level:** 3-5

**Overview:** Subsistence living requires both the harvest and the preservation of local food resources. Not everything can be eaten fresh. To avoid waste and spoilage some food must be preserved for later consumption, especially during the long Alaskan winter. Prior to the advent of refrigeration and canning Native peoples developed a variety of successful preservation methods including fermentation. These techniques not only sustained them but became part of the Sugpiat cultural heritage.

**Standards:**

<i>AK Cultural:</i>	<i>AK Content:</i>	<i>CRCC:</i>
<b>D1:</b> Acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders.	<b>Science B3:</b> A student should develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems.	<b>L1:</b> Students should understand the value and importance of the Sugt’stun language and be actively involved in its preservation.

**Lesson Goal:** Students learn how traditional fermentation practices developed by the Sugpiat preserved food and enhanced their healthful properties.

**Lesson Objectives:** Students will:

- Discuss traditional Sugpiat food preservation methods, especially fermentation.
- Make a fermented food.
- Discuss steps necessary to the fermentation process.
- Learn the related Sugt’stun or Eyak vocabulary

### Sugt’stun Dialects

**Vocabulary Words:**

English:	PWS:	Lower Cook Inlet:	Eyak:
Listen (Directed at 3+)	<i>Niicugniluci!</i>	<i>Niicugniluci!</i>	
This smells good.	<i>Tepkegtut.</i>	<i>Cacat tepkegtut.</i>	
This smells bad.	<i>Teplugtuq.</i>	<i>Cacat teplugtuq.</i>	

### **Materials/Resources Needed:**

- Prepare Gravlax or ask student parents to provide an example
- Fermented Food Recipe Handouts (See recipes for ingredient lists)
  - Fermented Ketchup - FFS 35 Fermentation 3.1 Ketchup
  - Fermented Mayonnaise - FFS 35 Fermentation 3.2 Mayonnaise
  - Fermented Berries - FFS 35 Fermentation 3.3 Berries
  - Fermented Sauerkraut – Fermentation 3.4 Sauerkraut
- Recipe materials (See individual recipes for specifics) plus cutting boards and paper towels for group work stations

### **Web Resources:**

#### Fermented Food Recipes

<https://cfoodlab.org/blog/2015/6/4/gravlax-a-buried-salmon> Gravlax origins and recipe

<https://www.homemademommy.net/2011/12/fermented-ketchup.html> Fermented Ketchup Recipe

<https://homestead-honey.com/2016/07/11/how-to-make-sauerkraut/> Sauerkraut Recipe

<http://ohlardy.com/lactofermented-berries/> Fermented Berry Recipe

<https://traditionalcookingschool.com/food-preparation/recipes/lacto-fermented-mayonnaise/> Fermented Mayonnaise Recipe

#### Fermentation Process

<http://www.meatsandsausages.com/sausage-types/fermented-sausage> Fermented meat process explained

### **Teacher Preparation:**

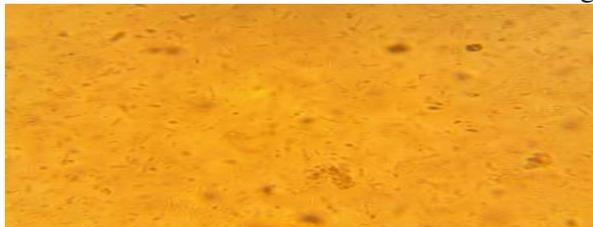
- Review Activity Plan and practice Sugt'stun or Eyak vocabulary.
- Contact your Local Education Coordinator or local Tribal Council for a list of Elders that have expertise in the lesson content.
- Invite an Elder or Recognized Expert to share information on using fermentation in subsistence food preparations and perhaps share a taste of some.
- Decide which fermentation recipes student groups will try and assign ingredients to bring to class accordingly. Students may all process the same recipe or a variety may be chosen.
- Three days prior to lesson prepare gravlax sample (website recipe site listed above) or ask student parent to prepare some.
- Set up a 'cache' of utensils, ingredients, paper towels, and cutting boards (enough for every group of 3-4 students to set up work stations to complete a fermentation recipe).
- Before the Elder or Recognized Expert arrives, review with students, how to interact respectfully with the Elder during his or her visit.

**Opening:** What happens when you leave food in the refrigerator for too long? (*It spoils.*) How do you avoid wasting food? (*You have to eat it sooner or you have to do something with it like cooking or freezing it so you can enjoy it longer.*) If you can't preserve/preserve food you can only eat what's fresh. Why is this a bad thing? (*Before grocery store fresh food isn't always*

available. Either the weather's too bad to allow any food harvesting or the hunt isn't successful or it's winter and there's not many fresh food sources. So, before refrigeration or canning people had to develop ways to preserve their food, to keep it from 'going bad' or risk starvation.)

### **Activities:**

1. Distribute gravlax samples. Have students speculate on how it was prepared. (*Allow general discussion but focus on whether the fish was cooked. How was it cured?*) This gravlax is a modern update of an old Scandinavian technique. The word itself can be translated as 'buried' or 'grave' salmon. Traditionally it solved the problem of what to do with huge amounts of salmon which were harvested in a short amount of time and salt was rare. People buried the clean and lightly salted fish in a shallow 'grave,' added some carbohydrates (like bark or malted barley) and some antioxidants (pine needles or berries) This created the conditions for the lacto-fermentation process that preserves the fish. Enzymes and bacteria from the fish flesh would break down protein and fat to produce a buttery texture with a strong cheesy smell just like the smell of fermented fish eggs.
2. Read Elder Quotation from Avis Kompoff above which describes the strong smell.
3. Explain how the Suqpiat created their own methods to preserve food through fermentation. They also used to bury fish and other meats in the gravel and allow them to ferment and be enjoyed at a later date. Fermentation is the production or preservation of food by the action of microorganisms, sometime known as 'lacto-fermentation.' Lactic acid is a naturally occurring bacteria in humans and animals. These bacteria grow when deprived of oxygen and act as natural preservatives which inhibit or slow down the growth of putrefying bacteria, the bacteria which spoils food. This helpful bacteria growth is called probiotic. Offer students examples of fermented food they're already familiar with: cheese, yogurt, sourdough bread, Korean kimchi, Hawaiian poi, salami, even chocolate (*fermentation removes the bitter tannins in cocoa beans*).
4. Introduce Elder/Expert and remind students of the Native tradition to listen carefully (*Niicugniluci!*)
5. Invite the Elder/Expert to describe traditional ways to preserve food (*drying, smoking, covering with seal oil, brining, fermentation*) and to share any memories of the preparation and consumption of traditional fermented foods. Does the Elder/Expert have a favorite recipe? Have some recipes gone 'out of fashion'? Did the Elder/Expert always enjoy the taste? What other ways did/does the Elder's household make use of fermented foods?
6. Explain that fermented foods often have a strong smell. Would the Elder say 'This smells good? /*Cacat tepkegtut?*' Or 'This smells bad? /*Cacat teplugtut?*'
7. Explain that in addition to preserving food fermentation provides us with helpful bacteria which promote the growth of healthy bacteria throughout our digestive systems. These *lactobacilli* help the foods' digestibility and increases vitamin levels. Numerous helpful enzymes are produced as well as antibiotic and anti-carcinogenic (anti-cancer) substances.



Lactobacillus

8. Announce that the students will now preserve food through fermentation. Divide students into groups of three or four, assign group work areas and have students wash their hands.
9. Explain that each group will be issued a Fermentation Recipe. Students are to retrieve the utensils and ingredients needed to complete the recipe from the class cache and set up their work stations. No ingredients should touch the desk top. Every group should use a cutting board for preparing ingredients.
10. Distribute the recipes and invite group representatives to retrieve the needed supplies.
11. Have students review and then make the recipes. Invite the Elder/Expert to offer advice or corrections. Ask students about the smells. ‘This smells good? /*Cacat tepkegtut?*’ Or ‘This smells bad? /*Cacat teplugtut?*’
12. Once students have completed the recipes initiate a discussion about the methods used. What steps did all the recipes use? (*If students have all used the same recipe handouts of different recipes may be distributed for students to compare techniques.*)
13. Distribute Fermented Fish Egg Recipe or project on screen. Identify fermentation steps in recipe. (*Isolation of food, closed container, time for good bacteria, lactobacilli, to grow*)
14. Review reasons to preserve food and preservation options. Determine when student recipes may be sampled OR keep them on hand to try at final Guest Chef lesson. When students sample the final products they can say whether ‘This smells good. /*Cacat tepkegtut.*’ Or ‘This smells bad. /*Cacat teplugtut.*’

**Assessment:**

- Students reviewed traditional Sugpiat and modern food preservation options.
- Students prepared a fermented food.
- Students identified and compared fermentation recipes.
- Students correctly pronounced Sugt’stun or Eyak vocabulary words.

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<sup>i</sup> Smelcer, John E. and Morgen A. Young. *We Are the Land We Are the Sea: Stories of Subsistence from the People of Chenega.*, Chenega Heritage, Inc., 2007. p. 43

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## **FFS Fermentation 3.1** **Fermented Ketchup**

**Materials:** Quart mason jar with lid, measuring cup, measuring spoons, knife, stirring spoon, can opener, garlic press, paper towel

### **Ingredients**

- Three 7-oz jars/cans of [tomato paste](#)
- 1/3 cup [raw honey](#)
- 3 Tb raw [apple cider vinegar](#)
- 3 small [garlic cloves](#), pressed
- 6 Tb [sauerkraut juice](#) (preferred) or whey (liquid whey from draining whole milk yogurt)
- 2 1/4 tsp [sea salt \(or any non-iodized salt\)](#)
- pinch [cayenne pepper](#)

### **Directions**

1. Combine all ingredients directly in the jar. Stir well to combine.
2. Ensure that the top of the ketchup is at least 1-inch below the top of the jar(s).
3. Using a clean cloth or paper towel, wipe the top of the jar above the ketchup clean.
4. Put lid on jar and leave at room temperature for 3 days; then transfer to the refrigerator.



<https://www.homemademommy.net/2011/12/fermented-ketchup.html> (12/16/2011 Lindsey Gremont)

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## **FFS Fermentation 3.2**

### **Lacto-Fermented Mayonnaise**

**Materials:** Food processor or blender, quart jar with lid, measuring cup, measuring spoon

#### **Ingredients**

3 egg yolks  
1 teaspoon Dijon mustard  
1 1/2 tablespoons raw apple cider vinegar  
1 tablespoon whey (liquid from draining whole milk yogurt)  
Sea salt (or any non-iodized salt), to taste (about 8 pinches)  
1 cup olive oil (or any combination of oils desired)

#### **Instructions with a food processor**

1. Combine egg yolks, mustard, vinegar, whey, and salt in a food processor bowl.
2. Blend well, about 30 seconds.
3. With the food processor running, add the olive oil in as slow a drizzle as possible. It will emulsify (*mix so thoroughly that the liquids which cannot be blended are held in suspension together*) into mayonnaise. This can take several minutes.
4. Adjust salt to taste.
5. To lacto-ferment and help the mayonnaise last longer, leave it out in an air-tight jar or container at room temperature for 7 hours.
6. Refrigerate.

#### **Instructions with a stick blender:**

1. Put all ingredients but oil in a quart jar.
2. Blend briefly with the stick blender.
3. Then run the stick blender while adding a little oil.
4. Stop adding oil and keep blending to make sure it emulsifies.
5. Repeat with more oil until all the oil is in and emulsified into mayonnaise.
6. Adjust salt to taste.
7. To lacto-ferment and help the mayonnaise last longer, leave it out in an air-tight jar or container at room temperature for 7 hours.
8. Refrigerate.



<https://traditionalcookingschool.com/food-preparation/recipes/lacto-fermented-mayonnaise/>

Author: Wardee Harmon.

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### **FFS Fermentation 3.3**

## **LACTO-FERMENTED BERRIES**



**Materials:** Pint mason jar with lid, measuring cup, measuring spoons, wooden spoon, small plastic bag, weights (dried beans, rice...)

**Ingredients:**

- 2 cups mixed berries: any berries except strawberries
- 2 Tbsps. honey
- 1/2 tsp culture starter mixed with a few Tbsps. water (or 2 Tbsps. whey – can use liquid whey from draining whole milk yogurt)
- 1/4 tsp sea salt (or any non-iodized salt)
- filtered water

**Method:**

1. Put the berries into a wide mouth pint size mason jar.
2. Squish them down a bit with a wooden spoon or your fist.
3. In a measuring cup, mix starter culture, a few Tbsps. water, the honey and a pinch of salt. Stir.
4. Add mixture to berries.
5. Fill jar with filtered water, leaving 1” head space.
6. Press down with fist or wooden spoon to be sure liquid has filled all the air spaces.
7. Fill small plastic bag with weights (rice or dried beans) and place in jar to keep berries underwater.
8. Cover tightly and leave at room temp for 1-2 days. Set on plate in case juices bubble out.
9. You know your berries are finished fermenting when you see bubbles and when they taste slightly sour with a bit of a carbonated feeling.
10. Store in the refrigerator. Use within 2 months.

<http://ohlardy.com/lactofermented-berries/>

Makes 1 pint. This recipe is based on one from Nourishing Traditions.

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## **FFS Fermentation 3.4**

### **Lacto-Fermented Sauerkraut**

**Materials:** Large bowl, quart mason jar with lid, chopping knife, stirring spoon, measuring spoons, zip-loc bag with weights (dried beans, rice...)

**Ingredients:** 1 head green, red, or Napa cabbage / salt

**Method:**

- 1) Slice or grate cabbage head. For chunky sauerkraut coarsely chop cabbage with knife.
- 2) For every 5 lbs of sliced cabbage, sprinkle 3 tbsp. of salt over the top.
- 3) Place cabbage/salt in large bowl, and massage the cabbage thoroughly (3-4 minutes). Let it sit 10-15 minutes so cabbage can release its natural juices.
- 4) Pack cabbage tightly in a mason jar, frequently pounding it down with your fist.
- 5) Loosely place a lid on jar and store on a counter, where you can check on it each day. Make sure the cabbage is always covered by its liquid. Use zip-loc bag filled with small weights (dried beans, rice...) on top of cabbage to keep it weighted down.
- 6) After a few days, you will notice some bubbling. This is a great sign of lacto-fermentation! When the kraut has fermented to your liking, transfer it to a cool place. I prefer to move it to cool storage on the earlier side, so my sauerkraut remains nice and crisp.



<https://homestead-honey.com/courses-books/>

## **FFS Fermentation 3.5**

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## **FERMENTED FISH EGGS/AGUDUK**

Nancy Yeaton, Nanwalek

### **Fermented Fish Eggs:**

1. Get fish that are getting ready to spawn, check to see if the eggs are ready by squeezing the belly of a female fish, kind of like milking a cow
2. If the eggs come out one by one, milk them out into a pillowcase, this method allows for cleaning out blood clots as well as other debris.
3. Once you are home, allow the eggs to soak in cold water for about a half an hour to hour
4. Drain in a colander, salt them with table salt and sample eggs as they sit to add more salt if needed.
5. Let them sit overnight in the colander
6. The next day and for a couple of days you can eat these as is or add to rice, or make sushi.
7. You can also place them in a glass jar and allow them to ferment for making Aguduk (*see below*).
8. I store mine in the refrigerator rather than the traditional smokehouse or porch where it's cold.

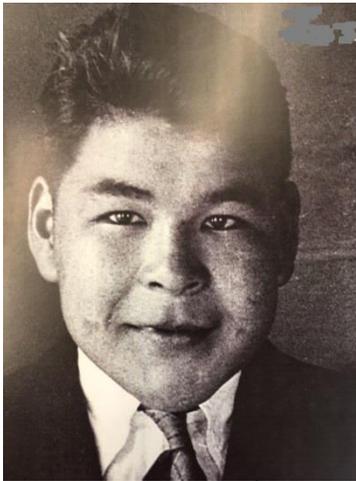
### **Aguduk;**

1. Have a nice bowl of plain mashed potatoes set aside.
2. Take about three to four big heaping tablespoons of eggs, put them in a glass bowl.
3. Start smooshing them as you stir them, adding oil (vegetable, olive - your choice) a little bit at a time. *Aguduk* (patience) is a virtue. You need to have some people around to tell stories, for this takes time.
4. Keep adding oil (at this point you can add seal oil) a little bit at a time until the mixture resembles the texture of mayonnaise.
5. Add cold water a little bit at a time. This will make the mixture turn white and fluffy.
6. If the mixture becomes too thin add more oil to thicken it up.
7. Finally, you can add the mashed potatoes until you cannot mix it in any more.
8. Add this to the bowl of mashed potatoes. Add some water until the mixture is fluffy.
9. You can add *pakik* (crowberries), *atsat* (blueberries), cooked bidarkies (chitons), or dip dry fish.

**FOOD FROM THE SEA: SALMON CYCLE GR: 3-5 (LESSON 7-9)**

**Elder Quote:** “Salmon was put up in many ways: smoked or air-dried, and cut up in little pieces and stuffed in a seal or sea lion stomach which had been dried, it was also salted. There is a little fish that you find under the rocks, we ate them while hunting. You find a rock which you can turnover and you generally will find a fish under it.

They would smoke and dry the salmon after it came up the streams to spawn, it is not fat and it had to stop eating. The bright salmon are fat molds and turns rancid. But the ones from the streams have lost most of the fat, you smoke or dry them they get hard as a board.”



Bobby A. Stamp (Born in 1926 to a French Canadian father and Dorothy Vlasoff from Nuchek. He moved to Chenega at the age of seven where he lived a subsistence lifestyle and was taught cultural values and lore by the village Elders. He died in 2005.)

(Bobby Stamp p.8)<sup>1</sup>

**Grade Level:** 3-5

**Overview:** Abundant salmon runs attracted the first settlers to the Chugach region. Careful observation of the timing and locations of the salmon life cycle stages allowed the Sugpiat and Eyak people to efficiently harvest and prepare them for consumption.

**Standards:**

<i>AK Cultural:</i>	<i>AK Content:</i>	<i>CRCC:</i>
D1: Acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders.	Science C (2): A student should understand and be able to apply the concepts, models, theories, facts, evidence, systems, and processes of life science and should (2) develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.	L1: Students should understand the value and importance of the Sugt'stun language and be actively involved in its preservation.

**Lesson Goal:** To understand the salmon life cycle and how the Sugpiat and Eyak people harvested and incorporated salmon into their traditional diets.

**Lesson Objectives:** Students will:

- Research the life cycle of the salmon.
- Research traditional salmon harvest methods.

- Research traditional subsistence salmon recipes.
- Learn to pronounce the Sugt'stun and/or Eyak vocabulary

**Vocabulary Words:** Sugt'stun Dialects

English:	PWS:	Lower Cook Inlet:	Eyak:
red (sockeye) salmon	<i>nikliq</i>	<i>nikliq</i>	<a href="#"><i>cha'ch</i></a>
king (chinook) salmon	<i>luqqakaq</i>	<i>luqqakaq</i>	<a href="#"><i>te'ya'lee</i></a>
silver (coho) salmon	<i>qakkíyaq</i>	<i>qakkíyaq</i>	<a href="#"><i>AdAte'ya'</i></a>
dog (chum) salmon	<i>alimaq</i>	<i>alimaq</i>	<a href="#"><i>tiitl'</i></a>
humpy (pink) salmon	<i>amahtuq</i>	<i>amahtuq</i>	<i>giyah sdilahL kaashk'</i>

**Materials/Resources Needed:**

- Access to a computer projection screen
- Poster board (one per student group), markers, construction paper, tape
- FFS 35 Salmon Cycle.4.1 Food Memories (See below)
- FFS 35 Salmon Cycle.4.2 Project Guidelines (See below)
- FFS 35 Salmon Cycle.4.3 Life Cycle (See below)

**Kit Library:**

- Chandonnet, Ann, *The Alaska Heritage Seafood Cookbook*.
- DeCourtney, Christine A., et al., *Traditional Food Guide for the Alaska Native People*.
- Miller, Debbie S., et al, *A King Salmon Journey*.
- Smelcer, John E. and Morgen A. Young. *We Are the Land We Are the Sea: Stories of Subsistence from the People of Chenega*
- Stamp, Bobby A. *Chenega as I Saw It – It's people*.
- Stewart, Hilary. *Indian Fishing: Early Methods on the Northwest Coast*.
- Tabios, Derenty, et al. *Looking Back on Subsistence: Interviews with Elders of the Chugach Region*.
- Unger, Suanne. *Oaqamiigux: Traditional Foods and Recipes from the Aleutian and Pribilof Islands; Nourishing Our Mind, Body and Spirit for Generations*.

**Web Resources:**

- Pacific Salmon Migration Routes  
[https://www.google.com/search?rlz=1C1GGRV\\_enUS752US752&biw=1920&bih=974&tbm=isch&sa=1&ei=AIVFWsTPLePj0gKsiojYDw&q=Alaskan+salmon+migration+patterns&oq=Alaskan+salmon+migration+patterns&gs\\_l=psy-ab.3...5145](https://www.google.com/search?rlz=1C1GGRV_enUS752US752&biw=1920&bih=974&tbm=isch&sa=1&ei=AIVFWsTPLePj0gKsiojYDw&q=Alaskan+salmon+migration+patterns&oq=Alaskan+salmon+migration+patterns&gs_l=psy-ab.3...5145)

- Pacific Salmon Migration Routes <http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especies/salmon-saumon/facts-infos/index-eng.html> Salmon Facts including salmon species migration routes
- Salmon Life Cycle Stages “The Odds” <https://scienceandmemory.uoregon.edu/the-odds.html> (5:23) Time lapse photography of Artist’s watercolor rendition of salmon life cycle
- Salmon Life Cycle Stages [http://www.adfg.alaska.gov/index.cfm?adfg=fishinggeneconservationlab.generalinfo\\_salmon\\_story](http://www.adfg.alaska.gov/index.cfm?adfg=fishinggeneconservationlab.generalinfo_salmon_story) Salmon Life Cycle Stages Graphic with Descriptions
- Salmon Life Cycle Stages <https://www.fws.gov/alaska/cybersalmon/coho.htm> Salmon Life Cycle Stages with Descriptions
- Salmon Life Cycle Stages <https://www.fishex.com/salmon/alaska/salmon-life-cycles> “The Fascinating Life of an Alaskan Salmon” Salmon Life Cycle Stages with Descriptions
- Salmon Life Cycle Stages [http://www.adfg.alaska.gov/static/education/educators/curricula/pdfs/salmon\\_in\\_the\\_classroom\\_unit\\_1\\_overview.pdf](http://www.adfg.alaska.gov/static/education/educators/curricula/pdfs/salmon_in_the_classroom_unit_1_overview.pdf) pp.4,5 Salmon Life Cycle Stages Descriptions & Ocean migration routes by species; pp.6,7 Salmon Life Cycle Needs and Threats; p. 10 Salmon Life Cycle Drawings
- Salmon Life Cycle Stages <https://www.streamnet.org/wp-content/uploads/2014/10/Interactive-Salmon-Life-Cycle.pdf> Salmon Life Cycle Descriptions

### **Teacher Preparation:**

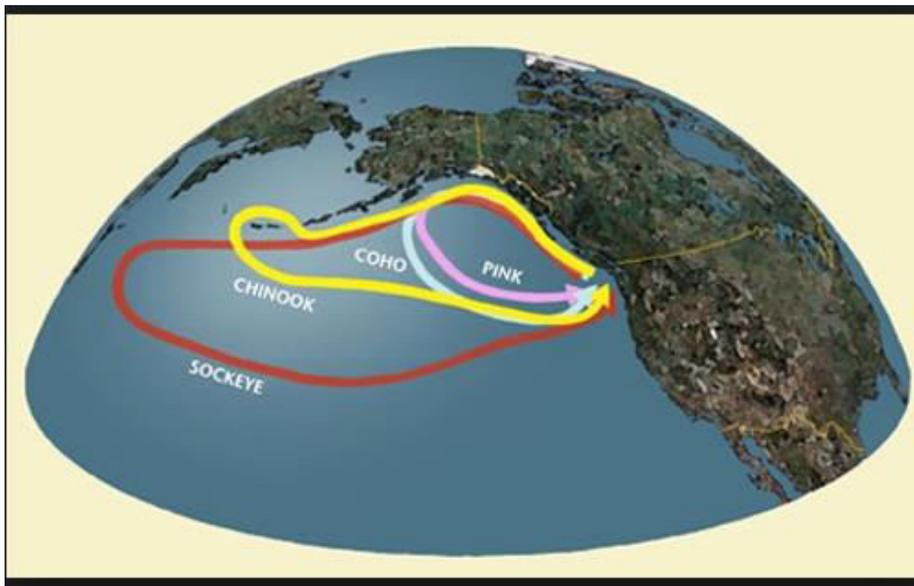
- Review Activities and practice Sugt’s tun or Eyak vocabulary.
- Google ‘Alaska Salmon Migration Routes’ and select an image of Alaskan Salmon ocean routes to display on the computer projection screen.
- Determine how many classes will be needed for students to research and make their salmon posters.
- Contact your Local Education Coordinator or local Tribal Council for a list of Elders that could share his or her expertise on traditional salmon fishing techniques and recipes.
- Before the Elder or Recognized Expert arrives review with students how to interact respectfully with the Elder during his or her visit.

**Opening:** The Sugpiat and Eyaks settled here along the coast thousands of years ago attracted by the richness of the local resources, especially the abundant salmon runs. Our Alaskan salmon are now famous around the world for its fine flavor and healthful properties. Do you know where to find salmon around here? When and how do you catch them?

## Class Activities:

### Class 1

1. Introduce the Elder to students and invite him or her to describe the five species of salmon, talk about local salmon fishing grounds, traditional ways of catching salmon (before motorized transport), and how harvest techniques have changed over time.
2. Briefly discuss salmon life cycle and migration from stream to ocean and back. List five species of salmon on the board and invite the Elder to help pronounce their Sugt'stun and/or Eyak names. (*See vocabulary listed above.*) Point out that the Sugpiat and Eyak were so attuned to the characteristics of the five species of salmon that their languages have no single word for just salmon.
3. In Sugt'stun May is *Niklit, Tanqiat* (LCI & PWS) or Red Salmon Month; June is *Alimat Tanqiat* (LCI)/*Alngahtuliq Tanqiat* (PWS) or Chum Month; August is *Amahtut Tanqiat* (LCI)/*Amehtumpiat Taiqiat* (PWS) or Pink Salmon Month; and Sept. is *Qakkiyat Tanqiat* (LCI)/*Cuqlihpam uksuam tanqia* (PWS) or Silver Salmon Month.
4. Display salmon species migration routes. Discuss when the salmon are easier and harder to harvest. (*Too hard to find in open ocean. Without motorized transport salmon harvested close to shore or in stream.*)



Discuss which of the salmon life stages were traditionally used by the Sugpiat or Eyak. (*Eggs – plentiful, easily harvested/Alevin – too small, no/Fry – too small, no/Parr – no/Smolt – eaten/Ocean-going Adults – too dispersed, too far away; Returning/Spawning adults – eaten, easily harvested*)

5. Read *A King Salmon Journey* aloud. Ask students to list the challenges the returning salmon face as they swim to their natal streams (*drift net; fish wheel, dip net -pictured p.26, paddle wheeler, different tributaries, silt, predators like bears, eagles, ravens, foxes...*)
6. Explain the project: Students will spend two to three (*teacher's option*) classes to research the life cycle of the salmon and the ways in which salmon were harvested and then eaten in the traditional subsistence lifestyle of the Sugpiat and/or Eyak. Their research will include interviews with family members and/or Elders about their subsistence salmon harvests and

- uses. Students will create original posters to display this information. Students will share their research results with the class as part of the final lesson, FFS 35 *Guest Chef Chowder*.
7. Review kit library resources and assign students to small groups. Distribute Project Guidelines (FFS Salmon Cycle 4.2 Project Guidelines) and direct students to divide up the project work.
  8. Assign family salmon subsistence interviews as homework. Share the following quote as an example of what can be learned from interviewing Elders.

*“Somebody gave me some salmon eggs and I didn’t know what to do with them. Could you show me?”*

I wouldn’t advise you to use them after they have been frozen. I tried that. I tried freezing salmon eggs and I tried cooking them. They just got mushy and they were just yucky. They are just no good for anything. If they were fresh you could boil them. If you got the eggs out of a salmon and put them in a bowl for two or three hours they would get hard. You could bounce them on a table like Ping-Pong balls. After that you just put salt on them. I have seen people eat them raw with just salt. I do too. I eat them. My grandchildren tried that. I don’t know if they liked it but they ate it. They like the boiled salmon eggs. You take the heart of the salmon and put it in with the fish eggs and boil them.

*What is your favorite way of eating salmon?*

I don’t really have a favorite way. I eat them any way, every way. I eat a lot of salmon and I process it every way. I boil it. Fry it, kipper it, smoke it. I noticed this morning these two grandchildren’s mother must have had salmon from fishing the flats. I noticed that they are smoking. They got a little smoker. I am glad that when I pass on they will know what to do. I sowed Daryl. I said, “You’re doing it wrong. Your smokehouse is altogether wrong. It doesn’t have a draft and he’s not putting the wood in the way it is supposed to be. The fish are all right. They are all hung nice. I am really pleased the way they put the fish in there. In fact, in a couple of days, if they keep it up, they will be ready to bake in the oven. Two or three days of smoking and they will be ready to bake in the oven. I told him if they don’t put any heat in that now, it’s cold, the fish are going to sour. You gotta have heat with your fish now. It’s getting cold. It’s a lot of work to put up fish. You gotta have heat, smoke. They have new smokehouses now. You have a pipe with the smoke on it. I prefer the old ways where I just had an old fifty-gallon drum, out fourth-ways, and had a two-layer fish hanging up, and have some alders to smoke the salmon.”

- Jessie Tiedeman<sup>ii</sup>

## **Class 2**

1. Briefly review interview results. Distribute and share Elders’ memories of food from the sea (FFS Salmon Cycle 4.1 Food Memories) and discuss.
2. Show “The Odds” (5:33) <https://scienceandmemory.uoregon.edu/the-odds.html> Time lapse of artist’s narration and rendition of salmon life cycle.
3. Distribute Salmon Life Cycle descriptions (FFS Salmon Cycle 4.3 Life Cycle Descriptions)

4. Remind students that their posters should match subsistence recipes with the salmon life stages. Students may use recipes from their interviews, handouts, or heritage kit cookbooks. *Note: there is some variation in how the life cycle stages are labeled. For purposes of recipe matching it is useful to have both returning adult salmon and spawning salmon.*
5. Review Science Poster prompt guideline on Heritage website.
6. If time, students may draft poster design.

### **Class 3 (& Class 4)**

1. Distribute poster materials.
2. Conclude research.
3. Review guidelines and create poster.

### **Assessment:**

- Students created an original informational poster of the salmon life cycle and harvest methods.
- Students identified the salmon life stages and their uses in subsistence recipes.
- Students correctly pronounced the Sugt'stun or Eyak vocabulary words.

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<sup>i</sup> Stamp, Bobby A. *Chenega as I Saw It – It's People*. Chugach Alaska Corporation, 2010. p.24.

<sup>ii</sup> Interviewed by Daryl Kramer, *Out of Our Time, the Storytellers Oonechguk Edowchu*. Cordova Baptist Press, 1980. p.66. (Out of print)



### FFS Salmon Harvest Cycle 4.1 Traditional Food from the Sea Memories

#### **Quotations:**

ROE/SPAWN “They would also put up spawn when it was still whole. Then they put it in dried seal or sea lion stomachs and kept it in the smoke house. Spawn was smoked by hanging it over sticks in a smoke house until it turned hard and gummy.

In the olden says they fought a lot. I was told that when the village was being attacked by another clan that they fed spawn to the children. If you have not eaten any it would be like a mouth full of taffy, you can’t speak, it would stick to the roof of your mouth and teeth that is why they fed it to the children so they would not scream or talk.

The *Penuk* was eaten with berries, which were picked and stored in seal oil. They put all kinds of berries and *penuk* together and it was call *A goo duk*. Salmon spawn is called *Penuk*. The salmon spawn was taken from the salmon when they were in the streams and ready to spawn and put in a dish pan and you had a paddle that looked like this.

It was called *Chee duk*, an Aleut word for it was “squash tool” or “mash tool”. It was rounded and you worked it in a rotary motion and it mashes the spawn and after the spawn was mashed you take it to a cold stream, you have the water running around the pan and you stirred it until it got thick and it was set in a warm place and all the shells from the eggs came to the top and the am amount of cooked spawn was added...”

Bobby Stamp, *Chenega as I Saw It – It’s People* p.25

CAMPS “In the early days we had summer camps, fall camps and spring camps. In early spring when the snow left the ground, it was bear that we went after. At the same time, we would get bidarkis (chitons) and seaweed. We also fished cod and dried it. Salmon was caught and then buried about the half way mark of the tide. We would dig them up and eat them. They were usually green; I guess everybody liked them and supposed to be good so I guess I followed them.”

Bobby Stamp, *Chenega as I Saw It –It’s People* p.27

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FISH CRICK:” We would go into the salmon streams and get the fish. We always had salmon growing up. We went in to the salmon streams which we simply called “fish cricks.” My grandma always wanted the ones with the biggest humps. You cut off the nose-and-hump portion, put some salt on it, and eat it, which is called *kazaq*. We would also get the loose eggs from the female salmon. We called the eggs “beebles.” I don’t know where the term came from; I just grew up calling them beebles. We would rinse them out, put them in cold water with lots of salt, and let them sit in the fridge overnight. They get real crunchy. I can’t eat them anymore. The taste is just too fishy for me now. But when I was little I would eat them like they were going out of style.”

Donia Abbott, *We Are the Land We Are the Sea*, p.4

BEEBLES: “I remember how every summer around August we would wade in the creek and catch salmon with our hands and squeeze the females to get their eggs out. We call them beebles. We’d take a couple of buckets and our nets and go down to the creek in Valdez. We’d catch as many fish as we could to fill the buckets with fish eggs, and then we’d take them home. We’d clean the beebles, soak them in water, and then refrigerate them overnight, which would make them hard. You’d know the eggs were ready when they bounce on a table like a ball. The we drain them and salt them.”

Tanya Pipkin, *We Are the Land We Are the Sea*, p.88

FERMENTED FISH EGGS “They used to make these spoiled fish eggs. My Uncle Jack had a dried, blown-up seal stomach in his shed. They’d put the fish eggs in there and make them like Limburger cheese, totally rotten and smelly. Then they’d put them on a plate and mix in blueberries and eat it. I couldn’t do it.”

Avis Kompkoff, *We Are the Land We Are the Sea*, p.43

FISH HEADS: “I really like boiled fish heads. You can boil them and eat everything except the gills and bones, or you can eat the part on top of the fish head, the skin, and part of the nose where the bone is soft cartilage. That’s really good. And you can eat the cheeks. They used to cut the hump off a pink salmon and eat it raw with salt water. Seawater has just the right amount of salt. You eat it right on the creek, right on the beach. . . . I really miss all the old ways of eating, like eating *sulunaq* and boiled fish heads and fresh clams right off the beach. I remember how we’d go out and dig them and clean them and then cook them that night for supper. We used to eat black bear, seal, sea lion, and porpoise. Porpoise meat is real black, but I like it. I like the skin. Too. I quit eating saturated fats, but I really like a little bit of seal oil with dried fish. Some elders like it rancid. My Aunt Diane likes it that way.”

Paul Timmy Selanoff, *We Are the Land We Are the Sea*, p.106

**Books:**

Tabios, Derenty. *Looking Back on Subsistence Interviews with Elders of the Chugach Region*, (S. P. Wassilie & L. Lofquist-Taylor, Eds.). Chugachmiut Corp., 2000. (Salmon: pp.6-9, 24-25)

*Neq’rkat: The Wild Foods Cookbook*, Alutiiq Museum and Archaeological Repository, 2014.

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**FFS 35 Salmon Harvest Cycle 4.2 Life Cycle Project Guidelines**

Name(s) \_\_\_\_\_

**Class 1** – In your research group decide....

Which species of salmon to research: \_\_\_\_\_

Who will research salmon life stages: \_\_\_\_\_

Who will research salmon harvest methods: \_\_\_\_\_

Who will review search traditional subsistence salmon recipes: \_\_\_\_\_

Who will review interview results for info to use on poster: \_\_\_\_\_

Who will find/create poster artwork for Salmon Life Stages & harvest methods: \_\_\_\_\_

Share and explain the poster to the class (at least 2 students):

\_\_\_\_\_ & \_\_\_\_\_

**Homework:** Interview an Elder or other family member about salmon harvest and use.  
What do they remember about ways to harvest, process, and eat salmon?

How was salmon traditionally harvested and eaten and how is it done today?

How did they learn to harvest and prepare salmon?

What is their favorite salmon recipe? Which salmon species do they eat most often?

**Classes 2 & 3 – Research, Poster Creation**

(See also Chugachmiut Heritage Website Science Poster prompt for more guidelines.)

Each poster should contain:

\_\_\_\_\_ Salmon species label in English and Sugt'stun or Eyak

\_\_\_\_\_ Salmon life cycle illustrations

\_\_\_\_\_ Each life stage should be identified with a brief physical description and where found

\_\_\_\_\_ At least 3 Harvest Method Illustrations with brief explanations of which life cycle stage they targeted

\_\_\_\_\_ At least one salmon recipe for three of the salmon's life cycle stages (The recipe should indicate what type of salmon is used - both in English and Sugt'stun or Eyak, whose recipe it is and where it originated, if known.)

*Posters will be judged on fulfillment of the guidelines; organization and clarity of information presented; and artistic qualities.*

**Final Class – Presentation**

Team members will briefly present poster information to class using both English and Sugt'stun and/or Eyak words for the species of salmon described.

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## FFS Salmon Cycle 4.3 Life Cycle Descriptions

Salmon Life Cycle <https://www.nps.gov/olym/learn/nature/the-salmon-life-cycle.htm>

### 1 & 2: Eggs & Alevins

The cycle begins in freshwater, when a redd, or a female's nest of eggs, is fertilized. These eggs remain in the gravel throughout the winter, and the embryos develop. In the spring, the eggs hatch and alevins emerge. These are tiny fish with the yolk sac of the egg attached to their bellies. Alevins stay close to the redd for a few months. When they have consumed all of the yolk sac and grown in size, these fish emerge from the gravel, and are then considered fry.

### 3: Fry

Fry swim to the surface of the water, fill up their swim bladders with oxygen, and begin to feed. Depending on the species, fry can spend up to a year or more in their natal stream. Upon emerging from the gravel, both [pink](#) and [chum](#) are already silvery smolts, and head directly to sea. [Sockeye](#) fry tend to migrate to a lake, spending 1-2 years before migrating to sea. [Chinook](#) fry usually spend less than 5 months in freshwater, while [coho](#) fry may spend over a year. The survival of fry is dependent upon high-quality stream habitat. Boulders, logs, shade, and access to side channels is important in allowing fry to hide from predators and prevents them from getting flushed downstream during flood river-flows.

### 4: Seaward Migration

Eventually, environmental cues cause fry to begin their migration downstream towards the oceans. At this time, smolting begins, and scales grow as they turn a silvery color. At night to avoid predators, small fry (or developing smolts) allow the river to take them tail-first downstream while larger fry swim actively towards the ocean. Estuaries, at the mouth of the river, are crucial to the survival of young smolts. While allowing their bodies to adjust to the new conditions, they feed heavily, hoping to ensure survival in the ocean.

### 5: Ocean Life

While some salmon remain in coastal water, others migrate northward to feedings grounds. Salmon may spend one to seven years in the ocean. Certain species have more flexible life history strategies, while others are more rigid. Coho may spend up to seven years at sea, but typically four. Pink salmon, on the other hand, spend a fixed 18 months at sea. Sockeye typically spend two years at sea, coho spend about 18 months, and chinook can spend up to 8 years before journeying back to their natal streams to spawn.

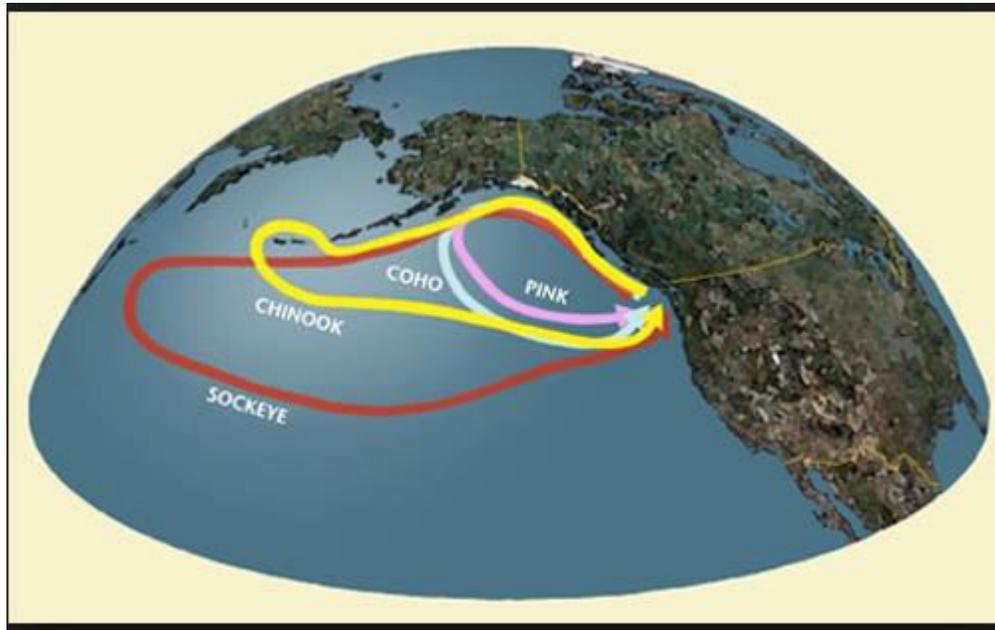
### 6: Spawning Migration

It is unsure as to how exactly salmon detect their natal streams, though it is suspected that scents and chemical cues, as well as the sun, play an important role in the homeward migration. Once the salmon reach freshwater, they stop feeding. During the course of the journey, their bodies instinctively prepare for spawning. The taxing journey draws energy from their fat storage, muscles, and organs, except for the reproductive organs. Males develop hooked noses, or kype, in order to fight for dominance.

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### 7 & 8: Spawning & Death

Upon reaching natal streams, females build nests, or redds. These little depressions in the gravel are made by the female by turning on her side and using her tail to dislodge stones or pebbles. Males fight with other males for spawning rights with a female. The dominant male will court the female and upon spawning, they release eggs and milt simultaneously. The eggs will settle into the gravel, and the female will cover the eggs with loose gravel and move upstream in order to prepare another redd. Eventually, both the males and females die, supplying the river habitat with nutrients and the seeds of the next generation that will someday return to continue the cycle.



## FOOD FROM THE SEA: GUEST CHEF CHOWDER GR: 3-5 (LESSON 10)

**Elder Quotation:** “I know where to go. I know what to get. I don’t get so much that, you know, most of it is going to be ruined, ‘cause we have pretty good preserving system these days. You have your freezers and stuff like that. We didn’t have that back then. You only get what you can use or what somebody you know can use.”

- Lawrence Evanoff<sup>1</sup> born in 1948 and raised in Old Chenega

**Grade Level:** 3-5

**Overview:** Food from the sea *imarlat neqet* is a major component of the traditional subsistence lifestyle. The Sugpiat and Eyak of today continue this tradition even as they adapt to change.

**Standards:**

<i>AK Cultural:</i>	<i>AK Content:</i>	<i>CRCC:</i>
D1: Acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders.	Science F (3): A student should understand and the dynamic relationship among scientific, cultural, social, and personal perspectives and should (3) develop an understanding of the importance of recording and validating cultural knowledge.	L1: Students should understand the value and importance of the Sugt’stun language and be actively involved in its preservation.

**Lesson Goal:** Students understand how the subsistence lifestyle continues and has adapted to changing circumstances.

**Lesson Objectives:** Students will:

- Recognize how subsistence traditions have adapted to changes.
- Identify subsistence foods, their location, and uses.

**Vocabulary Words:** Sugt’stun Dialects

English:	PWS:	Lower Cook Inlet:	Eyak:
Listen! (Directed at 3+)	<i>Niicugniluci!</i>	<i>Niicugniluci!</i>	
barbecue	<i>manyuq</i>	<i>manyukq</i>	
spoon	<i>luskaq</i>	<i>luskaq</i>	
Enjoy!	<i>Piturnertuq!</i>	<i>Nunaniklluku!</i> (very good eating)	

**Materials/Resources Needed:**

- (Washed) Clamshells, sticks with split ends for spoon handles (one each per student)
- Glue, small paper plates on which to dry spoons
- OPTIONAL: Small knives if sticks will be split by students
- Hot plate, pot, cutting board, knife, ladle, stirring spoon, etc. for cooking demo
- Spoons, small bowls, napkins for class sampling

### **Kit Library:**

Salomon, Anne et al. *Imam Cimiucia: Our Changing Sea*  
Chandonnet, Ann. *The Alaska Heritage Seafood Cookbook*

### **Teacher Preparation:**

- Review Activity Plan and practice Sugt'stun or Eyak vocabulary.
- Contact your Local Education Coordinator or local Tribal Council for a list of Elders that could share his or her expertise as guest chef demonstrating how to make a sea chowder.
- Before the Elder or Recognized Expert arrives review with students how to interact respectfully with the Elder during their visit. Elders are always served first.
- In conjunction with Elder/Chef decide on ingredients needed for chowder
- Have students/parents bring in chowder contributions from ingredients list.
- Assemble hot plate, pot, utensils, bowls, spoons and napkins for cooking demo.
- Prepare Food from the Sea display of activity photos and work sheets.
- Assemble clamshells and sticks gathered from field trip. Split one end of each stick deep enough to accept insertion of clamshells OR supervise students splitting stick handles.
- *Optional:* Invite parents to class to share chowder and what students have learned.

**Opening:** People often say ‘when the tide is out the table is set.’ Now that we’ve explored the beach and identified food that we can eat can you explain what that means? (*Allow students to describe some of the food from the sea they found and harvested.*)

### **Activities:**

#### **Class I:**

1. Introduce Elder/Guest Chef to the class and invite him or her to recall favorite tidal edibles and whether the food was eaten raw, barbecued, smoked, dried, baked, or boiled. Remind students to listen carefully (*Niicugniluci!*)
2. Lead discussion on traditional ways to prepare food from the sea:
  - Raw – known to be safe to eat without cooking (i.e., not crab or shrimp)
  - Barbecued – *Manyuq/Manyukq* – suspended over flame, inserted into ‘tongs’ made from sturdy split green sticks and/or skewered on green sticks stuck into the ground beside the fire<sup>ii</sup>
  - Dried – strung up on spruce roots or draped over branches and hung in open air
  - Smoked – brined and strung up or draped over branches in smoke house<sup>iii</sup>
  - Baked – wrapped in leaves and buried with hot stones in earth pits<sup>iv</sup>
  - Boiled – placed in waterproof baskets or bentwood boxes in water heated by hot stones<sup>v</sup>
3. Talk to students about how living s subsistence lifestyle means using the resources at hand. Carol Ann Kompkoff of Chenega recalled the seal barbecues/*manyuq* of her youth:

“*(My Dad) would catch a seal and go up to the beach and cut it open. He would cut out the parts we wanted and then go cut alder sticks for us to roast the seal meat, ribs, kidneys, and liver. My job was to get the plates, which were big flat rocks. Nature always provided the plates. You didn’t have to bring plastic plates or paper plates or anything. You didn’t worry about getting them dirty. When it came time to wash the dishes, all I did was set them in the water and leave them there. It was always so simple.*”<sup>vi</sup>

4. Distribute a clamshell and a stick (OPTIONAL and a knife) to make a traditional Sugpiat spoon/*luskaq*. Have students insert clamshells into splits in sticks to use as a spoon/*luskaq* for their chowder. (*For those shells that don't stay in position offer some 'glue assistance' and place on small plate to dry.*)
5. Invite Elder/Guest Chef to describe modern adaptations:
  - Introduction of knives and metal cookware by Russians by 1800s
  - Introduction of metal stoves (wood burning, then gas, then electric)
  - Introduction of non-local ingredients (flour, milk, sugar, tea, spices)
  - Changing tastes as more Western food available
6. Have Elder/Guest Chef prepare chowder.
7. Invite students to describe ingredient origins and indicate any relevant photos on display.
8. Discuss and compare how the Elder/Guest Chef prepared this chowder differently from the time before metal utensils were adopted.
9. Serve and distribute bowls of chowder to any Elders present first and then to students.
10. Before everyone 'digs in' have Elder recite a grace of thankfulness.
11. Enjoy! (*Piturnertuq!/Nunaniklluku!*)
12. Student presentations: salmon life cycle posters; selected sea lion interviews; sea lion report; what they've learned about subsistence.

Assessment:

- Students can explain what they learned about subsistence foods, their locations and uses.
- Students are able to compare traditional and adapted cooking methods and means.
- Students correctly pronounced Sugt'stun or Eyak vocabulary words.

<sup>i</sup> Poling, Donald Robert. *Chenega Diaries: Stories and Voices of Our Past*. Chenega Corporation, 2011. p. 254

<sup>ii</sup> Chandonnet, Ann. *The Alaska Heritage Seafood Cookbook*. Alaska Northwest Books, 1995. p.272

<sup>iii</sup> Chandonnet, pp.274, 276

<sup>iv</sup> Chandonnet, pp.270 - 271

<sup>v</sup> Chandonnet, pp.271 - 272

<sup>vi</sup> Smelcer, John E. and Morgen A. Young. *We Are the Land We Are the Sea: Stories of Subsistence from the People of Chenega*. Chenega Corporation, 2007. p.48

