

**FOOD FROM THE SEA: COASTAL PEOPLE GR: PREK-2 (LESSON 1)**

**Elder Quote:** “*Cacat pellakengapet qaterqat taingata nunanpt ’nun, pelaten ’lkepet uy’uucarnipet mermen. Meq unguarpet. Pirpak meq unguakan, Chuchachermiut unguaciput.*”  
 “Of all the things we have lost since non-Natives came to our land, we have never lost our connection with the water. The water is our source of life. So long as the water is alive, Chugach Natives are alive.”

– Walter Meganack Sr., Port Graham, 1989<sup>i</sup>

**Grade Level: PreK-2**

**Overview:** 10,000 years ago Alaska was connected to Asia by the Bering land bridge. The ancient ancestors of the Natives peoples of the Americas ventured across the bridge in search of new lands to settle. What made them stop and settle here? What resources made our Chugach coastal communities such good choices?

**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>Geography B1:</b> Know that places have distinctive characteristics	<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 explore the connection between the geography of place and the resources needed to support communities.

**Lesson Objectives:** Students will:

- Locate their village/town on the globe and on the map of Alaska
- Discuss the subsistence foods available in Lower Cook Inlet/Prince William Sound, especially marine foods.
- Learn Sugt’stun or Eyak vocabulary listed below.

**Vocabulary Words:**

Sugt’stun Dialects

English:	PWS:	Lower Cook Inlet:	<a href="#">Eyak:</a>
Listen! (directed to 3 or more)	<i>Niicugniluci!</i>	<i>Niicugniluci!</i>	
sea	<i>imaq</i>	<i>imaq</i>	<i>lahdz</i> (lit: forward, out to sea)
food	<i>neqet</i>	<i>neqet</i>	<a href="#">Giyah</a>
food from the sea	<i>imarlat neqet</i>	<i>imarlat neqet</i>	

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

- Globe
- Map of Alaska with cities, towns, and villages
- Small plastic sea creatures (in kit)
- Tidal Edibles cards (in kit)

### **Kit Library:**

- Sloat, Teri. *The Eye of the Needle*
- Poling, Donald Robert, *Chenega Diaries: Stories and Voices from the Past: Life and Times in Chenega, Alaska 1944-48*
- Salomon, Anne K., et al. *Imam Cimiucia = Our Changing Sea*

### **Web Resources:**

- Bering Land Bridge  
<http://geography.about.com/od/locateplacesworldwide/a/beringlandbridge.htm> Summary of Bering Land Bridge, info links.

### **Google Earth**

- <https://earth.google.com/web/search/Chugach+Region/@59.94955844,-145.77225959,465.60311981a,1468849.49502155d,35y,0h,0t,0r/data=CigiJgokCVP3LIK0bD5AEVD3LIK0bD7AGcvWVaN5VkVAIbToZ3uFcFHA> Download program and zoom in on your community within the Chugach Region.

### **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 their expertise on the lesson content.
- Invite an Elder or Recognized Expert to share information on extent of local subsistence foods and how to harvests and enjoy traditional foods.
- Before the Elder or Recognized Expert arrives review with students ways to show respect for the Elder during his or her visit.
- Download *Google Earth* and practice search for your village.
- *Optional:* Invite a parent to prepare a small seafood treat to share with students and Elder.

**Opening:** With the aid of Google Earth, or a globe and map of Alaska, explain that over 10,000 years ago people traveled from Siberia to Alaska across the Bering Strait land bridge searching for new places to settle. They spread out across Alaska and Canada and further south. These ancient people were the ancestors of all Native peoples of the Americas. 10,000 years ago there were many more glaciers here in Alaska. But glaciers are no place to live. People needed food and fresh water and shelter from the weather. The Sugpiat/ Eyak stopped here by the sea, on the shores of Lower Cook Inlet/Prince William Sound to make a new home, our village.

Help students to locate their village/town on globe and map of Alaska.

Ask students why the Sugpiaq/ Eyak people decided to make their home here on the seacoast, on the shores of Lower Cook Inlet and Prince William Sound? [*Accept all answers but steer*

students toward idea of abundant foods available from the ocean and on the beach.] Review Sugt'stun or Eyak vocabulary words.

Briefly identify traditional Alaskan villages along rivers, in the Interior, and along the coast and compare and contrast local coastal resources with those food resources of other villages (caribou vs. moose; walrus vs. sea lions; Arctic char vs. salmon, beaver vs seal...)



Seal skinning, Kimber Moonin, Tatitlek

### **Activities:**

1. Introduce Elder/Expert and remind students to listen respectfully:  
Listen!/Niicugniluci!.
2. Ask students to recall any food from the *seal/imarlat neqet* that they harvest and eat.
3. List foods on the board under Sugt'stun or Eyak heading of Foods/*Neqet*.
4. Invite Elder to add more types of traditional food/*neqet* to list.
5. Invite Elder to share stories of harvesting traditional foods from the *seal/imarlat neqet*.
6. Share this quote from Mary Kompkoff<sup>iii</sup> (1937-2018) of Chenega:

“Times were rugged, because of the weather. Sometimes they [*father and brother*] went and checked their traps for a week or so, and we lived off the land. There was always seal, bear, deer, sea lion, fish. My dad was also a good hand-liner. When he got a whole bunch of halibut, he'd share with the whole village, and that's how it was, that I can remember. Everybody shared.” -Mary Kompkoff, Chenega

7. Read *The Eye of the Needle* book aloud and invite students to comment on which foods from the sea they have eaten or are aware of. Are all the foods mentioned in the book available in our region? [Note: Although there are whales in the Chugach region they were not often harvested. The Eyak were not whalers. The last whale harvested in Prince William Sound was in the late 1800s.]
8. Distribute the small plastic sea creatures for students to identify and discuss how to locate and harvest. Are there any other foods from the sea/ *imarlat neget*?
9. Display the Tidal Edibles cards and invite Elder to talk about eating bidarkis, sea cucumbers, sea weed, sea urchins...



Sea Cucumber

10. Ask the students, why did the Sugpiat and Eyak peoples settle here on the coast? Share the Elder Quote from Walter Meganack (see above) and discuss why living next to the ocean is such an important part of Sugpiat and Eyak cultures.
11. *Optional*: Share traditional sea food snack with the Elder, being sure to serve the Elder first and then the students.

Assessment:

- Students successfully located their village/town on the globe and on map of Alaska.
- Students listed and described the traditional sea food resources harvested and eaten in their community.
- Students correctly pronounced Sugt'stun or Eyak vocabulary words.

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<sup>i</sup> Salomon, Anne K., et al. *Imam Cimiucia = Our Changing Sea*. Alaska Sea Grant College Program, 2011. p.12

<sup>ii</sup> Poling, Donald Robert. *Chenega Diaries: Stories and Voices of Our Past: Life and Times in the Native Village of Chenega, Alaska 1944-1948*. Chenega Future, Inc., 2011. p.242

**FOOD FROM THE SEA: WHERE'S DINNER? GR: PREK-2 (LESSON 2)**

**Elder Quotation:** “You know, the things that I knew, things that I know, are really important to me. I wanted to teach my grandkids a place where you can go to get a certain type and size of halibut. If you want the big ones, you go to this certain area. If you want the little ones, you go to this other place. If you want to catch big red snappers, you go to this spot. Also there’s this place where the halibut spawn and a place where all the codfish spawn. I know the places like that, and where the dungeness crab and where the king crabs are. If you want to catch the golden king crab...where you catch the black cod...there’s a place that I like to show the kids where to go and wait for a bear.”

- Don Kompkoff, Sr.<sup>i</sup>  
(1938-2012, Chenega)

**Grade Level:** PreK-2

**Overview:** Even the most modern of maps doesn’t provide enough information to tell us how to survive off the land. It is the Elders’ shared knowledge of where and when to hunt and harvest traditional foods from the sea is integral to preserving cultural traditions and local subsistence techniques.

**Standards:**

<i>AK Cultural:</i>	<i>AK Content:</i>	<i>CRCC:</i>
<p><b>DI (A)</b> Culturally-knowledgeable students are able to engage effectively in learning activities that are based on traditional ways of knowing and learning and are able to:</p> <p>student who meets this standard should:</p> <p>3) interact with Elders in a loving and respectful way that demonstrates an appreciation of their role as culture bearers and educators in their community.</p>	<p><b>Science F3 (F)</b> A student should understand the dynamic relationships among scientific, cultural, social, and personal perspectives and should: 3) develop an understanding of the importance of recording and validating cultural knowledge.</p>	<p><b>SS(8)</b> Students should know the appropriate seasons to fish, hunt, and gather.</p> <p><b>Language L1:</b> Students should understand the value and importance of the Sugt’stun language and be actively involved in its preservation.</p>

**Lesson Goal:** To demonstrate how Elders’ knowledge and insights preserve both cultural and physical survival in our coastal environment, traditionally and today.

**Lesson Objectives:** Students will:

- Recognize the importance of an Elder’s knowledge of subsistence areas in the region both traditionally and today.
- Identify subsistence food sources by marine location.
- Learn the Sugt’stun or Eyak vocabulary.

**Vocabulary Words:**

Sugt’stun Dialects

English:	PWS:	Lower Cook Inlet:	Eyak
Listen! (directed to 3+)	<i>Niicugnili!</i>	<i>Niicugnili!</i>	
food from the sea	<i>imarlat neqet</i>	<i>imarlat neqet</i>	<i>Giyah</i> (lit: food)
shore	<i>quuteq</i>	<i>quuteq</i>	<i>ditl’a’g</i>
bay	<i>kaniyat</i>	<i>kaniyat</i>	

sea	<i>imaq</i>	<i>imaq</i>	<i>lahdz</i> (lit: forward out to sea)
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**Materials/Resources Needed:**

- Local Elder or Recognized Expert knowledgeable about subsistence resource locations.
- Physical Map of Kenai Peninsula and Prince William Sound
- Coastal Map Handout (See below)
- Recipe Cards (Available below for photocopying)
- Seasonal Harvest Poster (See Chugach Heritage Website Resources)
- Subsistence Foods List:
  - Sea/bay – halibut, herring, porpoise, rockfish, salmon, sea lion, seal
  - Nearshore – bidarkis, clams, Dungeness crab, mussels, octopus, seaweed, sea cucumbers
- *Optional:* Traditional Food from the Sea sample item for students, napkins and any utensils needed for students to taste same

**Web Resource:**

Halibut Habitat

- <https://www.youtube.com/watch?v=FYUs1mMmE6Q> (4:29) Video of active halibut habitat at 120’ deep

**Teacher Preparation:**

- Review activity plan and practice Sugt’stun or Eyak vocabulary.
- Contact your local Tribal Council for a list of Elders that could share their expertise on the lesson content.
- Invite an Elder or Recognized Expert to share information on your region’s subsistence ‘hot spots’ both traditionally and currently.
- Before the Elder or Recognized Expert arrives review with students how to interact respectfully with the Elder during his or her visit.
- Display Seasonal Harvest Cycle and Subsistence Food from the Sea List
- Set out area maps and markers.
- Photocopy 3 to 4 sets of Recipe Cards (see below) if not on hand.
- *Optional:* Request Elder/Expert or students’ parents to provide small amount of traditional food from the sea for class to taste.

**Opening:** Where does your family find the food for tonight’s dinner? Does your family decide what to eat and buy everything they need at the store or do they cook subsistence foods that you’ve harvested? [*Invite students to share family menus made from subsistence foods. Follow up with questions about when and where foods were harvested and how family members knew how to hunt, gather, and preserve subsistence foods*] Do you know where to harvest subsistence foods?

**Activities:**

1. Introduce Elder/Expert and describe his or her experience with subsistence traditions. Remind students of tradition of handing down knowledge through listening to Elders. Encourage students to Listen!/*Niicugnlu*ci!
2. Have students look at regional maps to locate their community and locate where they commonly spend time outdoors. Identify parts of the map as shore/*quuteq*, bay/*bay*, or seal/*imaq*.

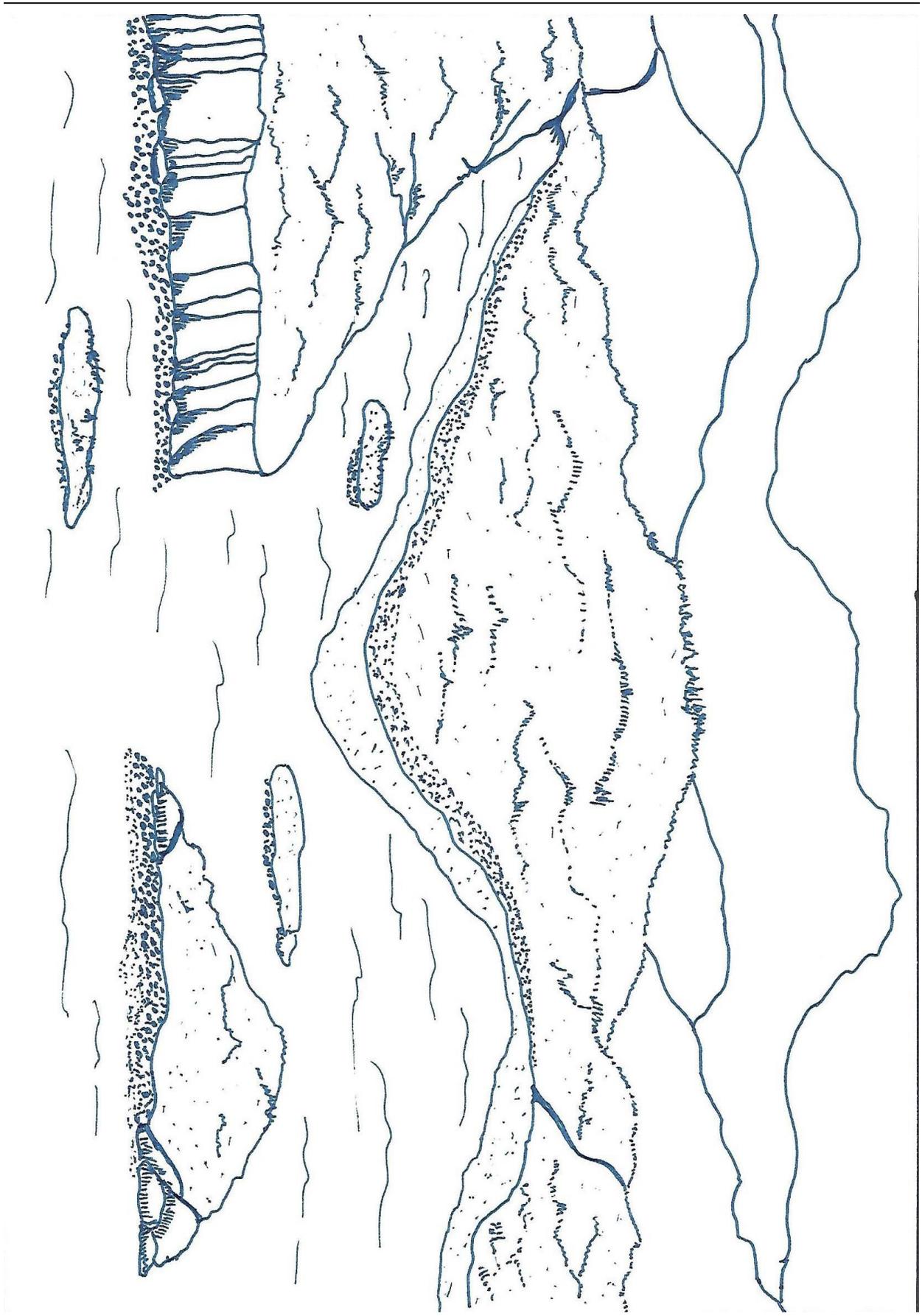
3. Referring to the list of food from the *sealimarlat neqet* (See list above in Materials) ask students to describe where they might be found. Discuss whether the map is sufficiently detailed to know where to harvest food/*neqet*.
4. Invite the Elder to discuss where the community's traditional food sources are and how he or she learned what foods were where.
5. Ask Elder to share personal stories of harvesting subsistence foods from the *sealimarlat neqet* as a child and who taught him or her.  
*Optional:* If a traditional sea food has been provided distribute utensils and napkins for students and offer everyone a taste.
6. Point out where these areas on the map repeating the vocabulary words: shore/*quuteq*, bay/*kaniyat*, or *sealimaq* and discuss the characteristics of each.
  - Shore: ocean edge, affected by tides
  - Bay: a broad inlet of the sea where the land curves inward (protected from high seas)
  - Sea: vast expanse of salt water
7. Ask students if they have enough information to harvest the food themselves.
8. Discuss what more do they need to know to harvest food from the *sealimarlat neqet*. Remind students that every type of sea plant, animal, or fish has a distinct type of habitat it lives in.  
*Optional:* Show portion of underwater halibut video listed above and discuss where to find such deep water.
9. Either build on a student answer about season of the year or time of the tide or invite the Elder to talk about the seasonal harvest cycle.
10. Model the Seasonal Harvest Cycle as the Elder/Expert speaks.
11. Divide students into groups of three or four and distribute area maps and markers. Have each group identify and color the land, shore/*quuteq*, bay/*kaniyaq*, and *sealimaq* in distinctive colors. [*Optional:* Decide on a particular color for each zone for ease of reference.]
12. Distribute sets of Recipe Cards and direct students to place recipes next to the habitat in which the main ingredient is harvested, i.e., porpoise skin comes from porpoises which are found in the sea.
13. Encourage students to ask the Elder if he or she agrees with their map and whether he or she knows how to locate, harvest, or prepare these traditional foods. What's tricky about locating salmon? (*They migrate from streams to the open ocean and then return and can be harvested all along their migration pathways.*)
14. Wrap up with a discussion of how Elders share vital information about how to find and use subsistence foods on which communities depend.

### Assessment

- Students discussed the importance of oral history and Elder experience in the subsistence lifestyle.
- Students mapped the locations of marine subsistence foods in their appropriate ocean environment.
- Student correctly pronounced the Sugt'stun or Eyak vocabulary.

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<sup>i</sup> Poling, Donald Robert. *Chenega Diaries: Stories and Voices of Our Past: Life and Times in the Native Village of Chenega, Alaska 1944-1948*. Chenega Future, Inc., 2011. p. 263.



## BIDARKIS



## URRITAT

Imarlat Neget—Food from the Sea

## Pickled Bidarki Stir Fry

- Saute onions, pickled bidarkis, and herring spawn until onions are softened.

- Kimber Moonin  
Tatitlek



USDEd Grant #5356A3900266

# HALIBUT



## SAGIQ

*Imarlat Neqet—Food from the Sea*

# FRIED HALIBUT

- Cut halibut into fillets.
- Add salt & pepper to fillets.
- Roll fillets in flour.
- In a frying pan, heat about half an inch of oil.
- Fry the fillets in the oil until they are golden brown.
- Be sure not to cook the fish too long or it will be too dry.

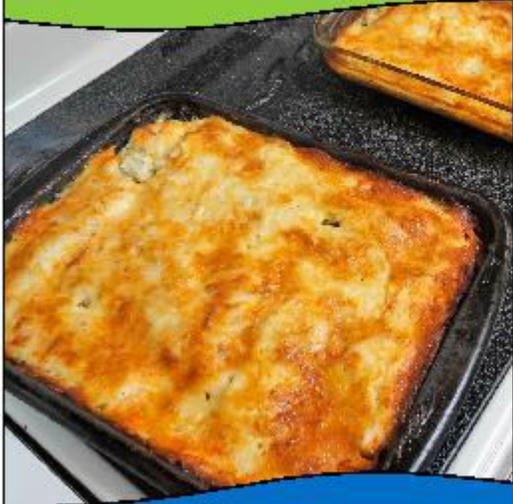
We Are the Land We are the Sea

Chenega



USDEd Grant #5356A3900166

# HALIBUT



## SAGIQ

*Imarlat Neget—Food from the Sea*

# HALIBUT a la MAC

- Place skinned halibut in 9x13 pan & pre-heat oven to 375°.
- Lay fried bacon on top of halibut.
- In a separate bowl mix 1 cup cheddar cheese & 1 cup mayonnaise with diced onion & garlic. Season with salt, pepper, & lemon pepper.
- Smear mixture on halibut and bake uncovered for about an hour or until golden brown.

Tim Malchoff  
Port Graham



USDEd Grant #5356A3900166

# HERRING EGGS



*ialuahpat qahyait*

A Imarlat Neget—Food from the Sea

# HERRING EGG SALAD

- Cook rice and allow to cool
- Dip herring eggs in hot water then in ice water.
- Place herring eggs on popweed in bowl and mix in by hand chopped onion, chopped celery, chopped carrots, and cooled rice.
- Add just enough mayonnaise to bind ingredients together.

- Leona Olsen  
Tatitlek & Cordova





## Octopus Patties

- Finely chop 4 octopus tentacles (skinned & cooked) and 1 onion.
- Crumble 12 soda crackers.
- In a large bowl mix the octopus, onion, & crackers with 2 eggs & 2 tablespoons pancake mix.
- Form patties from the mixture and roll them in flour.
- Add several tablespoons of Crisco to a large pan and fry the patties until golden brown.
- Season with salt & pepper.

We Are the Land We Are the Sea  
Chenega

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## PINK SALMON



**Qaniq (LCI); Mangtak (PWS)**

*Imarlat Neget—Food from the Sea*

## PICKLED SALMON

- Soak 1/2 pound salted pink salmon in water to remove salt.
- After soaking, cut the salmon into bite-sized pieces.
- Place salmon & 1 onion (sliced) in a gallon or quart-sized container.
- Fill the container with half vinegar, half water & mix well.
- Seal & store in a cool dark place & let pickle for 5 days before eating.

*We Are the Land We Are the Sea*



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**PORPOISE**



**Qaniq (LCI); Mangtak (PWS)**  
*Imarlat Neget—Food from the Sea*

**PORPOISE SKIN**

- Cut porpoise skin with fat attached into small slices.
- Season to taste.

- Kimber Moonin

Tatitlek



**SEA CUCUMBERS**



**SANAUSAT**

*Imarlat Neget—Food from the Sea*

**Sauteed Sea Cucumbers**

- Cut off one end to drain sea water
- Cut out the five muscles and saute them in garlic and butter.
- Don't just cook them whole. You'll get sick.

- John Boone & Chung Vlasoff  
Tatitlek



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## SEA LION



## WINAQ

*Imarlat Neget—Food from the Sea*

## SEA LION STEW

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

- Kimber Moonin  
Tatitlek



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# SEAL



## QAIGYAQ

*Imarlat Neqet—Food from the Sea*

# SEAL OIL

- Put some seal blubber (fat) in a jar and place it under the stove or in a warm place.
- Keep it under the stove until you get oil.
- Fry the rest of the fat to get more oil.

- Ephim Anahonak, Sr.  
Port Graham



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## SEAWEED



## CAQALLQAT

Imarlat Neget—Food from the Sea

## Seaweed & Salmon Rice

- Cut fresh black seaweed or add dried seaweed to freshly cooked rice with smoked salmon bits and salmon roe.

- Kimber Moonin  
Tatitlek

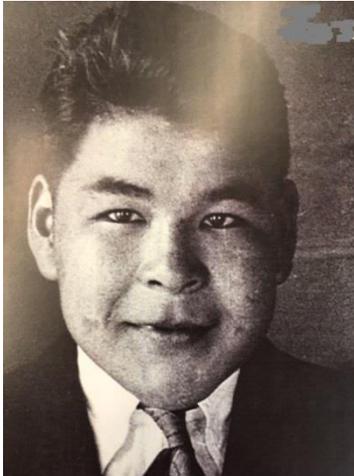


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**FOOD FROM THE SEA: SALMON SCHOOL GR: PREK-2 (LESSON 3)**

**Elder Quotation:** “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. .... They would smoke and dry the salmon after it came up the streams to spawn, it is not fat and it had stopped eating. The bright salmon are fat and when you dry them the 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<sup>i</sup>



Bobby Stamp was 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.)

**Grade Level:** PreK-2

**Overview:** The Sugpiat settled in the Lower Cook Inlet and Prince William Sound because of the bounty of subsistence resources, especially salmon. The Eyak settled in the Copper River Delta and the North Gulf Coast for similar reasons. From eggs to spawning adults the Sugpiat and Eyak developed methods to harvest and preserve salmon throughout its life cycle to sustain them through the long winters.

**Standards:**

<i>AK Cultural:</i>	<i>AK Content:</i>	<i>CRCC:</i>
<p><b>D1</b> (A) Culturally-knowledgeable students are able to engage effectively in learning activities that are based on traditional ways of knowing and learning and are able to:</p> <p>student who meets this standard should:</p> <p>3) interact with Elders in a loving and respectful way that demonstrates an appreciation of their role as culture bearers and educators in their community.</p>	<p><b>Science F3</b> (F) A student should understand the dynamic relationships among scientific, cultural, social, and personal perspectives and should:</p> <p>3) develop an understanding of the importance of recording and validating cultural knowledge.</p>	<p><b>SS(8)</b> Students should know the appropriate seasons to fish, hunt, and gather.</p> <p><b>Language L1:</b> Students should understand the value and importance of the Sugt'stun language and be actively involved in its preservation.</p>

**Lesson Goal:** To learn how the Sugpiat and Eyak peoples harvested and used salmon throughout its life cycle.

**Lesson Objectives:** Students will:

- Model the salmon life cycle.
- Identify traditional subsistence uses of the salmon throughout its life cycle.
- Learn the listed Sugt'stun and/or Eyak vocabulary.

**Vocabulary Words:** Sugt'stun Dialects

English:	PWS:	Lower Cook Inlet:	<a href="#">Eyak</a>
Listen (directed to 3+)	<i>Niicugniluci!</i>	<i>Niicugniluci!</i>	
sea/ocean	<i>imaq</i>	<i>imaq</i>	<i>lahdz</i> (lit: forward, out to sea)
red ( <i>sockeye</i> ) salmon	<i>nikliq (pl.: niklit)</i>	<i>nikliq(pl.: niklit)</i>	<a href="#">cha'ch</a>
river	<i>kuikcak</i>	<i>kuikcak</i>	<a href="#">aan</a>
stream	<i>kuik</i>	<i>kuik</i>	

**Web Resources:**

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
- [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 Life Cycle Stages Descriptions & Ocean migration routes by species; pp.6,7 Salmon Life Cycle Needs and Threats; p. 10 Salmon Life Cycle Drawings
- <https://www.fishex.com/salmon/alaska/salmon-life-cycles> “The Fascinating Life of an Alaskan Salmon” Salmon Life Cycle Stages with Descriptions
- “The Odds” <https://scienceandmemory.uoregon.edu/the-odds.html> (5:23) Time lapse photography of artist’s watercolor rendition of salmon life cycle
- <https://www.streamnet.org/wp-content/uploads/2014/10/Interactive-Salmon-Life-Cycle.pdf> Salmon Life Cycle Descriptions

**Materials/Resources Needed:**

- Local Elder or Recognized Expert knowledgeable about subsistence resource locations.
- Scent jars (4 jars with strong, easily identified scents to ‘label’ each natal stream such as vinegar, kibble, cedar, smoke, dried fish, dried mushroom, blueberry jam...)
- Small plastic fish randomly labeled 1, 2, 3, 4 to correspond to with the four different natal stream scents (one per student) – (In kit)
- “Salmon Eggs” (orange marbles, Tic Tacs, candy fish, cheetos...) in small plastic bags
- Props for Village Elder: Bucket, dipnet, or bit of fish net
- Salmon Recipe Cards with photos of dish and salmon life cycle stage

**Kit Library:**

- Miller, Debbie S., et al. *A King Salmon Journey*
- Stamp, Bobby A. *Chenega as I Saw It – It’s people*

### **Teacher Preparation:**

- Review activity plan and practice Sugt'stun and Eyak vocabulary.
- Contact your Local Education Coordinator or local Tribal Council for a list of Elders that could share their expertise on the lesson content.
- Invite an Elder or Recognized Expert to share information on when and where local salmon are harvested and what traditional foods are made from salmon throughout its life cycle.
- Before the Elder or Recognized Expert arrives review with students how to respectfully interact with the Elder during his or her visit.
- Reconfigure the classroom with a large empty area to represent the open ocean, a large parthway between the desks and tables to represent the river, with smaller pathways between desks branching off from the 'river.' Draw a picture of a sun setting behind some mountain peaks on the white board.
- Fill each scent jar with a strong identifiable scent. Draw symbols to represent each of the scents on the whiteboard, i.e., a tree for cedar, a camp fire for smoke...Place scent jars at entrances to 'streams.'
- *Optional:* Have students help set up same during the class period.
- *Optional:* Ask student parents to provide a small salmon snack for class to try at end of lesson.

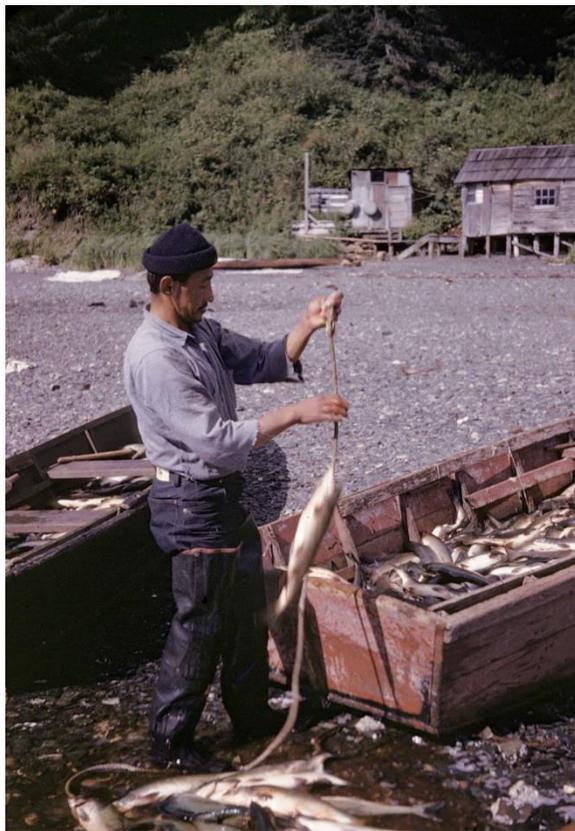
**Opening:** Of all the fish we eat here in \_\_\_\_\_ which fish is the most popular? (*Accept all answers but encourage students to choose salmon by reminding students of popular salmon recipes, i.e., barbecued, smoked, air dried, patties, salad...*) Salmon! How many different ways do students' families use salmon? Alaska is famous around the world for its salmon and it was salmon that first attracted the Sugpiat people to settle here in our region. All five kinds of salmon (king salmon, dog salmon, pink salmon, coho, and red salmon/ *nikliq*) are very important to our community. Salmon still fills our stomachs and our pantries.

### **Activities:**

1. Today students will use their imaginations and these little fish (*hold up examples*) to become red salmon/*niklit* and act out the life story of the salmon.
2. Explain the re-configuration of the classroom, i.e., the open area represents the open ocean/*imaq*. The path leading from the ocean/*imaq* between the desks is the river/*kuikcak* (*Insert name of local river*). Each of the smaller paths is a stream/*kuik*.
3. Introduce Elder and encourage students to listen (*Niicugniluci!*) as he or she represents the Sugpiaq village of (*Insert name of local village*). This village settled here to take advantage of the salmon runs.
4. The Elder/Teacher stands by the river mouth with fishing props (bucket, dip net...) and describes where the village is located relative to the sunset on the whiteboard and to the local salmon streams.
5. Students gather in the mouth of the river/*kuikcak* just short of the 'ocean/*imaq*.' Distribute fish to students and announce that they are adult red salmon/*niklit* who were born in a small stream/*kuik*, grew up there in the fresh water, and now are big enough to leave their childhood home by the village and swim out into the ocean/*imaq* to find food like plankton (small organisms that float or drift in great numbers in bodies of salt or fresh water) to make them grow big and strong.

(Note: Red Salmon eat plankton while all other salmon species eat other fish, squid, eels, and shrimp.)

6. Send student salmon into the ocean in small groups. Students school up far away from the river mouth and swim around pretending to eat. What are you eating? (*Plankton*)
7. Students ask Elder/Teacher if now is the time to harvest any red salmon/*niklit* to eat?
8. Elder/Teacher explains that no, they are too far away. After one to four years of feeding in the ocean it is time for them to come home. In the spring and summer it's time to raise the next generation of salmon.
9. How do the red salmon/*niklit* find their way home? Can the salmon see their village? Do they have a map to help them? Explain that the sun's position can tell them a little about which direction to travel. Also salmon can 'follow their noses' home to their river/*kuikcak*, home to their stream/*kuik*. Their childhood stream/*kuik* has a particular smell and their noses have a little tiny magnet that acts like a compass letting them find their direction to the stream/*kuik* of their birth.
10. Label the scent symbols on the white board 1, 2, 3, and 4. Have students look on the bellies of their fish to locate their numbers and determine which of the four scents they want to find as they slowly swim toward the river/*kuikcak*. As they reach the river/*kuikcak* they stop eating but keep swimming around in the mouth of the river/*kuikcak*.
11. Students ask Elder/Teacher if now is the time to harvest the red salmon/*niklit* to eat?



Sam Ribaloff, Chenega, 1946; Photo Courtesy of Mitch Poling

12. Elder/Teacher explains how red salmon/*niklit* by the mouth of the river/*kuikcak* are harvested: by net/spear/weir... with recipe examples for using the salmon caught and how preserved. (See also Bobby Stamp quote above.)

13. Students continue swimming up the river/*kuikcak* and search for the stream/*kuik* where they were born using their sense of smell. [Note: A salmon can recognize one drop of water from its natal stream in 250 gallons of water.]
14. As students find their home streams they circle around pretending to create gravel nests (known as redds) in which to lay their eggs.
15. Students ask Elder/Teacher if now is the time to harvest any red salmon/*niklit* to eat?
16. Elder/Teacher explains how spawning salmon are caught and used (with recipe examples) and how they are preserved.
17. Distribute small bags of salmon eggs for students to place in their nests (redds).
18. Students ask Elder/Teacher if now is the time to harvest any red salmon/*niklit* to eat?
19. Elder/Teacher explains how salmon eggs are harvested and used with recipe examples, and how preserved. Share the quote from Bobby Stamp listed above.
20. Students pretend to swim and then slowly stop from exhaustion. They place their fish on the streambed (floor) to indicate that they've died.
21. The Elder/Teacher explains that now the red salmon/*niklit* are food for the eagles and bears and other wild animals. Their work is done.
22. Wrap up with a class-wide review the stages of the salmon life cycle and which part of the cycle villagers used for traditional subsistence foods.
23. Watch "The Odds" <https://scienceandmemory.uoregon.edu/the-odds.html> (5:23) a time lapse video of an artist's watercolor rendition of the salmon life cycle.
24. *Optional*: Distribute and enjoy small salmon snack.

#### Assessment

- Students modeled the life cycle of the salmon.
- Students described the traditional uses of salmon at various life cycle stages.
- Students correctly pronounced the Sugt'stun or Eyak vocabulary.

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<sup>i</sup> Stamp, Bobby A. *Chenega as I Saw It – It's People*, Chugach Alaska Corp., 2010. p.11

**FOOD FROM THE SEA: TIDAL ACTION GR: PREK-2 (LESSONS 4-5)**

**Elder Quotations:**

“Don Kompkoff, Sr.: “[Charlie Selanoff] taught me quite a bit about survival out there. I’ve learned quite a bit from him. Where I could go. He said, “Come here, let’s go get some cockle.” I said, “Cockle...half-tide.” I said, “Well, that’s something.”

Michael Vigil: Port Wells.

Don Kompkoff, Sr.: Yeah, and we went to a place called Golden and we went in there. “Half tide,” he said. “I’ll show you how to catch them,” so, he had this contraption made. Had butter on the end of a stick like that, tied to it, and he just...you could see those cockles down on the water and scoop them up and I could get cockles at half tide just from learning from him. And all those goose tongue are on the beach Ed Bilderback said, “Come in, one day he said, “Come on, I’ll show you how to get these,” and he fried some up with bacon and they were delicious. So I went in there and got some goose tongue and I fried them up with bacon and they were just really good.”

- Don Kompkoff <sup>1</sup>

**Grade Level:** PreK-2

**Overview:** The Sugpiat and Eyak are coastal peoples who traditionally harvested much of their food from the ocean. This tradition continues in the subsistence lifestyle in which new generations learn to recognize and make use of the ocean’s bounty. It is vital that students understand how the time of year and stage of the tide affect what can be harvested from the shoreline.

**Standards:**

<i>AK Cultural:</i>	<i>AK Science Content:</i>	<i>CRCC:</i>
<b>C1:</b> Perform subsistence activities in ways that are appropriate to local traditions.	<b>Science C3:</b> Students will develop an understanding that culture, local knowledge, history, and interaction with the environment contribute to the development of scientific knowledge, and local applications provide opportunities for understanding scientific concepts and global issues.	<b>SS3:</b> Students should be able to gather plants, berries, and other edible foods.

**Lesson Goal:** To understand tidal action and recognize how seasons of the year and stages of the tide affect the harvest of traditional foods.

**Lesson Objectives:** Students will:

- Extract information about tidal subsistence harvest from a Native legend.
- Model the concept of tidal movement.
- Identify tidal edibles and the intertidal zones in which they are found.
- Learn the Sugt’stun or Eyak vocabulary words.

**Vocabulary Words:** Sugt'stun Dialects

English:	PWS:	Lower Cook Inlet:	<a href="#">Eyak:</a>
Listen! (directed to 3+)	<i>Niicugniluci!</i>	<i>Niicugniluci!</i>	
high tide	<i>tung'iq</i>	<i>tung'iq</i>	
low tide	<i>ken'aq</i>	<i>ken'aq</i>	
ocean	<i>imaq</i>	<i>imaq</i>	<i>lahdz</i> (forward, to the sea)
moon	<i>tanqik</i>	<i>tanqik</i>	<a href="#">qAXah</a>
spring	<i>icuiwaq</i>	<i>icuiwaq</i>	<i>xahLch'aad</i> (towards summer)
summer	<i>kiak</i>	<i>kiak</i>	<i>xah</i>
fall	<i>uksuaq</i>	<i>ukuaq</i>	<a href="#">XAlaagLch'aad</a> (towards winter)
winter	<i>uksuq</i>	<i>uksuq</i>	<i>XAlaaq</i>

**Materials/Resources Needed:****Class I**

- Seasonal Harvest Cycle
- 'Woman in the Moon' Mask (See below) – print 1 copy (as large as possible) and cut out
- 30' length of line (rope)

**Kit Library:**

- Garza, Dolly. *Tlingit Moon & Teaching Resource: Elementary Level*
- Hodgkins, Fran and Jim Sollers. *Between the Tides*

**Class II**

- Field Trip transportation arrangement – if needed
- Field Trip Permission slip – if needed – one per student
- Appropriate clothing for field trip including rubber boots
- Paper plates (sturdy enough to hold tidal edibles) – one per student
- Markers
- Collection buckets – at least two; one for each tidal zone for classroom use specimens
- Tidal Edibles Cards
- Camera to photograph students collecting tidal edibles

## **Web Resources:**

### Tides

- [http://www.afognak.org/files/language\\_books/Thematic%20Units.pdf](http://www.afognak.org/files/language_books/Thematic%20Units.pdf) Kodiak Alutiiq Heritage Thematic Units: Our Ocean's Resources, pp.8-17.

### Tides and Timing

- <https://www.youtube.com/watch?v=OgVJNiO6lZI> (2:00) Inuit Mussel Harvest in Tidal Cave

## **Teacher Preparation:**

Background: "Intertidal foods played an important role in [Prince William] Sound as well [as in Port Graham and Nanwalek]. Clams, cockles, mussels and chitons were just a few of the shellfish that were abundant and available for use. These resources could be eaten raw or cooked and garnished with seal oil. Henry Makarka informed me that cockles were dried for storage for later use, but mostly they were used immediately. Again, not unlike the folks on the Kenai Peninsula, Prince William Sound people harvested shellfish only in late fall or winter, possibly because of paralytic shellfish poisoning. Octopus was also available and taken during the very low tides...

Like the people of the Peninsula, the Sound people are handling changes in subsistence brought about [by] the declining populations of many common resources, regulatory restrictions, and time constraints brought about [by] the demands of modern times such as employment, governance issues, and schooling. Yet people persist in seasonal subsistence activities to provide food for the table, to share resources with (E)lders, family and community members, to maintain contact with nature, and to celebrate their culture."

- Derenty Tabios<sup>ii</sup>

## **Prep for each class:**

### **Class I**

- Review activity plan and practice Sugt'stun and Eyak vocabulary.
- Contact your Local Education Coordinator or local Tribal Council for a list of Elders that could share their expertise on the lesson content.
- Invite an Elder or Recognized Expert to share information about tidal edibles harvest areas and seasons and any memories from his or her youth or lessons gained from Elders.
- Before the Elder or Recognized Expert arrives review with students how to respectfully interact with the Elder during his or her visit.
- Review seasonal harvest circle.

### **Class II**

- Determine appropriate day and time for beach field trip. An hour before low tide works best. There are significant minus tides in the spring which allow students to see and harvest more.
- Invite an Elder/Expert to accompany the class on the field trip to share where and when to gather tidal edibles and identify student finds.
- *Optional:* Mark and divide paper plates into halves to represent low and high tides or into thirds to represent two intertidal zones: low tide and high tide. The half tide referred to in the Elder quotes above is, logically enough, the area just in between these two.

## **Activities:**

## Class I – Tide Modeling

**Opening:** Read Between the Tides<sup>iii</sup> to the class asking if students have ever seen the creatures mentioned or noticed how they're different above or the tide line.

Reviewing the book ask students what they know about tides. How often does the tide change? Does it matter to them? Did it matter to the Sugpiat and Eyak people a long time ago?

Many Native peoples who live along the ocean/*imaq* passed down stories of how tides came to be. According to the Chugach Legions, the Sugpiat said that the Owner of the High Water was an old, old woman and that a little bird could lift up the ocean water to let people travel underneath the waves.<sup>iv</sup>

Listen/*Niicugniluci!* to this legend from the Tsimshian people of Southeastern Alaska traditionally described how tides came to change twice a day.

### *Origins of Tides*

*The [Giant] Txamsem took his raven blanket and flew over the ocean with the firebrand in his hands. He arrived at the mainland and came to another house which belonged to a very old woman, who held the tide-line in her hand. At that time the tide was always high, and did not turn for several days, until the new moon came, and all the people were anxious for clams and other sea food.*

*Giant entered and found the old woman holding the tide-line in her hand. He sat down and said, "Oh, I have had all of the clams I need!" The old woman said "How is that possible? How can that be? What are you talking about, Giant?" "Yes, I have had clams enough." The old woman said, "No, this is not true." Giant pushed her out so that she fell back, and he threw dust into her eyes. Then she let the tide-line go, so that the tide ran out very low, and all of the clams and shellfish were on the beach.*

*So Giant carried up as much as he could. The tide was still low when he reentered. The old woman said, "Giant, come and heal my eyes! I am blind from the dust." Giant said, "Will you promise to slacken the tide-line twice a day?" She agreed, and Giant cured her eyes. Therefore, the tide turns twice every day, going up and down.*

- F. Boas (1916)<sup>v</sup>

1. This legend tells us that tides were important to coastal peoples or the story would not have been passed down through the generations. It tells us that the tides change twice a day and when it is best to harvest tidal edibles like clams and shellfish. How can we understand the tides even more?

2. Bring out the moon face (in kit) and introduce the moon/*tanqik*. The pull of earth's gravity keeps the moon/*tanqik* circling around it and the moon's gravity gently pulls at the Earth. Not enough to change the earth's orbit but enough to tug at things that move, like the ocean/*imaq*. Let's work it out.

Line students up shoulder to shoulder, from one side of the class room to the other leaving enough room for the moon to walk in front of them. Have students clasp the "tide-line" (rope) with both hands to their chest. Students at either end of the line should hold onto fixed points so

that the line of students doesn't drift. Explain that the students represent water on the earth's surface and the rope represents where the water meets the shore: the tide-line – like the tide-line in the legend.

3. Tell students that they are attracted to the moon/*tanqik* because they are curious about it and want to touch it to examine it more closely. When the teacher says “Go” students should move the tide-line towards the moon/*tanqik* trying to touch it but they may not unclasp their hands or pull the tide-line away from the fixed points and no jerking. If the moon passes out of reach students fall back to their original positions. This demonstrates the effect that the moon/*tanqik* has on the tides. If all goes well, students will understand that it is the attraction (gravitational and centrifugal forces) between the earth and moon/*tanqik* that cause the tides.

4. Review with students: In the model, when was the high tide/*tung'iq* [closest to moon/*tanqik*] and when was the low tide/*ken'aq* [farthest from moon/*tanqik*]? When do you think is the best time to harvest food from the beach?

5. Explain that the intertidal zone is space between the highest high tide/*tung'iq* point on a shoreline and the lowest low tide/*ken'aq* point. Hundreds of marine animals and plants live in this habitat where the land meets the sea. But to harvest these sea foods you have to wait for low tide/*ken'aq* ...just like the legend tells us.

6. Expand upon idea of harvesting food at low tide/*ken'aq* instead of high tide/*tung'iq* and the traditional knowledge needed to harvest foods at the most advantageous time of year

7. Remind students to listen carefully (*Niicugniluci!*) and invite the Elder/Expert to model the Seasonal Harvest Calendar and share personal stories about traditional harvests of food from the sea according to season, naming each season in Sugt'stun or Eyak, if possible; spring/*iciwaaq*, summer/*kiak*, fall/*uksuaq*, and winter/*uksuq*. Have students repeat season vocabulary. Which season is most productive for harvesting foods from the intertidal zone? Is it during the *iciwaaq*, *kiak*, *uksuaq*, or *uksuq*? [*The extreme low tides of the spring allow more tidal edibles to be harvested.*]

*Optional:* Share Canadian Inuit Mussel Harvest video to illustrate importance of knowing when the tide changes. (2 minutes)

## **Class II – Field Trip**

1. Discuss proper beach etiquette and dress appropriately for field trip.
2. Review tidal zones and tidal edibles cards with students. Introduce the Elder/Expert remind students of the Elder/Expert's great subsistence experience and how important it is that they listen carefully (*Niicugniluci!*).
3. Go to the beach an hour before low tide.
4. Have Elder/Expert point out the low tide/*ken'aq* marks and the high tide/*tung'iq* marks [Piles of debris, water line on rocks, and lack of tide pools]. Have students mark the low tide/*ken'aq*, and the high tide/*tung'iq* as well as the half-tide, the point halfway between the high and low tides with sticks.

5. Discuss the advantages of low tide/*ken'aq* how all the tidal edibles would be underwater at high tide/*tung'iq* and difficult to harvest.
6. Invite students to describe where and what their families harvest from the intertidal zone.
7. Distribute paper plates and markers and have students divide the plate in half with the marker to represent the low tide/*ken'aq*, the half-tide, and the high tide/*tung'iq* zones.
8. Collect the markers and offer tidal edibles cards to interested students.
9. Let students explore the beach and select a sample of subsistence foods and placing them on the plate in the same zone in which the foods were found.
10. Photograph students locating subsistence foods, for display in final lesson.
11. Invite the Elder/Expert to identify student finds and review where on the beach they were found.
12. Make a short list of items found and have students return samples to their original locations.  
*Optional:* Divide students into two groups, one for the low tide zone and one for the high tide zone. Issue collection buckets. Have each group collect a small sample of items indicative of their zone to bring back to the classroom.
13. Return to classroom and review locations of tidal edibles found during field trip.

### **Assessment:**

- Students demonstrated tidal movement under the moon's gravitational pull.
- Students identified tidal edibles and the zones in which they are found.
- Students correctly pronounced the Sugt'stun or Eyak vocabulary.

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<sup>i</sup> Poling, Donald Robert. *Chenega Diaries: Stories and Voices of Our Past: Life and Times in the Native Village of Chenega, Alaska 1944-1948*. Chenega Future, Inc., 2011. p.251

<sup>ii</sup> Tabios, Derenty, et al. *Looking Back on Subsistence: Interviews with Elders of the Chugach Region*, Chugachmiut Corporation, 2000. p.27

<sup>iii</sup> Hodgkins, Fran and Jim Sollers. *Between the Tides*, Down East Books, 2007.

<sup>iv</sup> Johnson, John F.C., et al. *Chugach Legends: Stories and Photographs of the Chugach Region*, Chugach Alaska Corporation (1984). p.88 ('Raven and the Owner of the High Water')

<sup>v</sup> Garza, Dolores A. *Tlingit Moon & Tide Teaching Resource: Elementary Level*. Alaska Sea Grant Program, University of Alaska Fairbanks, 1999. p.33



Moon face in progress on Eyak Totem Pole by Mike Webber, Cordova



Woman in the Moon Mask, UC Berkeley Collection: Photo by B. Kopchak

\*Can print the enlarged photo below, if desired\*



**FOOD FROM THE SEA: TIDAL HARVEST GR: PREK-2 (LESSONS 6-9)**

**Elder Quotation:** ‘My grandchildren say they will never eat anything but when I fix it they eat it. I am really pleased. I think that if they had to come out and live with me I would have no problem. I think they would enjoy it. I think they are looking forward to it. I told them I am going back to my old ways. They already have more plans than I have. They are thinking that their grandmother is going to live forever, but I am hoping that I can show them the way that I have lived, and what was caught in them days, and how to cook it, and what to do with it in case they are stranded on a beach someday. I am quite sure that if I got stranded any place I could survive, if a bear didn’t come and chew me up.’

– Jessie Tiedeman<sup>1</sup>

*Jessie Tiedeman was born in Cordova in 1926 and later moved to Tatitlek where she lived a subsistence lifestyle.*

**Grade Level:** Pre K-2

**Overview:** The Sugpiat and Eyak people are coastal peoples who traditionally harvested much of their food from the ocean. This tradition continues in the subsistence lifestyle in which new generations learn to recognize and make use of the ocean’s bounty. Here students locate, harvest, and process tidal foods, notably chitons/bidarkis, snails, and seaweed.

**Standards:**

<i>AK Cultural:</i>	<i>AK Content:</i>	<i>CRCC:</i>
<p><b>C1:</b> Perform subsistence activities in ways that are appropriate to local traditions.</p> <p><b>D1:</b> Acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders.</p>	<p><b>Science C (2).</b> 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.</p>	<p><b>SS3:</b> Students should be able to gather plants, berries, and other edible foods.</p> <p><b>L1:</b> Students should understand the value and importance of the Sugt’stun language and be actively involved in its preservation.</p>

**Lesson Goal:** To appreciate locally available foods by identifying, harvesting, and preparing tidal foods.

**Lesson Objectives:** Students will:

- Observe how to locate and harvest tidal edibles.
- Discuss how Elder knowledge sustains subsistence practices.
- Identify and process seaweed for consumption.
- Model how tidal edibles inhabit distinct areas in the intertidal zone.
- Learn the Sugt’stun or Eyak vocabulary listed.

**Vocabulary Words:** Sugt’stun Dialects

English:	PWS:	Lower Cook Inlet:	<a href="#">Eyak:</a>
Listen! (Directed to 3+)	<i>Niicugniluci!</i>	<i>Niicugniluci!</i>	

high tide	<i>tung'iq</i>	<i>tung'iq</i>	
low tide	<i>ken'aq</i>	<i>ken'aq</i>	
chiton/bidarki	<i>urritaq (pl:urritat)</i>	<i>urritaq (pl:urritat)</i>	
snail	<i>puk (pl:iput)</i>	<i>ipuk (pl:iput)</i>	
seaweed		<i>caqallqaq</i>	<i>tiishiyah</i> (broad ribbon) <i>iimLxAwah</i> (red ribbon)

**Materials/Resources Needed (per class):**

**Class I:**

- Computer Projection Screen to view YouTube video of bidarki harvest
- Field Trip transportation arrangement
- Field Trip Permission slip, if needed – one per student
- Elder/Recognized Expert to accompany field trip
- Appropriate clothing for field trip including rubber boots
- Camera to record field trip activities
- Gathering tools (knife, scissors) for Elder/Recognized Expert/Teacher to gather seaweed
- Small buckets to hold seaweed samples – one per student
- Gathering containers (boxes, baskets...) to transport seaweed (keeping like with like) back to classroom
- Seaweed field guides
- *Optional:* Thermos of hot water to pour over seaweed

**Class II:**

- Elder/Recognized Expert to describe and demonstrate chiton processing
- Access to hot plate, Stew pot
- Small plates for chiton distribution
- Camera to record class activities

**Class III:**

- Designated area in classroom to store, rinse, and hang up seaweed to dry
- Large buckets for rinsing seaweed
- Drying rack on which to drape seaweed, clean sheet on which to dry seaweed on table
- Floor protection from dripping seaweed
- Camera to record class activities
- *Optional:* Fan to help seaweed dry

**Class IV:**

- Elder/Recognized Expert to supervise seaweed processing
- Tidal Edibles cards
- Access to oven, Roasting pan
- Small plates for seaweed distribution
- Camera to record class activities

### **Kit Library:**

- Garza, Dolores A. *Common Edible Seaweeds in the Gulf of Alaska*
- Garza, Dolores A. *Surviving on the Foods and Water from Alaska's Southern Shores*
- Lindeberg, Mandy R. and Sandra C. Lindstrom. *Field Guide to Seaweeds of Alaska*
- Schofield, Janice J. *Discovering Wild Plants*

### **Web Resources:**

#### Bidarki Harvest

- <https://www.youtube.com/watch?v=in-7B93TQTo> 'Bidarkis: Subsistence Intertidal Harvesting in Alaska' (Port Graham and Nanwalek) (3:09) Opens with close-up of Vera Meganack harvesting bidarki/chiton from intertidal rocks.

#### Bidarki Recipes

- <https://alutiiqmuseum.org/explore/past-exhibits/954-sharing-wild-foods> Preparation of Chitons (Kodiak, 3:10)
- <https://www.youtube.com/watch?v=f0DIjJ6CKIw> Bidarki Salad: Traditional Foods: Contemporary Chef: Aleutians (Sand Point, 5:09 – Alaska Native Tribal Health Consortium) Opens with beach harvest and tasting, in kitchen shows removal of eight back plates)

#### Kelp

- <http://www.deseretnews.com/article/765564563/Kodiak-residents-learn-to-harvest-cook-with-kelp.html> All Kodiak kelp is edible, avoid bull kelp bulb, don't use washed up kelp, could be too old.

#### Subsistence Foods

- <http://www.adfg.alaska.gov/sf/publications/> Stanek, R. T. (1985). *Patterns of Wild Resource Use in English Bay and Port Graham, Alaska* (Technical Paper No. 104). Anchorage, AK: Alaska Dept. of Fish and Game, Division of Subsistence.

#### Teacher Background

<http://aswc.seagrant.uaf.edu/grade-5/investigation-1/bidarki-story-background.html> See: Home/Grade 5/Investigation 1/Bidarki Story – Teacher Background

[http://www.sealaskaheritage.org/sites/default/files/Beach\\_lessons.pdf](http://www.sealaskaheritage.org/sites/default/files/Beach_lessons.pdf) Lesson #9 Chitons – Teacher Background

### **Teacher Preparation:**

#### **Class I**

- Review activity plan and practice Sugt'stun or Eyak vocabulary.
- Decide on local beach to explore for field trip. Consult community members on best location to find varied seaweeds, bidarkis/chitons, and snails.
- Plan and arrange field trip date, transportation, permission slips. Determine appropriate day and time for beach field trip. [Note: An hour before low tide works best. There are significant minus tides in the spring which allow students to see and harvest more.]

- Contact your Local Education Coordinator or local Tribal Council for a list of Elders that could share their expertise on the lesson content.
- Invite an Elder or Recognized Expert to accompany class on field trip to identify edibles and share any stories or memories associated with the harvest, processing, or eating of bidarkis/chitons, seaweed, or snails.
- Before the Elder or Recognized Expert arrives, review with students how to respectfully interact with the Elder during his or her visit.
- Preview YouTube video of bidarki harvest listed above.
- "...intertidal harvest important not only for the food produced but also as a social activity for older people unable to participate in more strenuous and dangerous harvest activities. It was an opportunity to outdoors, and it also allowed older people to teach their children and grandchildren how to use local resources..... Searching for chiton with the aid of a lantern during night time low tidal periods in late fall and winter was a common practice among experienced people." Stanek, R.T. (1985) *Patterns of Wild Resource Use in English Bay and Port Graham, Alaska* (Technical Paper No.104). Anchorage, AK: Alaska Department of Fish and Game, Division of Subsistence, p.162
- "*Chitons are mollusks. Gumboots are one of the largest chitons in Alaska. Tlingit people have eaten steamed gumboots for centuries. Tlingits focus their attention when steaming gumboots. If they are overcooked, they are hard to chew – imagine chewing on a tire. After steaming chitons you run a spoon or knife down the spine to remove the plates. Once the pates are removed run your finger down the spine to remove any remaining shell pieces. Chitons curve their bodies to adapt to the shape of the rocks. They hold to rocks very tightly. It is impossible to pry them off with bare hands; you need a knife to dislodge them. Chitons crawl slowly on their muscular foot. They have eight overlapping plates on their backs and these eight plates are the chitons' shells. These plates allow chitons to roll themselves into balls – protecting them from prey. Chitons are black, red, and brown in color. Some chitons have spots and stripes of many colors.*" – Sealaska Corp. *Ēek Beach Curriculum, Grade Levels K-1* (See website above)

### **Class II**

- Review activity plan and practice Sugt'stun or Eyak vocabulary.
- Review summary of reasons for bidarki/chiton population fluctuations from Sea Grant website listed above.
- Invite an Elder or Recognized Expert to discuss and demonstrate how to prepare chitons and or snails.
- Assemble materials needed for chiton/snail preparation including utensils, plates, napkins

### **Class III**

- Review activity plan and practice Sugt'stun or Eyak vocabulary.
- Prepare area to store and dry collected seaweed.
- Invite an Elder or Recognized Expert to discuss & demonstrate how to process seaweed.
- *Optional:* Invite Elder/Expert/Community member to share taste of herring spawn on kelp.

### **Class IV**

- Review activity plan and practice Sugt'stun or Eyak vocabulary.
- Invite an Elder or Recognized Expert to accompany class on field trip to identify edibles. Encourage him or her to recall any stories or memories associated with the harvest, processing, or eating of bidarkis/chitons, or seaweed

- Review recipe options in *Common Edible Seaweeds in the Gulf of Alaska* and timing based on seaweeds harvested.
- Arrange access to oven to roast seaweed
- Set out Tidal Edibles and Tidal Recipes cards

**Opening:** Guidebooks and study cards are helpful but it takes actual experience to learn how to find, harvest, and prepare food from the sea. Let's learn how to follow the subsistence lifestyle.

### **Activities:**

#### **Class I – Field Trip**

1. Briefly review some of the sea foods shown and explain that students will take a field trip to look for three tidal foods: chiton/*uhhitaq*; seaweed/*caqallqaq*; and snail/*ipuk*.
2. View YouTube video of bidarki harvest listed above. (3:09)
3. Go on field trip. Bring along Garza's *Surviving on the Foods and Water from Alaska's Southern Shores*<sup>ii</sup> to identify seaweeds.
4. Remind students of beach etiquette. Students should always remain within sight, stay on shore, take care around sharp rocks, and should treat the plant and animal communities they come across with respect.
5. Take photos which emphasize the stage of the tide as reference for final unit display.
6. Invite Elder/ Expert to demonstrate how to find and harvest bidarki/chiton/*uhhitaq*; seaweed/*caqallqaq*; and snail/*ipuk*. As each is located invite the Elder/Expert to demonstrate and discuss how it is prepared and eaten. Listen carefully (*Niicugnili!*)! Have students repeat the edibles' names in both English and Sugt'stun or Eyak.
7. Point out the high tide/*tung'iq* and low tide/*ken'aq* marks and the boundaries for student explorations. Allow students time to locate a chiton/*uhhitaq* or snail/*ipuk*.
8. As edibles are found confirm student identifications with the Elder/Expert and talk about the particular beach location for each edible [*near high or low tide marking, under or above rocks...*] If possible, have students taste the bidarkis/chiton.
9. Distribute collection buckets and shovels and challenge students to locate different types of fresh seaweed/*caqallqaq*.
10. As fresh seaweeds (still attached with holdfast) are found confirm the seaweed's freshness and identity. Samples should be harvested by cutting off the top of the frond. Expert Dr. Dolly Garza explains: *When you are collecting, do not take all the seaweeds in one area. Selectively cut or 'thin' seaweeds. Rock should not be left bare of seaweeds, or covered with cut stipes, or you will be destroying important habitat. Few seaweeds will regenerate or grow back from the stipe. Usually the holdfast is encrusted with small shelled animals and is often tough and unpalatable. Leave the lower portion of the frond and holdfast to provide continued habitat for small animals.*<sup>iii</sup>
11. Place rinsed seaweeds in student buckets keeping like with like. Sea Lettuce is so fragile that may be best to wait to rinse it back at school in salted water.  
[Note: Field guide identification is easiest with the color photos in Garza's *Surviving on the Foods and Water from Alaska's Southern Shores*. Essentially all seaweeds are edible, some are just more palatable than others. The only poisonous variety is found in the tropics. As Janice Schofield says, "I know of none that taste good that could be hazardous."<sup>iv</sup>] Return to class with seaweed/*caqallqaq* samples, snails and chitons.

*Optional:* Popweed is one of the most common seaweeds and readily identified by its ‘poppable’ pouches. Dolly Garza suggests having students harvest the tips to avoid the pouches which can be slimy. Blanching the popweed by pouring hot water over it not only rinses off the salt water but produces an instantaneous electric green color which is a real crowd pleaser. The popweed can be eaten then and there.



Popweed

*Optional:* Share harvest “Thank You” song  
*Quyaanaa-naa-naa-ruq, culierat*  
*Quyaanaa-naa-naa-ruq, culierat*

*Auluklluta, nayurlurta, piturcesluta*  
*Una uritaq tuluku, lliiluku qutmen, amlercesluki neqpet*  
*Piturcesluki kukupet, ellitaa kukuit piturcesluki, cali*

*Quyaanaa-naa-naa-ruq, culierat*  
*Quyaanaa-naa-naa-ruq, culierat*

Thank you, please ancestry  
Thank you, please ancestry

Taking care of us, being with us, letting us eat  
This bidarki, take it, put it on the beach, make plenty our food,  
Let our children eat, let their children eat, again

Thank you please, ancestry  
Thank you please, ancestry

Lydia Robart, Port Graham Elder, 1947-2001<sup>v</sup>,  
Translated by Becky Norman, *Imam Cimiucia: Our Changing Sea*, p.78

## **Class II – Chitons and Snails**

1. Review vocabulary words for snail/*ipuk* and chiton/*urritaq* and where and when (low tide/*ken'aq*) they were harvested.
2. Describe how scientists and Elders worked together to understand how the availability of snails/*iput* and chitons/*urritat* has varied over the years.
3. Invite Elder/Expert to share memories of how chiton and snail harvests have changed in his or her lifetime. Remind students to listen carefully (*Niicugniluci!*).
4. Have Elder/Expert prepare and cook chitons/*urritat* and/or snails/*iput*.
5. Share Jessie Tiedeman quote about preparing bidarkis or 'gumboots' as she called them:  
*"I was taught to take cold water and put your gumboots in and let them come to a boil. As soon as they come to a boil, you got to have a mallet or a stick to squish and stir them around. When the black skin starts falling off that is a sign you gotta take them out. If you boil them too long they get tough. Your dad used boiling water and he says they were tough. It just takes a few minutes."* - Jessie Tiedeman<sup>vi</sup>
6. Distribute cooked chiton/*uhhitaq* and or snail/*ipuk* and invite student comments. How important was it for an Elder to help them?
7. Photograph students observing food preparation and trying same for final unit display.

## **Class III - Seaweed Drying**

1. Review with students the various types of seaweed/*caqallqaq* harvested on the field trip during low tide/. Explain that most seaweed aside from popweed (fucus) may be dried and used throughout the year as snacks and seasonings.
2. Check that seaweeds are adequately rinsed and help students to arrange seaweed to dry in the sun according to type as described in *Common Edible Seaweeds in the Gulf of Alaska*. Most can be placed on a table covered with an old clean sheet or, in the case of large brown seaweeds, hung from clotheslines.
3. Share quote from Jessie Tiedeman about seaweed preparation:  
*"My grandfather used to get seaweed.... I had seen my grandfather out at Makarka Point. He would pick it out of the water and drape it over the fence and let the sun dry it out. He would get a little smoke and smoke it. Then he would roll it up and chop it real fine. He would pack it in kegs with seal oil and he would put the cooked cockles on top. He would preserve it for the winter. In the winter time you would take that seaweed with the cockles and maybe get your smoked salmon. It was really a treat, you know, to eat smoked salmon. You would get the kelp too."*  
- Jessie Tiedeman<sup>vii</sup>



Seaweeds

4. Photograph students hanging/placing seaweed/*caqallaq* to dry for final unit display.
  5. Identify seaweeds with a marker and masking tape 'labels.'
- [Note: Garza observes that “as seaweeds dry you may see a powdery substance appear. The white powder is likely to be a salt or a sugar and is perfectly edible.”<sup>viii</sup> ]

*Optional:* Invite Elder/Expert/Community member to share taste of herring spawn on kelp.

#### **Class IV – Seaweed Roast**

1. Review seaweed/*caqallaq* types harvested and choose one to process by roasting according to directions in *Common Edible Seaweeds in the Gulf of Alaska*.
2. Invite Elder/Expert to describe identification and roasting process and to share any stories of how he or she learned to process and use seaweed/*caqallaq*. Listen (*Niicugniliuci!*)
3. Roast seaweed/*caqallaq* in oven for designated time.
4. Photograph roasting process for final unit display.
5. While seaweed is roasting review field trip experience with students and recall how many different tidal edibles were found.
6. Divide students into small groups and distribute Tidal Edibles cards. Challenge students to find the *bidarki/chiton/uhhitaq*; seaweed/*caqallqaq*; and snail/*ipuk* cards.
7. Discuss as a class: In what parts of the beach were the edibles found? Do students know or remember what use is traditionally made of these edibles? Were there still more foods to be found on the beach? [*Direct students to look at other Tidal Edibles cards.*] How did all these tidal foods help the Sugpiaq and Eyak peoples to decide that this was a good place to live? (*Lots of food available in places easy to reach – the beach.*)



Tatitlek from the Beach: Photo Courtesy of Leona Olsen

8. Divide the classroom into a giant ‘beach’ with the two intertidal zones: high tide/*tung’iq* and low tide/*ken’aq*, and half-tide. Distribute Tidal Edibles cards and challenge students to place them in their correct intertidal zone.
9. Distribute Tidal Recipe cards to small groups and challenge students to describe foods made with these subsistence resources.
10. Distribute roasted seaweed/*caqallaq* and invite student comments.
11. Photograph students trying seaweed for final unit display.
12. Which type of seaweed/*caqallaq* is most popular? How might it be used in recipes?

**Assessment:**

- Students observed an Elder/Expert locate tidal edibles.
- Students located and harvested tidal edibles.
- Students identified and processed seaweed for eating.
- Students matched tidal edibles with their distinct intertidal habitats.
- Students correctly pronounced the Sugt’stun or Eyak vocabulary.

<sup>i</sup> Jessie Tiedeman (Interview D. Kramer pp57-66). *Out of Our Time: The Storytellers: Oonechguk Edowchu*. Cordova High School Discovery Program, 1980. p.63 (Out of print)

<sup>ii</sup> Garza, Dolores A. *Surviving on the Foods and Water from Alaska’s Southern Shores*. Alaska Sea Grant, University of Alaska Fairbanks, 2007.

<sup>iii</sup> Garza, Dolores A. *Common Edible Seaweeds in the Gulf of Alaska*. Alaska Sea Grant, University of Alaska Fairbanks, 2012. p.6

<sup>iv</sup> Schofield, Janice J. *Discovering Wild Plants*. Portland, Oregon: Alaska Northwest Books, 2011. p. 250

<sup>v</sup> Salomon, Anne K., et al., *Imam Cimiucia = Our Changing Sea*. Alaska Sea Grant College Program, 2011. p.78

<sup>vi</sup> Jessie Tiedeman p.66

<sup>vii</sup> Jessie Tiedeman p.65

<sup>viii</sup> Garza, Dolores A.(2012) p.7

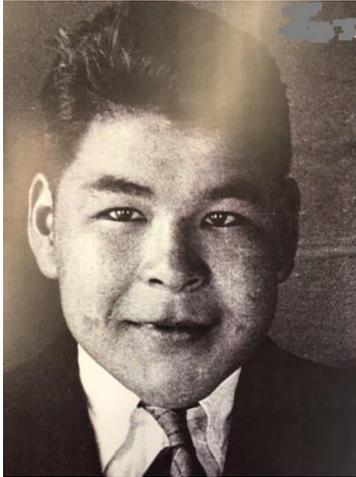


Irene Hanson clamming in Cordova: Photo courtesy of Native Village of Eyak

**FOOD FROM THE SEA: SEA LION SHARING GR: PREK-2 (LESSON 10)**

**Elder Quotation:**

“During the summer outing we would take a whole quarter of sea lion and find a nice clean gravel beach and bury it down in about a foot of gravel and build a fire over it and it was covered with hide. Then everyone would gather around and we would have a feast.”



Bobby A. Stamp<sup>1</sup> (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.)

**Grade Level: PreK-2**

**Overview:** Before the Russians arrived with their passion for acquiring sea otter pelts Native hunters focused their efforts on sea lions. Sea lions transform the energy they gain from eating into tremendous sources of protein for human consumption as well pelts ideal for covering bidarki frames and intestine casing ideal for rain parkas and more. The entire animal was used.

**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 are introduced to the transfer of energy from the fish that sea lions feed upon to their own growth as well as a subsistence food for us.

**Lesson Objectives:** Students will:

- Discuss the transfer of energy along the food chain.
- Identify subsistence foods provided by sea lion.
- Learn the Sugt’stun or Eyak vocabulary listed below.

**Vocabulary Words:** Sugt'stun Dialects

English:	PWS:	Lower Cook Inlet:	<a href="#">Eyak:</a>
Listen! (Directed to 3+)	<i>Niicugniluci!</i>	<i>Niicugniluci!</i>	
sea lion	<i>wínaq (pl: wínat)</i>	<i>wínaq (pl:wínat)</i>	k'umah
food	<i>neget</i>	<i>neget</i>	<a href="#">Giyah</a>
fish	<i>amartuq (1)</i> <i>amartuk (2)</i> <i>amartut (3+)</i>	<i>igallut (1)</i> <i>igalluk (2)</i> <i>igallut (3+)</i>	<a href="#">te'ya'</a>

**Materials/Resources Needed:**

- Access to web video projection screen
- Sea Lion/*Winaq* Handout (attached)
- Sea Lion Recipe Cards (Sea Lion Flippers; Sea Lion Neck (Bobby Stamp 24); Braided Intestines (Bobby Stamp 24); Kidneys (Bobby Stamp 24); Fried Sea Lion Liver (Qaqamiigux 114); Sea Lion Quarter in Earth Pit (Bobby Stamp 24,25); Sea Lion Roast (We Are the Land); Sea Lion Ribs (We Are the Land))

**Kit Library:**

- Stamp, Bobby A. *Chenega as I Saw it – It's People*
- Unger, Suanne. *Qaqamiigux: Traditional Foods and Recipes from the Aleutian and Pribilof Islands; Nourishing Our mind, Body and Spirit for Generations*

**Web Resources:****Sea Lion Facts**

- **Birth:** *Optional:* <http://www.sealion-world.com/galapagos-sea-lion-gives-birth/> (1:46) Birth of sea lion in front of Galapagos tour group
- **Following prey:** <http://www.sealion-world.com/hunting-with-sea-lions/> (6:28) Video of young sea lions learning to follow prey Sea of Cortez, then adults hunting 'bait ball' of small fish. Last 30 seconds is of marlin and whale hunting same fish.
- **Physical Traits:** <http://www.seaotter-sealion.org/stellersealion/index.html> seal vs. sea lion
- **Physical Traits:** <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

**Traditional Sea Lion Uses**

- [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) (Article attached)

### **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, please review with all of the students, ways to show respect for the Elder during their visit.

- Review sea lion data:

**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 the males sea lions become adults, they develop a mane of long, coarse hair. Steller sea lions are particularly agile on land and swim using their fore flippers. 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.

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

- Review attached article on traditional sea lion usage. (Turek, M. (2007, October). Traditional Uses of Steller Sea Lions. *Alaska Fish and Wildlife*.)

**Opening:** Food/*neget* is energy to help us grow and be strong. What do you eat that helps you to grow and be strong? (*Accept all answers but steer students towards nutritious foods.*) What food/*neget* do sea creatures eat to get energy to grow and be strong? (*Direct student answers towards concept of food chain: one species eats others to gain energy and in turn provides energy for another predator*). Today we'll study sea lions/*wínat* and what food/*neget* they to gain energy to grow and what energy grown sea lions/*wínat* can provide for us.

## **Activity**

### **Class I:**

1. It's easy to recognize an otter or a whale but telling a seal apart from a sea lion/*wínaq* is a little tricky. Show Smithsonian video (1:14) listed above describing differences. Remind students to listen carefully (*Niicugniluci!*).
2. Explain that like a seal, a sea lion/*wínaq* is a sea mammal. A mammal is a creature that is born alive from its mother and doesn't hatch out of an egg. Humans are mammals. Whales, porpoises, otter, seals, and sea lions/*wínat* are all sea mammals. Because they are mammals, all of their babies are born alive. Because they are alive, they need food/*neget* to eat to get energy to grow. *Optional:* Show Sea Lion Birth video (1:46) listed above.
3. Baby sea lions/*wínat* can swim soon after they are born but still have to learn how to hunt for their food/*neget*. What do they hunt for? (Sea lions are opportunistic feeders. *Any smaller fish they come across.*) Fish/*Amartut/Iqallut!*
4. Show Sea Lion Hunting video (6:28) listed above. Discuss how sea lions/*wínat* are part of the food chain. Eating fish/*amartut/iqallut* gives them the energy to grow large and healthy. This food/*neget* energy is transferred to people when they eat sea lion/*wínaq* so they can grow and be healthy. [*Note: Sea lion meat and organs are great sources of protein and minerals, particularly selenium & zinc - important for strengthening the immune system.*]
5. Show Sea Lion World 'Hunting with Sea Lions' video (6 minutes)
6. Introduce Elder/Expert and remind students to listen carefully (*Niicugniluci!*)
7. Invite Elder to describe how a sea lion/*wínaq* is hunted and all the ways that the Sugpiat traditionally shared and used the sea lion/*wínaq*.
8. Sea lions/*wínat* provides people with energy as food/*neget*. But how do you prepare sea lion to eat? Distribute recipe cards to students (4-6 each) and invite Elder to comment on particular recipes of interest.
9. Distribute Sea Lion/*Wínaq* handout OR project same onto video screen and have students match their recipe cards to the appropriate part of sea lion diagram.  
*Optional:* Have students color in parts of sea lion used for recipes
10. Invite the Elder to encourage and correct student work.
11. Review concept of energy transfer through eating prey in the food chain from fish/*amartuq/igallut* to sea lion/*wínaq* to human.
12. Save some worksheets for display at final lesson.

### **Assessment:**

- Students can describe the transfer of energy from fish to sea lion to human.
- Students can connect sea lion components to their uses as subsistence foods.
- Students correctly pronounced the 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 haul out. 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, on 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*

**FOOD FROM THE SEA: GUEST CHEF CHOWDER GR: PREK-2 (LESSON 11)**

**Elder Quotation:** “All my life, I depended on that shoreline. I would go down to the beach to collect anything to make chowder for that night’s dinner. If we needed food I knew where to get it. The beach provided for us.”

– Elenore McMullen, Elder and past chief, Port Graham, 2004<sup>i</sup>

**Grade Level:** PreK-2

**Overview:** Food from the sea is a major component of the traditional subsistence lifestyle. The Sugpiat 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 depends upon knowledge of what to harvest and how to prepare foods from the sea and continues to this day.

**Lesson Objectives:** Students will:

- Recognize how subsistence traditions have adapted to changes.
- Identify subsistence foods, their locations, and uses.
- Learn the Sugt’stun or Eyak vocabulary listed below.

**Vocabulary Words:** Sugt’stun Dialects

English:	PWS:	Lower Cook Inlet:	<a href="#">Eyak:</a>
Listen! (Directed to 3+)	<i>Niicugniluci!</i>	<i>Niicugniluci!</i>	
food	<i>neget</i>	<i>neget</i>	<a href="#">Giyah</a>
ocean	<i>imaq</i>	<i>imaq</i>	<i>lahdz</i> (forward, out to sea)
Enjoy! (Bon appetit!)	<i>Piturnertuq!</i>	<i>Nunaniklluku!</i> (Very good eating!)	

**Materials/Resources Needed:**

- Photos slate knives and water proof basket (See below)
- Hot plate, pot, cutting board, knife, ladle, stirring spoon, etc. for cooking demo
- Spoons, small bowls, napkins for class sampling

### **Kit Library:**

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

### **Web Resources:**

#### **Traditional Cooking Artifacts**

- <https://alaska.si.edu/> Sugpiaq artifacts including cooking baskets and knives held by Smithsonian

### **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 respectfully interact with the Elder during his or her visit. Elders are always served food 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.
- *Optional:* Invite parents to class to share what students have learned and chowder.

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

### **Activities:**

1. Introduce Elder/Guest Chef to the class and invite him or her to recall favorite tidal edibles and whether the food/*neget* was eaten raw, barbecued, smoked, dried, baked, or boiled. Remind students to listen carefully (*Niicugniluci!*).
2. Lead discussion on traditional ways to prepare food/*neget* from the sea/*imaq*:
  - Raw – known to be safe to eat without cooking (i.e., not crab or shrimp)
  - Barbecued – *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. Share photos of slate knives and water tight woven basket for cooking. (See below) Explain time and skill required to make knife and weave waterproof basket.
4. 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
5. Have Elder/Guest Chef describe and prepare chowder.
6. Invite students to describe ingredient origins and indicate any relevant photos on display.

7. Discuss and compare how the Elder/Guest Chef prepared this chowder differently from the time before metal utensils were adopted.
8. Serve and distribute bowls of chowder to any Elders present first and then to students.
9. Before everyone ‘digs in’ have Elder recite and teach an offering of thanks for the food/*neget* being shared.
10. Enjoy!/*Piturnertuq!*/*Nunaniklluku!*

**Assessment:**

- Students recalled subsistence foods, their locations and uses.
- Students compared traditional and adapted cooking methods and means.
- Students correctly pronounced the Sugt’sun or Eyak vocabulary words.

<sup>i</sup> Salomon, Anne K., et al. *Imam Cimiucia: Our Changing Sea*, Alaska Sea Grant College Program, 2011. p. 2

<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



Slate Ulu and Sharpener; Courtesy of Cordova Historical Museum



Slate Knife; Courtesy of Cordova Historical Museum



Cooking Basket, Mark King Collection; Courtesy of Ilanka Museum, Cordova