UNIT 6
TIDAL FOODS
Aguţim qaanţingin (E)
Aguţaţim qalgadangis (A)
Unangam Tunuu

To hear how these words are pronounced in Unangam tunuu, go to the Aleutian Pribilof Islands Association, Inc. website (www.apiai.org). Audio recordings can be found under the Head Start tab. In addition, Head Start classrooms have audio card readers with many Unangam tunuu words utilized in the curriculum. A glossary of Unangam tunuu is located in the appendix of this curriculum.

Bull kelp .......................................................... Tmagîx̂ (A)
Ribbon kelp .................................................. Qahngûx̂ (A)
Sea lettuce .................................................. Iiqûx̂ (E)/Iklux̂ (A)
Sea urchin .......................................................... Agûgnâx̂ (E/A)
Black chiton or bidarki ........  Kasiigûx̂ (E)/Kasuqîx̂ (A)
Limpet ........................................................  Chiiknâx̂ (A)
Octopus .................................................. Ilgaâgûx̂ (E)/Aaqanâx̂ (A)
Low tide foods, foods found on the beach ................................
Agûgim qaang̲gingin (E)/Agûgagim qalgadangis (A)
Beach .............................................................  Agûx̂ (E/A)
Clam .................................................................  Chalâx̂ (E/A)

Use Unangam tunuu during:

- Harvest Poster Activity
- Recipe and Nutrition Activity
- Coloring Pages
- Flash cards and labeling items in the classroom
Introduction to Tidal Foods

Tidal foods are an important part of the Unangan (E)/Unangas (A) diet today, though they played a much greater role in the past. Historically, people harvested tidal foods throughout the year, and they were highly dependent on these foods during the winter. February and March were typically months of food scarcity, so during these times people relied more on tidal foods that could be found on the beach at low tide.

Some of the more commonly harvested tidal foods include: octopus, sea urchins, seaweed, chitons, clams, mussels, crab, sea cucumber, and limpets. However, tiny snails, sea anemones, and other foods are sometimes harvested as well.

Main Points:

- In the past, tidal foods were harvested mostly in the winter when there was little access to other foods.

- Common foods harvested from the beach include: octopus, sea urchins, chitons, clams, mussels, seaweed, and limpets.

Use introductory information during:

- Harvest poster activity
- Recipe and nutrition activity
- Coloring pages
Tidal Foods Harvest Poster

Discussion Questions:

The tidal foods harvest poster may be used to introduce the tidal food lesson. Using the poster, group discussion questions may include:

- What is happening in this drawing?
- How is the Unangan (E)/Unangas (A) value “share” – Udigdada (E)/Udigida (A) shown in this picture?
- What kinds of food can you find at low tide? (clams, mussels, etc.)
- What do you think this saying means: “When the tide is low, the table is set?”

Unangam Tunuu:

- How do you say “beach” in Unangam tunuu? Aguũ (E/A)
- How do you say “sea urchin” in Unangam tunuu? Aguňnaũ (E/A)
- How do you say “chiton” or “bidarki” in Unangam tunuu? Kasiigũ (E)/Kasuqũ (A)
Tidal Foods
Nutritional Information

Many of the foods found on the beach at low tide are rich sources of protein, such as octopus, clams, crabs, and bidarkis. Even some seaweeds, such as bull kelp, contain protein. Why do we need protein? We need to eat foods with protein every day. Protein helps build muscles and organs. It also helps repair and replace muscles and organs so that our body can keep playing longer and growing stronger. Protein also helps little cuts heal.

Kelp and other seaweeds are also a rich source of dietary fiber. Why do we need dietary fiber? Dietary fibers are carbohydrates that cannot be digested. They are present in all plants that are eaten, including seaweed. Fiber helps our body break down foods, and it helps us go to the bathroom. Eating foods high in dietary fiber can also make us feel full.

Tidal foods are high in many minerals they absorb from the ocean, like iron. Why do we need minerals? Our bodies use minerals to perform almost every function in the body. For example, iron carries oxygen. Many foods from the beach are rich in minerals such as iron.

### Tidal foods

<table>
<thead>
<tr>
<th>Mineral</th>
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<td>Selenium</td>
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*contain 10% or more of the daily value of mineral per 3-ounce serving (based on a 2000-calorie diet). (USDA, 2012)
Kelp Chips Recipe

Seaweeds such as kelp are usually picked in the spring and summer. They can be harvested on land during low tides. Some larger seaweeds, such as bull kelp, can be picked into the fall and winter. Bull kelp (*Nereocystis luetkeana*) is a common edible seaweed found in the Aleutian and Pribilof Islands Region. It is one of the largest seaweeds in the North Pacific. Bull kelp grows up to 100 feet in length. It is golden to dark brown in color. Bull kelp grows below the low tide water line, and we usually only see the bulbs and blades. Both the stipe (stem) and blades (leaves) are edible. While the bulb is edible, it is not recommended in the recipe below.

Ribbon kelp (*Alaria Marginata*) is another common seaweed found in the region. It is also known as winged kelp. It is a large brown seaweed, and it is found on rocks at low tide. Ribbon kelp can grow up to more than 2 feet long and 2-8 inches wide in Alaska (Garza, 2005).

Bull kelp and ribbon kelp can be dried to make “chips.” These are similar to kale chips. The leaves are used in the kelp chip recipe. Kelp chips are a healthy snack that can be made out of a local food that is abundant in the Aleutian and Pribilof Islands Region.

Make sure that any kelp you are using is collected safely. Information on safely harvesting seaweed for consumption can be found in the book, “Common Edible Seaweeds in the Gulf of Alaska” by Dolly Garza. This book is available to view on-line for free.

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
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<tr>
<td>Approximately 2 ½ pounds of fresh bull kelp or ribbon kelp, washed and cut into pieces (may use more)</td>
<td>1. Harvest kelp from an unpolluted beach. Rinse it many times with salt water. Do not use fresh water. Drain off remaining water. Plan on drying kelp as soon as possible after cleaning.</td>
</tr>
<tr>
<td>2 ½ pounds gives ½ cup portion for 25 students based on USDA Food Buying Guide for Child Nutrition Programs (rehydrated wakame seaweed).</td>
<td>2. Cut bull kelp blades into smaller pieces.</td>
</tr>
<tr>
<td></td>
<td>3. Put in shallow pan in an oven at 125-175° F.</td>
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<td></td>
<td>4. If dried kelp breaks with a crunch, it is done. The chips should be salty enough from the natural salts and do not require any additional seasoning.</td>
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Makes 25 servings (serving size 1/2 cup, provides 1/2 cup dark green vegetable per USDA, CACFP meal pattern).

*Recipe adapted from “Kelp Chips” (Garza, 2005)*
Nutrition Activity

Materials needed:

- Ingredients for Kelp Chips (see recipe)
- Kids scissors
- Oven
- Large bowl
- 2 large baking pans
- Small bowls for students
- Paper towels

Directions:

1. Have students wash their hands.

2. Make sure the kelp has been pre-washed with salt water before preparing with class. Place kelp in large bowl.

3. Give each student a paper towel and a large leaf or blade of kelp (about the size of a sheet of 8 ½” x 11” paper or smaller).

4. Have the students discuss/describe the kelp.
   - What does the kelp look and feel like?
   - What does it smell like?
   - Kelp is a good source of fiber. Why is fiber healthy for our bodies?
   - Dried kelp is a great snack to eat- does it have a lot of sugar and fat? (No! Just fiber, minerals, vitamins, and protein)

5. Using hands or kids’ scissors, students can help cut or rip large pieces of kelp into smaller pieces if needed (about 1-2 inches wide and 4-6 inches long).

6. Place smaller strips of kelp onto baking pans. Spread kelp out on baking pan, and do not overlap.
   - Have students count how many strips are in baking pan.
   - Why is it good to not have the pieces overlap when baking and drying kelp?

7. Place cooking pans in oven at 125-175° F for approximately 5-10 minutes. If it breaks with a crunch, it is done.
   - How did people dry kelp in the past before we had ovens?
8. Once the bull kelp chips are done, let cool for 2 minutes.

9. Portion out recipe into equal sized portions at each table in the Head Start classroom. Have students help distribute bowls of kelp chips.

10. Encourage each student to take a ½ cup of dried kelp chips.

Group discussion questions:
While students are seated and sharing prepared recipe, topics to discuss include:

- What did you like best about making the kelp chip recipe?
- Why are kelp chips healthy? How are chips from the store the same or different?
- What are some other healthy ways you could prepare kelp and other seaweeds?
- Do you have a story about collecting foods from the beach at low tide?
Activity Extensions

CREATE

- Create or teach a traditional song or dance about tidal foods.
- Create a banner with the title “When the tide is low, the table is set.” Print out drawings of tidal foods and have students color and cut them out. Paste them on the banner and make a giant poster.
- Create an octopus with pipe cleaners, paper plates, and pasta: Fine Motor Octopus Craft for Kids (http://buggyandbuddy.com/fine-motor-octopus/).
- Create a wave bottle to observe water moving in waves: https://www.teachervision.com/science/wave-bottle.

COLLECT

- Collect shells at the beach. Bring them back and group them by size, shape, or color. Use the shells for crafts (painting, necklaces, and decorations).

INVITE

- Invite a family member to visit the classroom and talk about collecting tidal foods. Bring some of the items that might be used to harvest the tidal foods.
- Invite someone to the classroom to teach Unangam tunuu words related to tidal foods.
- Invite someone who is familiar with foods from the beach to the classroom. Take a walk to the beach at low tide and learn about different tidal foods.
- Invite a family member to the class to help prepare a traditional food recipe. Please see section labeled Volunteers on page 7 for guidance on having volunteers prepare food with students.

SHOW

- Show students the Traditional Harvest Poster. Discuss the appropriate harvesting method and/or tool utilized to acquire the traditional food.

See APIA website (www.apiai.org) under the Head Start tab for additional teaching resources related to traditional foods, such as: nutrition graphs, Unangam tunuu audio glossary, and digital stories.
Aguñax (ELA)

Sea Urchin
Chalać (E/A)
Clam

Kasiiğuøj (E)/Kasuqiŷ (A)
Black Chiton, Bidarki
Ilgaağıx (E)/Aaqanaaxios (A)

Octopus
Dear Family,

In this unit, we will study about tidal foods found in the Aleutian and Pribilof Islands Region and their nutritional value. The unit may include a group activity where we prepare a recipe using tidal foods. Information for this unit has been adapted from the book, “Qaqamiígûx: Traditional Foods and Recipes from the Aleutian and Pribilof Islands.”

The Head Start Program welcomes and encourages your participation in the classroom and your child’s education. Please consider volunteering your time in the classroom for this unit. Contact Head Start staff to:

- Visit the classroom and talk about collecting tidal foods. Bring some of the items that might be used to harvest the tidal foods.
- Teach Unangam tunuu words related to tidal foods.
- Coordinate a walk with students and Head Start staff to show students different tidal foods.
- Help prepare a traditional food recipe.
- Teach a traditional song or dance about tidal foods.

**Request for Donations of Food**

- We do not need any foods donated for this unit.
- We are requesting donations of food for this recipe.

We are in need of ______ (amount) of ________________ (type of food) in order to prepare the following recipe in class: __________________________________________________.

Aquatic plants and other foraged beach foods are welcomed as donations. Aquatic plants (such as seaweed) should be donated in their gathered form, either fresh or frozen. This means that they should not be mashed or jarred. Please note that all donations must be determined safe for human consumption. Note that we cannot accept donations of any molluscan shellfish such as clams or mussels. You may be asked questions regarding how the beach food was collected, transported, and stored to prevent contamination, undesirable microbial growth, or deterioration.

Thank you! Qaغاaasakung (E); Qaغاalaku ($) (E-Pribilofs); Qaغاasakuq (A)
Tidal Food recipe to try at home:

Badarki Hash
Recipe by: Martha Ann Holmberg (Unalaska Sisterhood of Holy Ascension of Christ Orthodox Cathedral, 1968-1976)

Ingredients
5 cups badarkies
2 small onions
½ teaspoon salt
½ teaspoon Worcestershire
4 medium-sized potatoes
6 slices bacon
¼ teaspoon pepper

Directions
Boil badarkies and clean. Grind badarkies, potatoes, onions, and bacon. Season and bake one hour in casserole dish at 400 degrees.

Nutritional Information about Tidal Foods:

Please help reinforce the nutritional information about tidal foods with your child during this unit.

Nutrition Fact:

Many of the foods found on the beach at low tide are rich sources of protein, such as octopus, clams, crabs, and bidarki. Even some seaweeds, such as bull kelp, contain protein.

Many foods from the beach are also rich in minerals such as calcium, selenium, zinc, calcium, and iron.

Tidal foods are a source of:

- **Protein** - helps build muscles and organs and repair them.
- **Dietary fiber** - helps our body break down food, can make us feel full.
- **Vitamins (A, B, & C)** - B vitamins give our body energy. Vitamins A and C help to keep us healthy.
- **Minerals (calcium, iron, magnesium, phosphorous, potassium, and zinc)** - Our body uses minerals to perform almost every function in the body.

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