

Alaska Native Transition Skills

Salmon—Our Way of Life

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University of Alaska Anchorage Center for Human Development
2022 (Updated in 2025)

Developed for Kodiak area Alaska school districts to show how traditional Indigenous skills can be supported and integrated into transition planning for youth with Individual Education Plans (IEPs). These materials are meant to be adapted and used throughout Alaska.

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Land Acknowledgments: Rain Van Den Berg would like to acknowledge that this curriculum was written on the unceded territories of the Sheek’á Kwáan on Lingít Aaní, also known as Sitka, Alaska. She acknowledges that Lingít (Tlingit) peoples have been stewards of the land on which she works and resides since time immemorial, and she is grateful for that stewardship and incredible care.

Gwen Sargent expresses her sincere gratitude and deep love to her Alutiiq Ancestors and relatives for their continued stewardship of the lands and waters of Kodiak, and to all Alaska Native people across the state that have lived in balance and respect in their Indigenous homelands since time immemorial.

About the Authors

Gwen Sargent (Alutiiq) was born and raised in Kodiak, Alaska. She is the daughter of Walter Sargent, Jr. and the late Metha Hansen, and the granddaughter of the late Jennie Heitman and Walter Sargent, Sr. She has one son, Josh, and a granddaughter Kaleeah. Gwen is the Tribal Vocational Rehabilitation Administrator for the Kodiak Area Native Association and makes Kodiak her home.

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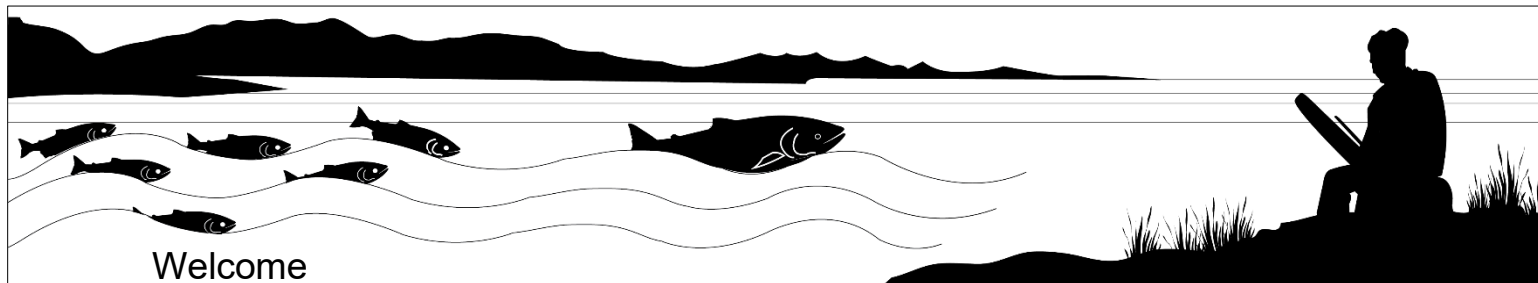
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Cama'i,

My name is Gwen Sargent and I was born and raised in Kodiak, Alaska. Both maternal and paternal sides of my family have long relied on salmon either for subsistence and sustenance or through commercial fishing.

It wasn't until I lived in the remote village of Old Harbor for eight years, on the south end of Kodiak Island, that I realized the connection Sugpiaq peoples have to salmon. In early spring around mid to late June the Nikliq (sockeye salmon) start to show up. By this time our store of salmon from the previous summer is either gone or near gone and we are all eager to taste that first fresh salmon! Tradition is that you always give your first catch of the season away so that the sea will continue to bless you with a generous subsistence harvest throughout the summer into the fall months.

Subsisting as a family and community is important. It brings people together, and traditional knowledge is shared and passed to the younger generation. This curriculum allows for this important information to be shared in a school setting and prompts discussions with others within the family and community in perpetuating subsistence practices.

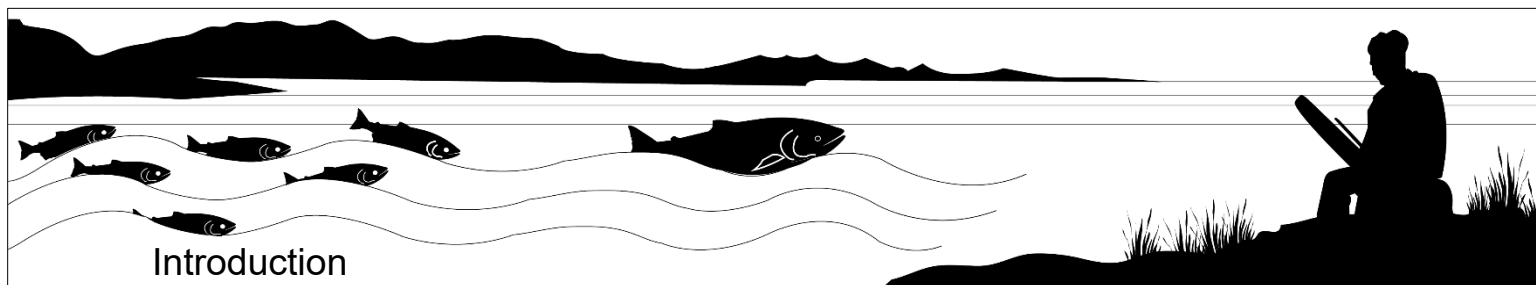
For students with IEP's, including their regional Tribal Vocational Rehabilitation (TVR) Program counselor in transition planning is important as they are a great resource when the student begins the search for employment in their home community post-high school.

Honing in on subsistence skills by use of this curriculum while in school will give them an advantage if they choose subsistence as an employment goal through Tribal Vocational Rehabilitation. Subsistence activities are considered a form of self-employment and can be combined with other forms of employment to form a person's employment goal.

Quyanaa,

Gwen Sargent

2022



In this unit, we explore the salmon fishery and the importance of salmon to the Alutiiq/Sugpiaq people. Through learning stories and activities, we will explore ways to participate in subsistence fishing and career opportunities in the fishery including commercial, aquaculture, and fisheries management. Key skill building lessons for working in the fishery include five important knots to know, how to identify the five species of Pacific salmon, and working as part of a team.

Each lesson shows the connection between the Alutiiq/Sugpiaq cultural values and the ideas in the lesson. The second unit in this regional curriculum is *Indigenous Leadership Skills* which explores building core leadership skills informed by Indigenous perspectives.

The purpose of this curriculum project is to improve the quality of life, connection to local community, and increase work related skills for teens and young adults with disabilities who live in rural Alaska. It is meant to provide guidance in how Indigenous values and knowledge can be incorporated into Individual Education Plans (IEPs) for youth who experience disabilities as part of their required transition goals. The skills are meant to create options for youth with disabilities to engage in their communities and culture as they transition to adults. Though each chapter of this project ties to the cultural values and topics of a specific region of Alaska, the skills can be used and adapted more broadly. The project includes two curriculum units for each of the five regions of Alaska. Cultural stakeholders were involved in the selection of topics for each region. All content has been reviewed by culture bearers, and any cultural information shared is included with permission. **For examples of transition plan goals and how to include these skills in an IEP transition plan, read the guidance for use section of the [2019 units](#) and the [Alaska Native Post-Secondary Transition Skills: Create Meaningful IEP Transition Plans](#) (2024, Rain Van Den Berg and Frances Gage).**

To access downloads of all units, visit <https://sesa.org/resources/educational/alaska-traditional-transition-skills/>.

Alaska Cultural Standards: Each lesson is tied to the Alaskan Cultural Standards developed by the Alaska Department of Education and Early Development. A summary document of these standards is included in the appendix.

Each lesson has these components:

- Overview
- Link to Alaska Cultural Standards
- Link to Alutiiq/Sugpiaq traditional values
- Learning objectives
- Materials including commercial resources (websites, videos, books)
- Vocabulary used in the lesson
- Activities (with adaptation ideas for different abilities)

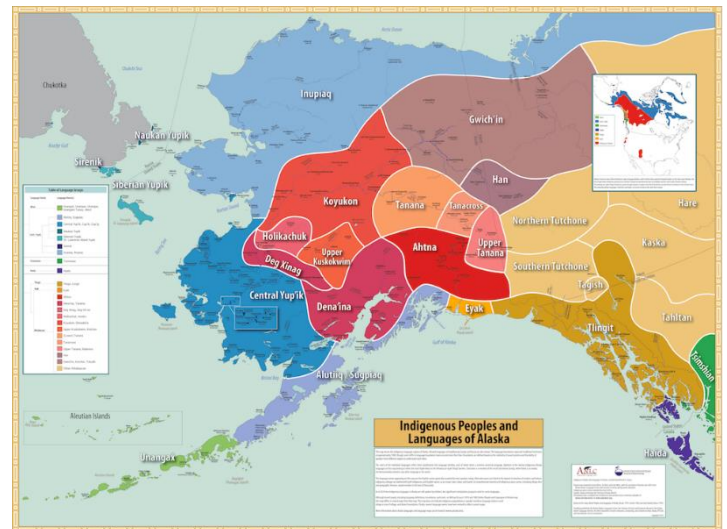
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- Learning stories
- Evaluation
- Additional resources for the teacher (links, references, videos)
- Student handout(s)
- Instructor handout(s)/teaching tools

Alutiiq/Sugpiaq Traditional Values: Each lesson is tied to local Indigenous values. Suggestions are made of which values to highlight, along with discussion points. These values are the foundation for learning the skills presented. The values can be discussed as they relate to the learning stories, how guest speakers model the values, or how the values motivate the learning of these skills. Incorporation of this aspect can help students connect to cultural values and traditions, and build more meaningful ties to their culture as the students move to adulthood. The values listed are those found on Alutiiq Education website:

<http://alutiiqeducation.org/html/home/earth.php>

Traditional Lands of the Alutiiq/Sugpiaq peoples. You can better understand the traditional Indigenous lands of Alaska through study of the Alaska Native Languages map. Here you can see the traditional lands of the Alutiiq/Sugpiaq peoples in purple tones. This map is a good way to understand the inherent diversity of people, cultures, languages, and traditions within the Indigenous peoples of Alaska. Visit this interactive version of the map online: <http://www.alaskool.org/language/languagemap/index.html>



Social Skill Development: There are many opportunities through the lessons to intentionally practice social skills that will support developing skills of empathy, reciprocity, independence, and confidence. Practice how to speak respectfully to an Elder or culture bearer who comes as a guest, and practice helping each other during the activities. These are core skills to being part of a community, and will serve the student well in their adult years. [These skills relate to the Alaska Content Standards: Skills for a Healthy Life.](#)

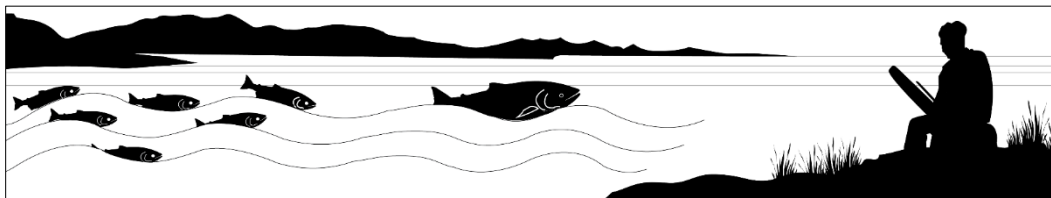
Goal Setting: Goal setting and problem solving are key skills for young adults as they navigate transition. The steps of setting a goal, knowing the actions you will take to achieve it, and reflection on reaching the target are key to effective goal setting. Knowing how to set achievable goals is an important way to build self-efficacy, confidence, and independence. The structure of the lessons reinforces goal setting skills by being transparent to the students about the learning objectives and how the learning objectives will be met. Every lesson also contains a

brief reflection on what they learned in the lesson, and if the learning objectives were met. The lessons always start by asking what the students already know so that the content can be tailored to build on the individual experience level of the students.

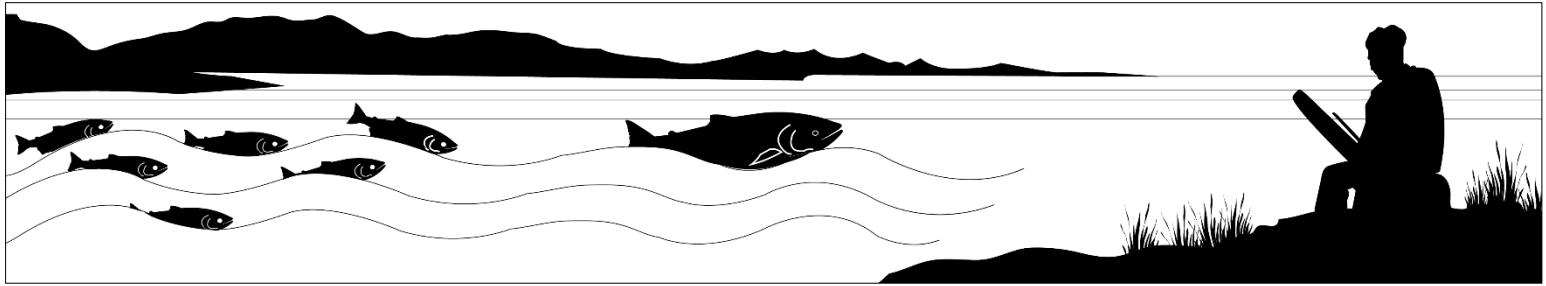
Learning Stories: Indigenous ways of teaching and learning depend on stories passed down from the Elders to the next generations. Bringing in culture bearers, Elders, and other kinds of experts can bring the content to life and make it more memorable. Having the students share stories can be important for connecting content to their personal experiences. You can find excellent guidance for how to invite an Elder or culture bearer in the classroom in the introduction to the *Predicting Weather* curriculum on page 3 (accessed 4/1/22):

<http://ankn.uaf.edu/Curriculum/Units/PredictingWeather/PredictingWeather.pdf>

Note about the Header Image



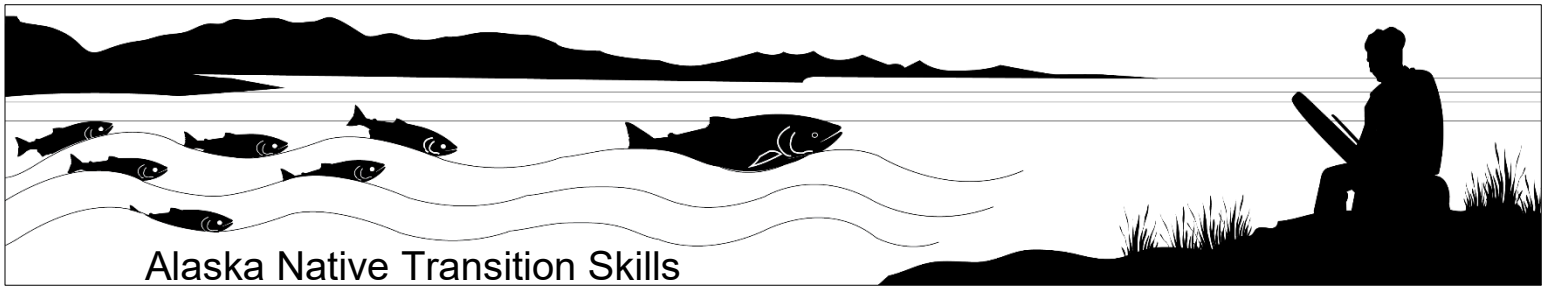
This image shows an Elder drumming and the salmon returning, as if they are listening to his song. The image represents the relationship and connection the Alutiiq/Sugpiaq peoples have with the Land, the seasons, and to the Ancestors. Developed with culture bearer input by Rain Van Den Berg for use in this curriculum.



Salmon: Our Way of Life

This unit explores traditional and current practices to sustain the salmon fishery and careers and skills for students who are interested in subsistence fishing, commercial fishing, aquaculture, and fisheries management.

Lesson	Related Handouts
1. Introduction	
2. Living Our Values Through Traditional Harvest Lifeways	<i>Alutiiq/Sugpiaq Traditional Tribal Values</i> student handout Teacher resource: <i>Traditional Alutiiq Subsistence Values Compass Activity</i>
3. Sustaining the Fishery: Subsistence, Commercial and Sport	<i>Managing for Sustainability Activity</i> Teacher Resource
4. Subsistence Techniques and Traditions	<i>When Do the Salmon Run?</i> Student Handout <i>Subsistence in Alaska</i> Teacher Handout Extension: <i>Set Net Gear</i> Student Handout
5. Commercial Fishing in Alaska	<i>Commercial Fishing Learning Story</i> Student Handout
6. Aquaculture	<i>Rearing Salmon at a Hatchery</i> Student Handout
7. Aquaculture and Fish Tech Jobs	
8. Skills: Five Important Knots to Know	<i>Five Important Knots</i> Student Handout
9. Skills: How to Identify Salmon	<i>Salmon Sorting Cards</i> Teacher Resource Alaska Fish and Game Identification Guide
10. Skills: Working as Part of a Team	<i>Salmon Sorting Game</i> Teacher Resource



Alaska Native Transition Skills

Salmon: Our Way of Life Introduction

Overview

Salmon have been a critical part of the life-sustaining gifts from the Land for the Alutiiq/Sugpiaq peoples since time immemorial. In this lesson, students will learn about the importance of salmon both past and present. The types of salmon and subsistence use of salmon will be introduced. A history of when commercial and outside interests entered the region will also be discussed.

Alaska Cultural Standards (See appendix for corresponding standards)

- A1, A3, A4, A6, B2, C1, E2

Alutiiq/Sugpiaq Values

- Land - nunapet
- Stewardship - nunapet carlia'arluki
- Subsistence - unguwacirpet
- People - suupet
- Elders - cuqlipet
- Family - ilaapet
- Learning - liicirpet
- Language - Sugt'stun niuwacipet
- Humor - englarstaisngukut
- Spirituality - agayumaukut
- Sharing - ilakuisngukut
- Trust - sugtanartukut
- Respect - ling'aklluki

Learning Objectives

The student will be able to:

- List the five species of salmon we have in Alaska and in the Kodiak region.
- Describe how salmon have been key to the thriving of the Alutiiq/Sugpiaq peoples.
- Describe when commercial interests and outside management of the fishery came to the Kodiak area.

Materials

- *AK Salmon Fishing Guide* can be accessed at <https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>

Vocabulary

Commercial	Done for business or to make money.
Indigenous	Refers to the social norms, belief systems, traditions, values that are held and practiced by the original people native to a specific place. In this curriculum, it refers to the Alaska Native peoples, with specific examples from Alutiiq/Sugpiaq peoples.

Salmon	A large edible fish that is much prized for its pink flesh. Salmon mature in the sea but migrate to freshwater streams to spawn. There are five types of Pacific Salmon, all found in Alaska: King (Chinook), Red (Sockeye), Pink (Humpy), Dog (Chum) and Silver (Coho).
Sport	Done for pleasure, recreation, or competition.
Subsistence	Subsistence is when you harvest from the Land the food and other resources you, your family, and your community needs. It also can be an important way to connect to the Land, to community, to the Ancestors, and to a sense of spirit and belonging. State and federal laws define subsistence uses as the “customary and traditional uses” of wild resources for food, clothing, fuel, transportation, construction, art, crafts, sharing, and customary trade.

Activities and Adaptations

- **Share the goal of today’s lesson:** “Today we are going to start some lessons on salmon and how important salmon have been for the Alutiiq/Sugpiaq people today as well as in the past. Harvesting salmon for subsistence is an important way to feed your family and members of the community, to connect with the Land, your culture, and the Ancestors. There are also many kinds of work that are related to salmon such as commercial fishing, working in a hatchery, or working in fish and game management. To learn about this, we will share ideas and learn about the types of salmon in our area using a handout. By the end of this lesson, you will be able to list the five species of salmon we have in Alaska; describe how salmon have been key to the thriving of the Alutiiq/Sugpiaq peoples; and describe when commercial interests and outside management of the fishery came to the Kodiak area.”
- **Begin by finding out what students already know by asking the following questions:**
 - What are the five types of salmon found in the Kodiak area? You may know the 5 kinds by different names. *[King (Chinook)/ iiliksak; Red (Sockeye)/ niklliq; Pink (Humpy)/ amaqaayak or luuqaanak (Karluk); Dog (Chum)/ alimaq; and Silver (Coho)/ qakiiyaq.]*
 - How have salmon been important to the Alutiiq and Sugpiaq people in the past? *(Salmon were a reliable food source that could be harvested and preserved to feed the people and help them thrive on the Land.)*
 - What does subsistence fishing mean? *(When people catch fish to feed themselves, their families, and community members. Participating in cultural traditions. Connecting to the Land. Working as a family to preserve food to sustain and thrive.)*
 - What does commercial fishing mean? *(When people catch fish to sell them to buyers that take them to sell in other places. Fishing to make money. Fishing as a business.)*
 - What is sport fishing? *(Fishing for pleasure or recreation.)*

- How many of you have participated in subsistence, commercial, or sport fishing? What kind of salmon did you catch?
- Who manages the salmon fishery now, and makes rules about subsistence, commercial, and sport fishing? *(The Alaska Department of Fish and Game studies fish returns and the amount of fish being caught in each area to help determine the amounts that can be harvested while keeping the fish population healthy. Other groups such as Tribal organizations are also involved with decisions about managing the fishery.)*
- **Connect the Alutiiq/Sugpiaq Values of today's lesson with the objectives—**
 - People—suupet—*We work together to care for members of our community.*
 - Stewardship—nunapet carlia'arluiki—*We harvest from the Land with gratitude. We only take what we need for our families and community members. We preserve the foods and take care of them so that nothing is wasted. This shows respect to the Land.*
 - Subsistence “Our way of being alive”—unguwacirpet—*“A subsistence lifestyle is respectful and sustained by the natural world.” We have a relationship with the Land where we care for the Land, and the Land takes care of us.*
 - Sharing— ilakuisngukut—*We work together and share with the Land has provided to keep our communities strong and healthy.*
- **Five types of Alaska Pacific Salmon:** Using the *AK Salmon Fishing Guide* discuss each type of salmon, the two English names it has, and identify some features that can give you a clue about which type a salmon is. The guide can be accessed at: <https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>
This is just the introduction to the 5 types, more on specifics of identification will be found later in the unit.

Here are the 5 types of Pacific salmon that we have in the Kodiak area with their Alutiiq/Sugpiaq name. Each of the 5 kinds is commonly called by two different names in English. (The Alutiiq names are from <http://www.alutiqlanguage.org/dictionary>)

Type of salmon	Other common name	Alutiiq name
King	Chinook	<i>iiliksak</i>
Red	Sockeye	<i>niklliq</i>
Pink	Humpy	<i>amaqaayak or luuqaanak (Karluk)</i>
Dog	Chum	<i>alimaq</i>
Silver	Coho	<i>qakiiyaq</i>

Common ways to identify the fish can include looking at their overall size, the shape of the head, the thickness of the area below the tail, the eye color, the size of the scales, the presence of spots and where they are, and the color of the mouth and gumline. When you are fishing, it is good to know the kind of salmon you have, as you might choose to process it differently depending on what you have caught. If you are working on a commercial boat, it is important to be able to sort salmon by the type

they are, as the salmon are worth different amounts of money. There are also rules about the size and numbers of king salmon you can keep, so it is important to know which kind, and what rules apply.

- **For thousands of years, the salmon have fed the Alutiiq people and provided nutrients for the Land:** The Ancestors developed ways to catch and preserve salmon as one of the many good foods the Land provided to feed the people. The people caught the fish that returned from the ocean by spearing them when they returned to the rivers. They smoked and dried them, and enjoyed them throughout the winter months. When the salmon die and break down after they spawn, those nutrients feed the trees and other life along the rivers.
- **Things look very different now:** In 1867, American fish processors opened several fish salteries after the U.S. bought Alaska from Russia. The first two canneries started in 1878. By the 1930s, more than 150 plants were running in the summers. There were no regulations. Soon many damaging fish practices were being done, including blocking off streams and dipping out all the fish. Fish traps also quickly captured all the salmon in an area, which caused a lot of waste and took more than the Land could provide. Once Alaska became a state, protections were put in place and things started to improve. The constitution has a natural resource management section, and requires that the resources are managed for all to use, in a way that will continue into the future (sustainable). Unfortunately, even with this section in the constitution, Alaska Native people have had to advocate through the courts to maintain and restore important rights to practice traditional subsistence ways. It took decades of court battles led by Katie John (Ahtna Athabascan) and others to restore subsistence rights that were taken away.
- **Opportunities to find work and a career in the salmon fishery:** There are many different kinds of work and careers related to the salmon fishery. You can participate in traditional subsistence activities to feed your family and community members. You can work in commercial fishing as a crew member or skipper. You can work at a hatchery to help keep the salmon fishery strong. You can work as a researcher or biologist that works to keep the fishery strong. We will explore these opportunities later in this unit.

Learning stories

- Ask the students to share their experience harvesting, preparing, preserving, and enjoying salmon. What are their experiences, and those of family members? Do they know people who commercial fish? Have they participated in family efforts to harvest and preserve salmon for the year's food supply? How did they do it? You can build on this as the unit progresses.
- Invite a local Alaska Native leader, Elder, or culture bearer to share a traditional story or a personal story about the importance of salmon to the Alutiiq and Sugpiaq people, and to teach the pronunciation of the Alutiiq names for the 5 types of salmon.

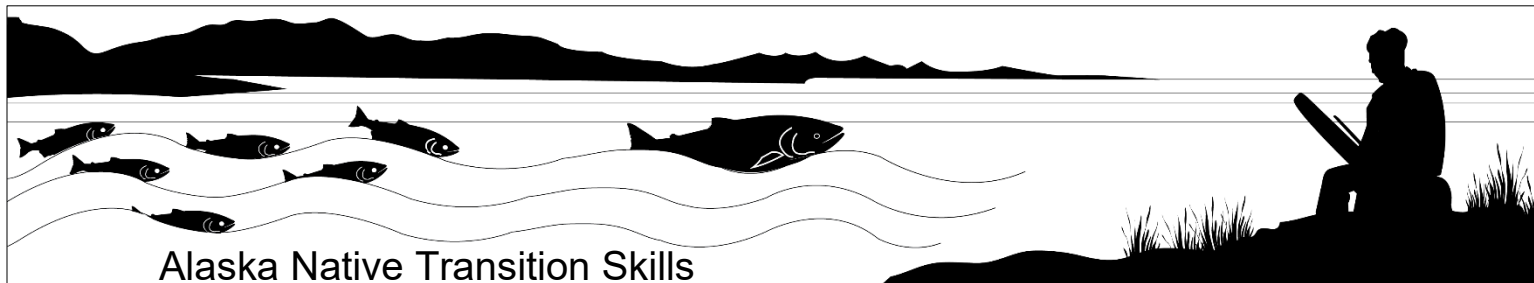
Evaluation

At the end of the lesson, ask the students these questions:

- What are the 5 types of salmon? What are the two common English names? What is the Alutiiq name?
- How have salmon been important to the Alutiiq/Sugpiaq peoples?
- When did commercial interests and outside management of the fishery come to the Kodiak area?

Additional Resources

- *The Salmon Way: An Alaska State of Mind* by Amy Gulick (2019) This beautiful book has great information about salmon and what salmon mean for Alaskan people. Beautiful pictures of fish, people fishing, and a good supplement to the unit. Though the author is white, she has many interviews, photographs, and historic photos with Alaska Native peoples from around Alaska. Available through Alaska Interlibrary Loan. [https://ilc-web.uaa.alaska.edu/client/en_US/asl/search/detailnonmodal/ent:\\$002f\\$002fSD_ILS\\$002f0\\$002fSD_ILS:5150151/ada?qu=the+salmon+way&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A5150151%7EILS%7E1&h=8](https://ilc-web.uaa.alaska.edu/client/en_US/asl/search/detailnonmodal/ent:$002f$002fSD_ILS$002f0$002fSD_ILS:5150151/ada?qu=the+salmon+way&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A5150151%7EILS%7E1&h=8)
- *Salmon Summer* by Bruce McMillan (1998): Though this is a children's book, it has great pictures and is specific to the Kodiak area. It is a photo essay describing a young Alaskan Native boy fishing for salmon on Kodiak Island as his Ancestors have done for generations.
- Alaska Fish and Game site on Subsistence: <https://www.adfg.alaska.gov/index.cfm?adfg=subsistence.definition>
- Alaska Fish and Game Subsistence fishing information for Kodiak area: <https://www.adfg.alaska.gov/index.cfm?adfg=ByAreaSubsistenceKodiakIS.main>
- Alaska Fish and Game Sport Fishing information: <https://www.adfg.alaska.gov/index.cfm?adfg=fishingSport.main>
- *Subsistence Fishing in Kodiak* by Hanna Clary (3:38): Student film shows some historic photos and gear used for fishing for salmon. Introduces the idea of competing interests to manage the fishery. <https://www.youtube.com/watch?v=U4l69UTcaCY>



Alaska Native Transition Skills

Living Our Values Through Traditional Harvest Lifeways

Overview

In this lesson, students will learn about the values of the Alutiiq/Sugpiaq peoples, and how participating in subsistence or “traditional harvest lifeways” connects you to others, the Land, and the Ancestors. “Traditional harvest lifeways” is what some Elders have requested to call the wholistic approach to living in relationship with the Land (<http://alutiiqeducation.org/html/home/earth/subsistence.php>).

Alaska Cultural Standards

- A1, A4, A6, B2, B3, C1, D5, E8

Alutiiq Values

- | | |
|---------------------------------------|-----------------------------------|
| • Land - nunapet | • Language - Sugt'stun niuwacipet |
| • Stewardship - nunapet carlia'arluki | • Humor - englarstaisngukut |
| • Subsistence - unguwacirpet | • Spirituality - agayumaukut |
| • People - suupet | • Sharing - ilakuisngukut |
| • Elders - cuqllipet | • Trust - sugtanartukut |
| • Family - ilaapet | • Respect - ling'aklluki |
| • Learning - liicirpet | |

Learning Objectives

The student will be able to:

- Define what a “value” is.
- Explain why the traditional tribal values are important to the Alutiiq/Sugpiaq peoples.
- Discuss the Alutiiq/Sugpiaq values that tie directly to stewardship and relationship with the Land through an activity.
- Describe how participating in subsistence fishing activities connects you to the Land, your community, and your Ancestors.

Materials

- *Alutiiq/Sugpiaq Values* student handout
- Teacher resource: *Alutiiq/Sugpiaq Values Compass Activity*

Vocabulary

Honor To hold something or someone in high regard and to act respectfully.

Leader	There are many ways to be a “leader”: Commonly, a leader is a person who is in charge of a group or organization. Leaders can also be a person who inspires others through their ideas, actions, and words; a person who others look to for advice and guidance; and a person who coordinates and directs others to work toward a shared goal or vision.
Respect	A positive feeling or action shown toward someone or something that is seen as important. It is also showing care and concern for their needs or feelings.
Stewardship	Taking care of something that has been given to you to be responsible for.
Subsistence	Subsistence is when you harvest from the Land the food and other resources you, your family, and your community needs. It also can be an important way to connect to the Land, to community, to the Ancestors, and to a sense of spirit and belonging. State and federal laws define subsistence uses as the “customary and traditional uses” of wild resources for food, clothing, fuel, transportation, construction, art, crafts, sharing, and customary trade.
Traditional	The holistic, practical, and common knowledge that has been gathered over thousands of years of observation and interaction with the land; it is passed on from generation to generation through practice, oral stories, dance, and art.
Value	Standards and beliefs that you live by.

Activities and Adaptations

- **Share the goal of today’s lesson:** “Today we are going to learn more about the traditional values of the Alutiiq/Sugpiaq people of Alaska and how participating in subsistence activities is an important way to connect to traditional values. Values are the standards and ideas that guide how you are and what you do in the world. They are like a compass that you carry inside of you, that help you know how to be and act in your life. When we show respect for the Land, spend time on the Land, and harvest from the Land, we participate in a relationship that ties us to the Land, our people, and the Ancestors. To learn about this, we will do an activity and share ideas. By the end of this lesson, you will be able to: define what a value is; explain why traditional tribal values are important to the Alutiiq/Sugpiaq people; discuss the Alutiiq/Sugpiaq values that tie directly to stewardship and relationship with the Land through an activity; and describe how participating in subsistence fishing activities connects you to the Land, your community, and your Ancestors.”
- **Begin by finding out what students already know by asking the following questions:**
 - What is a value? (*A rule or guide for what you think is important.*)
 - What are some examples of traditional values important to the Alutiiq/Sugpiaq people? (*Use any from the handout...*)
 - Why are values important? (*They are guides on how to live as our Elders and Ancestors would want us to live to be healthy and strong.*)

- Which of the values tie to subsistence and traditional harvest lifeways? (*All of them can relate in some way, but the values of the Land, Subsistence, Sharing, and Stewardship are specifically about this.*)
- **Connect the Alutiiq Values of today's lesson with the objectives—**
 - People—suupet—*We work together to care for members of our community.*
 - Stewardship—nunapet carlia'arluki—*We harvest from the Land with gratitude. We only take what we need for our families and community members. We preserve the foods and take care of them so that nothing is wasted. This shows respect to the Land.*
 - Subsistence “Our way of being alive”—unguwacirpet— *“A subsistence lifestyle is respectful and sustained by the natural world.” We have a relationship with the Land where we care for the Land, and the Land takes care of us.*
 - Sharing— ilakuisngukut—*We work together and share with the Land has provided to keep our communities strong and healthy.*
- **“Traditional Harvest Lifeways”** is a way some Elders describe the subsistence lifestyle. “It is a pervasive, all-encompassing way of life where its practitioner maintains a regular interdependency with the natural world, living off the land, as a source for food, shelter, clothing, transportation and fuel, through hunting and gathering practices used to gather and process resources firsthand as passed down through the generations. However, this way of life is integrated into a person’s overall way of being and touches all aspects of life: spiritual, mental, ethical, physical and emotional and social.” This goes beyond merely engaging in resource gathering, which the term “subsistence” often is used to describe. (Source: <http://alutiigeducation.org/html/home/earth/subsistence.php>)
- **Introduce the Alutiiq/Sugpiaq Traditional Values and read through the handout/ website.** Briefly talk about each one, and a little bit about what it means. Depending on the students you are working with, you can also visit and explore the Alutiiq values, organized into the “spheres” of physical, social, cognitive, spiritual and ethical starting with the physical sphere at <http://alutiigeducation.org/html/home/earth.php>.
- **Values Activity:** Note: This is adapted from the Alutiiq/Sugpiaq Values activity found in the *Indigenous Leadership Skills* Unit. Here, examples are focused more on subsistence and stewardship.
 - Give each student a copy of the compass handout. Before the activity, cut out the action and decision point cards, and give each student a set. (If appropriate, you can let the students cut out their own cards, to simplify prep.)
 - Students can work in pairs or individually. An action or decision card is drawn, and set in the middle of the compass. The student then thinks about which values are connected to that action or which values would help them decide what to do in that situation. There are no wrong answers. The purpose of the activity is to help make the ideas a little more concrete, give practice with application, and to help them connect more meaning to the specific values.
 - For the decision cards, students can discuss what they would do in that situation, and how their values help them decide what to do.

- Depending on the students, this could also be printed as a large poster, with bigger cards, and then done as a whole group.
- **Activity: *Sun’aq Ethics of Harvesting***—Describes 10 ethics of harvesting that are in line with traditional values. You can read and discuss them, or have the students pick one and share a story that is related to that ethical behavior. <https://www.sunaq.org/special-projects/sunaq-ethics-of-harvesting>

Learning stories

- Invite a local Alaska Native leader, Elder, or culture bearer to participate in the values activity, and share how traditional harvest lifeways (subsistence) relate to traditional values, and why these are important to people in your community.
- Discuss the importance of sharing what is harvested from the Land. Have the students done this or seen others do this? Many people believe that you must share the first of something each year with others (such as your first salmon or berries). Many believe this is important for strengthening the community, as well as helps ensure that the Land will continue to provide food to you.

Evaluation

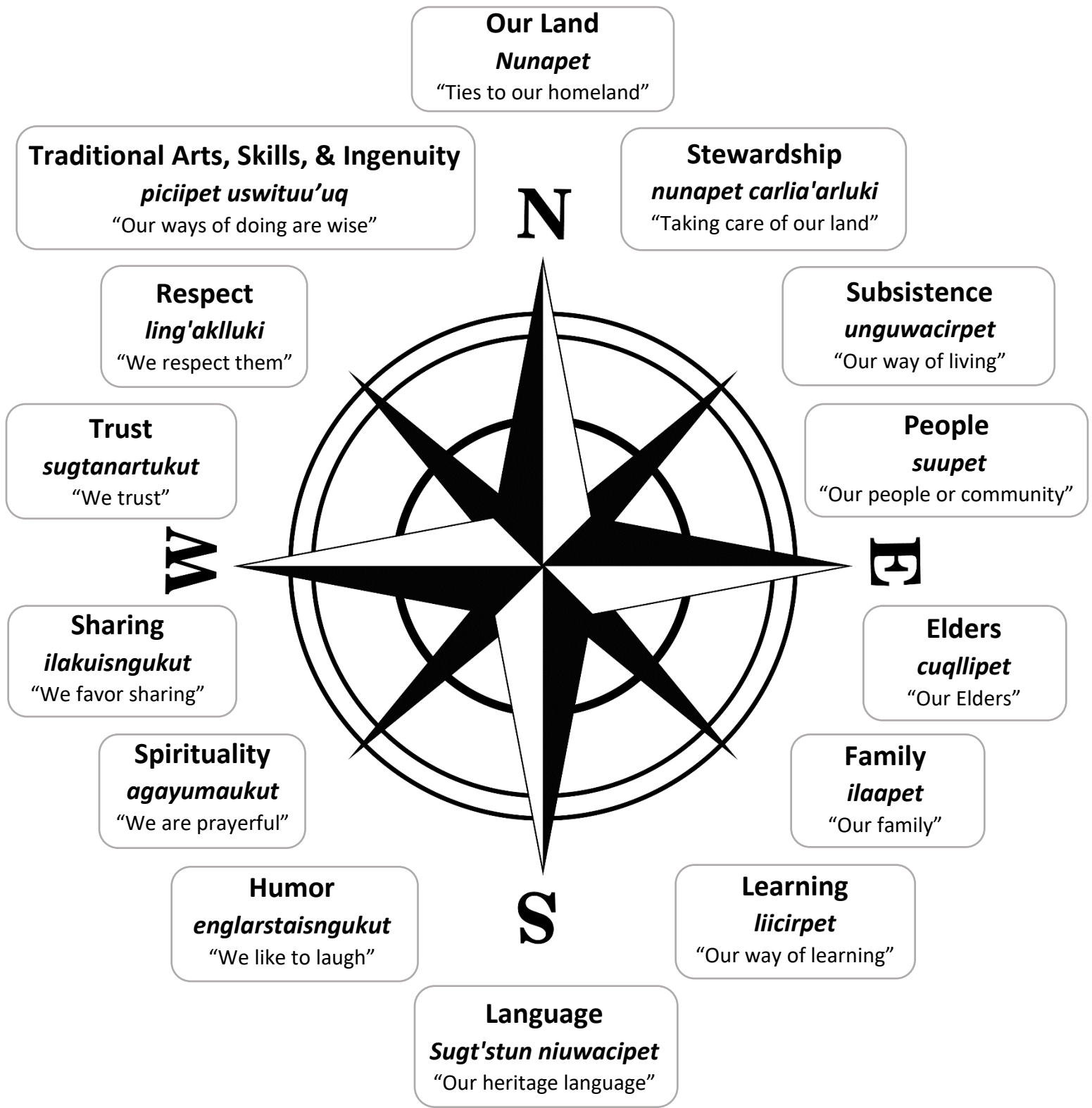
At the end of the lesson, ask the students these questions:

- What is a “value?”
- Why are values important?
- How do Alutiiq/Sugpiaq values tie directly to stewardship and relationship with the Land?
- How does participating in subsistence fishing activities connect you to the Land, your community, and your Ancestors?

Additional Resources

- Sun’aq Ethics of Harvesting—Describes 10 ethics of harvesting that are in line with traditional values. You can read and discuss them, or have the students pick one and share a story that is related to that ethical behavior. <https://www.sunaq.org/special-projects/sunaq-ethics-of-harvesting>
- Alutiiq Values: Explore the Alutiiq values and connect to the Alutiiq language as the 14 values are organized into the “spheres” of physical, social, cognitive, spiritual and ethical starting with the physical sphere <http://alutiqeducation.org/html/home/earth.php>.
- Alutiiq Values poster: <http://alutiqeducation.org/html/resources.php?r=116>
- *Indigenous Leadership Skills*, Alaska Native Transition Skills Units (2022): https://sesa.org/resources/educational_resources/alaska-traditional-transition-skills/

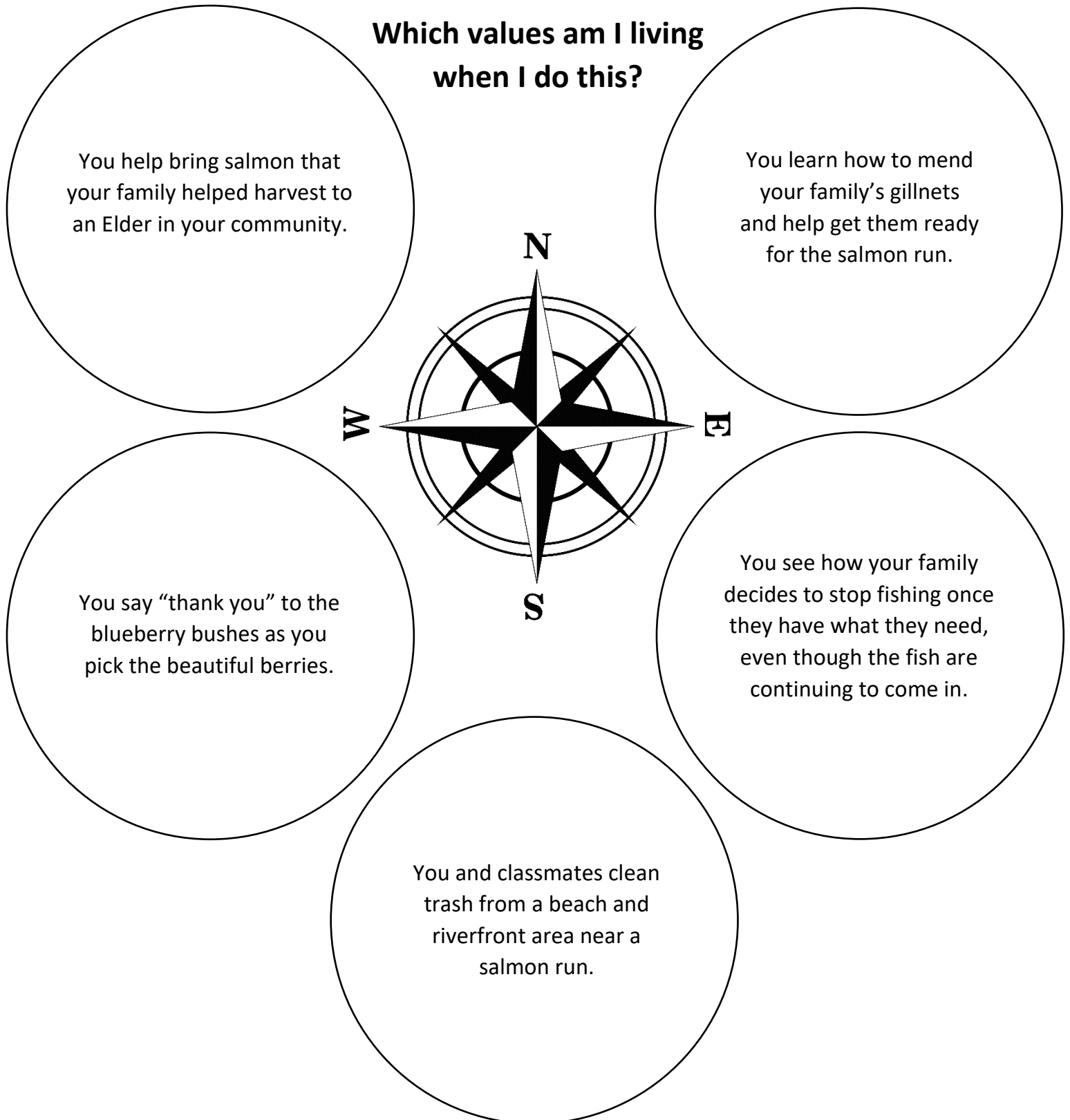
Alutiiq/Sugpiaq Values Compass



Alutiiq/Sugpiaq Values from <http://alutiiqeducation.org/html/home/earth.php>

Alutiiq/Sugpiaq Values Compass Activity: Cut out these circles containing actions a person could take. You can place them in the center of the compass (Student Handout) and then decide which values are connected to that action. There is no wrong answer!

**Which values am I living
when I do this?**

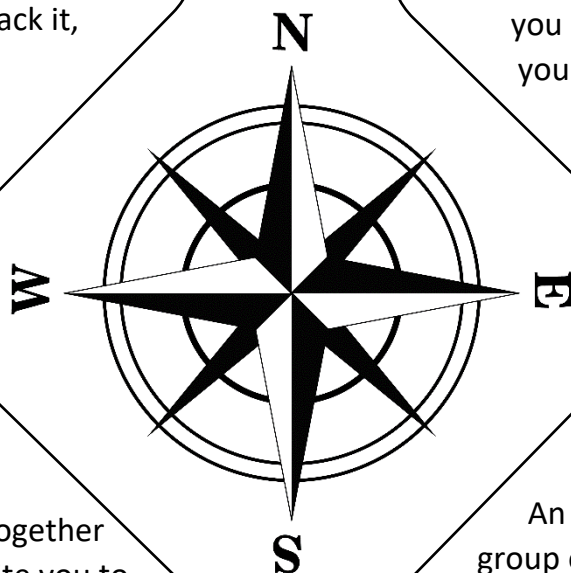


Alutiiq/Sugpiaq Values Compass Activity: Cut out these shapes containing decisions a person could use values to make. You can place them in the center of the compass (Student Handout) and then decide which values are connected to that decision. There is no wrong answer!

Which values help me decide what to do?

Your uncle and you are hunting, and he wounds a deer. It is early afternoon, and a long way to walk home, and it has started to rain. Do you track it, even if it means getting home late?

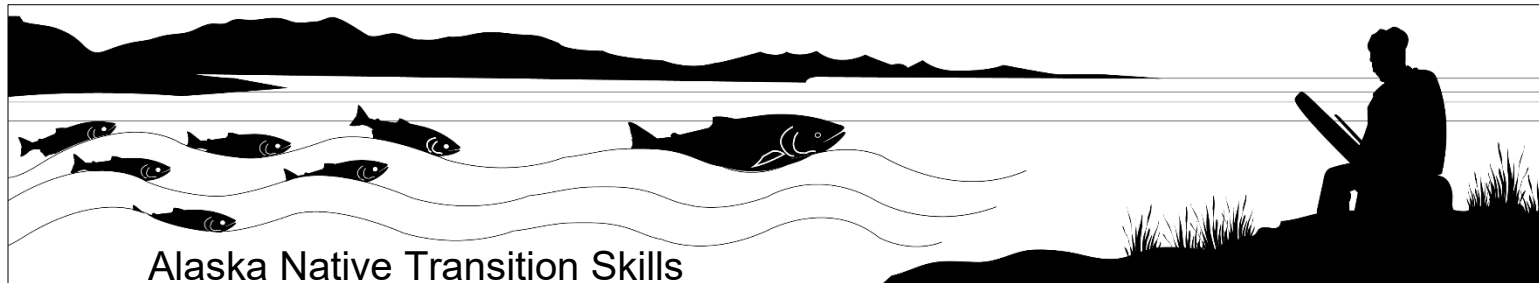
You are picking berries and it is getting late. You are using your berry picker faster to try to get as many berries as you can before you have to leave. You notice your speed is breaking more branches.



Your friends are getting together over the weekend, and invite you to come. It sounds really fun. You had already told your auntie you would help with smoking the salmon the family had harvested.

An Elder tells a story of a group of people in the past who wasted salmon they had caught. The next year, they couldn't catch any fish. You think about the story and what it means.

You hear of a friend whose family lost their skiff in bad weather. They would not have a boat to harvest salmon for their family, and it was nearly time for the harvest.



Sustaining the Fishery: Subsistence, Commercial, and Sport

Overview

In this lesson, students will learn about how the salmon and other fish are managed so that they will be around for a long time. The differences between commercial fishing, sport fishing, and subsistence will be discussed, as well as how decisions about rules and limits are made for sustainability of the fishery in Alaska.

Alaska Cultural Standards

- A1, A3, A4, A6, A7, B4, C1, C4, E1, E4, E6, E8

Alutiiq/Sugpiaq Values

- | | |
|---------------------------------------|-----------------------------------|
| • Land - nunapet | • Language - Sugt'stun niuwacipet |
| • Stewardship - nunapet carlia'arluki | • Humor - englarstaisngukut |
| • Subsistence - unguwacirpet | • Spirituality - agayumaukut |
| • People - suupet | • Sharing - ilakuisngukut |
| • Elders - cuqlipet | • Trust - sugtanartukut |
| • Family - ilaapet | • Respect - ling'aklluki |
| • Learning - liicirpet | |

Learning Objectives

The student will be able to:

- Define “sustainability” in relation to keeping the salmon fishery strong.
- Define the different kinds of salmon harvest: subsistence, commercial, sport and personal use fishing
- Describe how the salmon fishery is managed for sustainability for Alaskans.
- Describe the importance of inclusion of Alaska Natives on the boards and committees that manage natural resources like salmon.
- Extension: Describe the permits and general rules related to each type of salmon harvest.

Materials

- *Managing for Sustainability Activity* Teacher Resource: Print role cards and fish cards for use in the activity.

Vocabulary

Allocation	The amount of a resource assigned to a group. In this case, the amount assigned to each group who wants to harvest salmon.
Bag limit	The number of fish you can get in a day. It refers to how many fish are “in your bag.”
Commercial	Intended to make a profit. Related to fishing, commercial fishing is the activity of catching fish and other seafood for commercial profit, mostly from wild fisheries.
Escapement	The salmon that go into the rivers to spawn. The ideal amount is determined using science and data, and then the rest of the salmon can be harvested.
Habitat	The natural home for an animal or other living thing.
Indigenous	Refers to the social norms, belief systems, traditions, values that are held and practiced by the original people native to a specific place. In this curriculum, it refers to the Alaska Native peoples, with specific examples from Alutiiq/Sugpiaq peoples.
Personal Use	The taking, fishing for, or possession of finfish, shellfish, or other fishery resources, by Alaska residents for personal use and not for sale or barter, with gill or dip net, seine, fish wheel, long line, or other means defined by the Board of Fisheries.
Season	(Related to fishing) The period of time during the year it is legal to catch fish. Some fish can be caught year-round, and some are limited to certain periods of time. Fishing regulations define when, how, and how many fish of different types can be harvested by Alaska residents and non-residents.
Sport fishing	Taking of or attempting to take fish for personal use, and not for sale or barter using a hook and line held in the hand attached to a pole or rod. This includes fish that are in freshwater, marine, or anadromous (fish that migrate from salt water to fresh water).
Subsistence	Subsistence is when you harvest from the Land the food and other resources you, your family, and your community needs. It also can be an important way to connect to the Land, to community, to the Ancestors, and to a sense of spirit and belonging. State and federal laws define subsistence uses as the “customary and traditional uses” of wild resources for food, clothing, fuel, transportation, construction, art, crafts, sharing, and customary trade.
Sustainability	Keeping something at a certain level, so it doesn’t get depleted or damaged or run out. When natural resources are managed well, they will last for future people to use and enjoy. If people now take too much, or damage the Land, it will not last for future people to use and enjoy.

Activities and Adaptations

- **Share the goal of today's lesson:** "Today we are going to begin to learn about how the salmon and other fish are managed so that they will be around for a long time. We will talk about the differences between commercial fishing, sport fishing, and subsistence, and how decisions about rules and limits are made to keep the fishery strong. To learn about this, we will share ideas and do an activity.
By the end of this lesson, you will be able to: define 'sustainability' in relation to keeping the salmon fishery strong; define the different kinds of salmon harvest (subsistence, commercial, and sport/personal use); describe how the salmon fishery is managed for sustainability; describe why it is important for Alaska Natives to be included on the boards, councils, and committees that manage natural resources like salmon; and (Extension: describe the permits and general rules related to each type of salmon harvest.)"
- **Begin by finding out what students already know by asking the following questions:**
 - What does "sustainability" mean? (*Something will last or not run out.*)
 - How do we make sure that salmon will be around for a long time? (*We can protect salmon environments and take care of the Land, we can take only what we need, we can manage the fishery to keep it strong...*)
 - What does **subsistence fishing** mean? (*Subsistence is when you harvest from the Land the food and other resources you, your family, and your community needs. It also can be an important way to connect to the Land, to community, to the Ancestors, and to a sense of spirit and belonging...*)
 - What does **sport fishing or personal use fishing** mean? (*Harvesting salmon for personal use, not to sell or barter. Sport fishing is fishing with a rod and reel and personal use includes other methods such as use of a gill net...*)
 - What does **commercial fishing** mean? (*Commercial fishing is the activity of catching fish and other seafood for commercial profit, mostly from wild fisheries.*)
 - Who decides how much salmon and other fish can be harvested? (*The Alaska Department of Fish and Game and the Alaska Board of Fisheries, with advice from councils and committees statewide.*)
 - Who makes and enforces rules to manage the fisheries in Alaska? (*The Alaska Department of Fish and Game uses science to collect the information that the Alaska Board of Fisheries uses to make decisions.*)
- **Connect the Alutiiq Values of today's lesson with the objectives—**
 - People—suupet—*We work together to care for members of our community.*
 - Stewardship—nunapet carlia'arluki—*We harvest from the Land with gratitude. We only take what we need for our families and community members. We preserve the foods and take care of them so that nothing is wasted. This shows respect to the Land.*
 - Subsistence "Our way of being alive"—unguwacirpet—*"A subsistence lifestyle is*

respectful and sustained by the natural world.” We have a relationship with the Land where we care for the Land, and the Land takes care of us.

- Sharing— *ilakuisngukut—We work together and share with the Land has provided to keep our communities strong and healthy.*
- **The story of sustainability in Alaska and how the fishery is managed**—You can adapt this information for the level of your students, but this provides a simple summary for a very complex topic. In its simplest form, you can say: “The Land supported the Indigenous people for thousands of years before Europeans came. After a time where the newcomers used harmful ways to harvest too many fish and did a lot of damage, Alaskans made important rules to protect the Land and the fish. For many years, commercial interests were valued over subsistence, and the Alaska Native people had to fight to restore their subsistence rights that make sure there is enough for people who depend on the food directly to get. This gave subsistence use priority over other types of fishing. To keep the salmon populations healthy for the Land and the people who harvest them, Fish and Game and others monitor the numbers and health of the salmon population. They use this information to make rules and decisions about how much fish can be harvested. There are also rules to help keep the rivers, forests, and oceans healthy so that salmon and other life can stay healthy.” Add in more detail from the information below, as fits your students.
 - For thousands of years before Europeans came to Alaska, harvest from the Land was sustainable. The Land provided what the people needed, and had enough to keep those resources healthy for the next generations.
 - In the 1800s people from outside Alaska started coming and using the resources for commercial purposes (taking it and using it to make money). This was before there were rules on limits for fishermen. They used methods that caught much more than the Land could supply, which resulted in lower salmon returns. It also meant that in some areas, salmon and other types of fish (such as herring) were wiped out completely.

For salmon, once canning was invented in the late 1800s, and salmon could be canned and shipped, it started a bigger demand to supply salmon outside of Alaska. The canneries were mostly owned by Seattle and San Francisco companies. These were powerful, and for a long time they had the power over the Alaska salmon streams and salmon harvest. They had more deciding power than Alaska Natives and other Alaskans. Alaskans fought back to get some rules put in place, but it wasn’t until Alaska became a state in 1959 that Alaska was able to make rules to protect the salmon and other fish.
 - When the Alaska state constitution was made, there was a separate article written on the management of natural resources. Alaska is the only state to have this. It said that Alaska’s fish and game will be available to the people, but managed on the basis of “sustained yield” so that it would last forever.

- Even with this section in the constitution, Alaska Native people have had to advocate through the courts to maintain and restore important rights to practice traditional subsistence ways. It took decades of court battles led by Katie John (Ahtna Athabascan) and others to restore subsistence rights that were taken away.
- To help rebuild the salmon population, in 1970 a new system was made called “limited entry.” It limited the number of commercial fishermen in each area, and gave them exclusive rights to harvest the fish. This made a small number of permit holders who could harvest an area, to make sure the fishery in that area was properly managed.
- **The Alaska Board of Fisheries helps manage the health of fish populations for sustainability.** It is made up of 7 Alaska residents, some with a commercial fishing background, and some without. The people on the board are appointed by the governor and confirmed by the legislature. They are advised by a statewide network of local councils and committees. The Board of Fisheries’ main role is to conserve and develop the fishery resources of the state. This involves setting seasons, bag limits, methods and means for the state’s subsistence, commercial, sport, guided sport, and personal use fisheries, and it also involves setting policy and direction for the management of the state’s fishery resources. The board makes decisions which are then carried out by the Alaska Department of Fish and Game.

The chair of the board is currently (in 2022) Märit Carlson-Van Dort (Sugpiaq from the village of Chignik Bay.) She is the only Alaska Native serving on the board. It is very important for Alaska Native people to be represented at all levels of the decision-making processes related to fish and game management in Alaska. These decisions impact Alaska Natives, and so Alaska Natives need to have a voice and a place at the table. To learn more about current Alaska Board of Fisheries members, visit <https://www.adfg.alaska.gov/index.cfm?adfg=fisheriesboard.bofmembers>

- **The Alaska Board of Fisheries uses the idea of “Maximum sustainable yield” to guide all decisions and to make all rules that Fish and Game has to communicate and enforce.** The basic idea is this: when the right smaller number of fish spawn, and the rest are harvested, it keeps a strong steady fishery that is more consistent year-to-year. A natural cycle without management would result in boom-and-bust years. When too many salmon crowd a stream, there is more disease, and less oxygen in the water, and fry that hatch have to compete for food. This can result in a lower amount of salmon going out that season. The next time that smaller run comes home, more of their young survive, which results in a boom when those salmon return. Using multi year and real time data, Fish and Game sets the ideal number of salmon needed for “escapement” (those that spawn) and the rest should be harvested to keep the fishery strong.
- **Subsistence Priority:** When there is a shortfall of a type of fish, the Alaska Supreme Court has ruled that commercial and sport fishing will be limited *before* subsistence fishing. This helps protect the needs of people who depend on subsistence harvest. This priority was hard won through the courts by Indigenous rights advocate Katie John and others.

- **Healthy habitats:** One of the main reasons Alaska still has a healthy salmon fishery is because we still have fairly intact natural habitat for the salmon. We have protected the rivers and areas where salmon run. We haven't installed dams and other barriers that decrease the things that make a good place for salmon to spawn. Protecting these areas as well as managing the fishery are the ways we can ensure there will be salmon forever. Climate changes which are changing the temperatures of the ocean and rivers are a concern that are harder to control.
- **Subsistence interests:** Alaskans, especially Alaskans living in rural communities and villages, rely on the Land for food and connection to cultural practices and traditional foods. They harvest and preserve salmon and other foods from the Land for use throughout the year. This is a personal use fishery, where sport and personal use methods are used to harvest fish for personal use, NOT to sell or barter.
- **Commercial interests:** Owners and workers on fishing boats rely on being able to harvest salmon and sell them to the market. Tenders, shippers, and grocery stores and restaurants all rely on there being salmon to buy and sell. As each gear type is managed separately, they are often in competition with each other. Commercial interests are complex. There are rules and limits put on each type of fishing, such as gillnetters and seiners or sport (guides). Each type has representatives that work to get limits set that will benefit them.
- **Sport fishing (guided) interests:** Charter fisherman have mostly local businesses to take others fishing (mostly non-residents). These fisherman use the income from guiding to cover business expenses (like maintaining their boat and gear); hiring staff; and income to support their families.
- **Managing for Sustainability Activity:** In this activity, students will experience having to make decisions about limits on an example local fishery. Students will be assigned a role to play at the "meeting." Read the scenario, and then have the students try to come to an agreement about how many salmon each will get. Debrief following the activity will help students understand that what they experienced is a simplified version of the way decisions are made. If it is helpful, print and cut out the "fish" cards, where each fish represents either 100 or 50 salmon. This gives students physical things to sort during the discussions.

Scenario: Fish biologists have released counts that the salmon run is not as strong this year in your community. They have estimated that there will be 1,000 fish that can be harvested so that the salmon will have enough to spawn and keep the run sustainable. Local residents rely on the salmon to provide food for their families, as well as a connection to the Land and cultural heritage. Local fishermen rely on being able to fish and sell their catch to make money they need for the year to support their families. Other commercial businesses rely on catching and selling the salmon to support their businesses and income. Each representative wants a certain amount to meet the need they have. There isn't enough this year for everyone to get what they think they need. **How can the people to decide the best way to divide up the salmon?**

Roles:

1. Subsistence fishing (Local Alutiiq/Sugpiaq): Wants to have 200 fish for the families in the community to harvest. Subsistence interests are given priority and this person will get what their community needs.
2. Commercial fishing (Drift Gillnetter): Wants to have 500 fish to harvest and sell.
3. Commercial fishing (Seiner): Wants to have 500 fish to harvest and sell.
4. Sport fishing (Guided): Wants to have 200 for his customers to catch.
5. Fish and Game: Says there can only be 1,000 fish harvested to keep the population strong. They also can share that if there is a shortfall, commercial interests will be limited before subsistence interests (per state law).

Debrief:

- How did it go? Was it challenging to make it fair for everyone?
- How did you come to a decision?
- In Alaska, the Alaska Board of Fisheries has to decide how to divide up the fish, and the Alaska Department of Fish and Game collects information and makes recommendations to keep the salmon population healthy. The Alaska Board of Fisheries takes recommendations from local committees and councils around Alaska in addition to scientific information to decide how much can go to each group, and allocate the timing and areas so that people can catch what they are eligible to harvest.
- Does anyone know a way to make sure everyone has a chance to get the fish they are allowed to harvest, without competing with each other on the water? *(Each will have a time set aside for them. Subsistence users go first, to be sure they get what they need. Then each gear type is given an "opening" when they can fish. The numbers they catch are monitored, and once they have caught what is allowed, the opening is closed.)*
- What would happen if any one of the people representing their interests wasn't at the meeting? *(Less likely to get what they are hoping for if they aren't there to speak for the people they represent.)*
Historically, Alaska Native people have often been left out of the decision-making. Not having a place at the table means their needs and interests may not have been included in the decisions that were made. There are important ways to get involved, to be part of the decisions that will affect you. Respond to requests for public comment. Contact the members of the committees, councils, and the Board of Fisheries. Encourage others to get involved. As you gain more experience, you may want to serve on a board or committee that advises on the fishery.

Adaptation: To make it simpler, have three or four roles: one or two type(s) of commercial interest(s), one Fish and Game, and one subsistence. Redo the math of what each can take, with the commercial needing more than the subsistence role. You could also make it interesting by having someone who is representing both subsistence and commercial, if they do both.

- **Extension:** Discuss in general the kinds of permits and licenses that help keep the amount of fish people can harvest to a sustainable level.
 - Resident fishing license: Alaska residents can get an annual fishing license and additional King Salmon tag that lets them fish for personal use with rod and reel (sport) or personal use (other methods like a gill net). You only need the King Salmon tag if you are fishing in areas where there are King salmon. Sport Fishing regulations for the Kodiak and Aleutians can be found here:
https://www.adfg.alaska.gov/index.cfm?adfg=fishregulations.sw_sportfish
 - Subsistence permits: A subsistence fishing permit is required for taking salmon, trout, char, and herring for subsistence purposes. This usually is for times people are gathering larger amounts at once, as with a gillnet or set net. If you are catching fish for subsistence use with a rod and reel, the sports fishing rules apply. Each area has different rules about gear and limits and seasons. Here is the 2020–2021 Subsistence and Personal Use Fishing Regulations. Information about the Kodiak area is found on page 55.
https://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/2020_2021_subsistence_pu_regs.pdf

The annual limit for a subsistence salmon fishing permit holder is as follows:

- A) In the fresh waters of Kodiak Island, east of a line from Crag Point south to the westernmost point of Saltery Cove, including the waters of Woody and Long Islands, and the salt waters bordering this area within one mile of Kodiak Island, excluding the waters bordering Spruce Island, 25 salmon for the permit holder plus an additional 25 salmon for each member of the same household whose names are listed on the permit; an additional permit may be obtained if it can be shown that more fish are needed;
- B) in the remainder of the Kodiak Area not described in (1) of this subsection, there is no annual limit.

A subsistence permit needs to record the number of subsistence fish taken by that subsistence permit holder each year. This permit must be returned to Fish and Game by Feb 1 of the next year. *Check with Fish and Game to be sure these are the current limits.*

Learning stories

- Invite a local Alaska Native leader, Elder, or culture bearer to share a traditional story or a personal story of subsistence fishing or commercial fishing.
- Ask students to share their favorite ways to eat salmon, or their experience with subsistence, sport, or commercial fishing.

Evaluation

At the end of the lesson, ask the students these questions:

- What is “sustainability” in relation to keeping the salmon fishery strong?
- What is the difference between subsistence, commercial, sport and personal use fishing?
- How is the salmon fishery is managed for sustainability for Alaskans?

- Why is it important for Alaska Natives to be on the boards and committees that manage natural resources like salmon?
- Extension: Describe the permits and general rules related to each type of salmon harvest.

Additional Resources

- *Alaska Geographic Commercial Fishing in Alaska*, Volume 24, Number 3 (1997) This is a good primer on commercial fishing in Alaska, as well as the history of how the fishery is managed.
- *The Salmon Way: An Alaska State of Mind* by Amy Gulick (2019) This beautiful book has great information about salmon and what salmon mean for Alaskan people. Beautiful pictures of fish, people fishing, and a good supplement to the unit. Though the author is white, she has many interviews, photographs, and historic photos with Alaska Native peoples from around Alaska. Available through Alaska Interlibrary Loan. [https://jlc-web.uaa.alaska.edu/client/en_US/asl/search/detailnonmodal/ent:\\$002f\\$002fSD_ILS\\$002f0\\$002fSD_ILS:5150151/ada?qu=the+salmon+way&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A5150151%7EILS%7E1&h=8](https://jlc-web.uaa.alaska.edu/client/en_US/asl/search/detailnonmodal/ent:$002f$002fSD_ILS$002f0$002fSD_ILS:5150151/ada?qu=the+salmon+way&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A5150151%7EILS%7E1&h=8)
- Alaska Board of Fisheries information: <https://www.adfg.alaska.gov/index.cfm?adfg=fisheriesboard.main>
- Alaska Fish and Game subsistence fishing information for Kodiak area: <https://www.adfg.alaska.gov/index.cfm?adfg=ByAreaSubsistenceKodiakIS.main>
- Permits and License information for Alaska residents: <https://www.adfg.alaska.gov/index.cfm?adfg=residentfishing.main>
- Subsistence and Personal Use Permits and Regulations: <https://www.adfg.alaska.gov/index.cfm?adfg=subsistenceregulations.fish>

Fish and Game

You work for Alaska Fish and Game, and you are attending the meeting to share the limits that is based on recent fish return information.

Share with the other people at the meeting that the limit will likely be 1,000 salmon for this year, as the run is not as strong as last year. These 1,000 salmon will need to be divided between the people at the meeting.

Because of state law, you know that the subsistence interests come first. The commercial interests will need to be limited before the subsistence interests are, if there are not enough salmon.

Subsistence

You are at the meeting to represent families in your community who need to harvest salmon to eat and to continue important social and cultural practices.

Share with the other people at the meeting that the families in your community will need **200 fish** to meet their subsistence needs.

Subsistence use is protected in the Alaska Constitution, so you are there to share how much the community needs.

Commercial (Drift Gillnetter)

You are a local commercial Gillnetter, and you represent other gillnetters who fish and then sell the fish to a tender.

This is your business, and your family and the families of other fishermen depend on the income from fishing to support them throughout the year.

You feel that you and other gillnetters will need **500 fish**.

Commercial (Seiner)

You represent Seiners who fish and then sell the fish to a tender.

This is your business, and your family and the families of other seiners depend on the income from fishing to support them throughout the year.

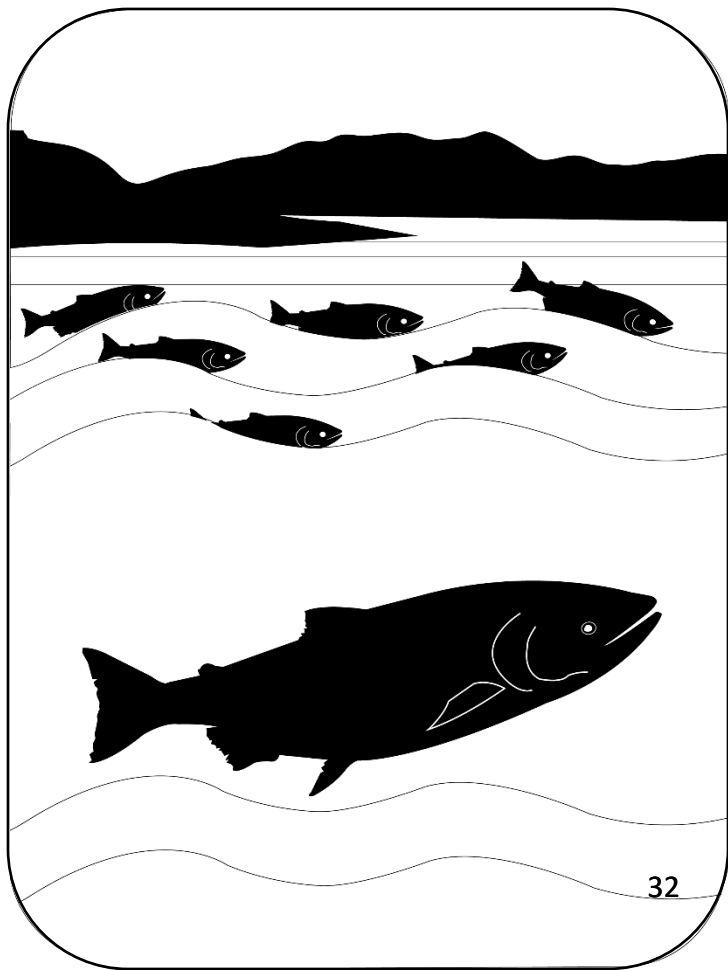
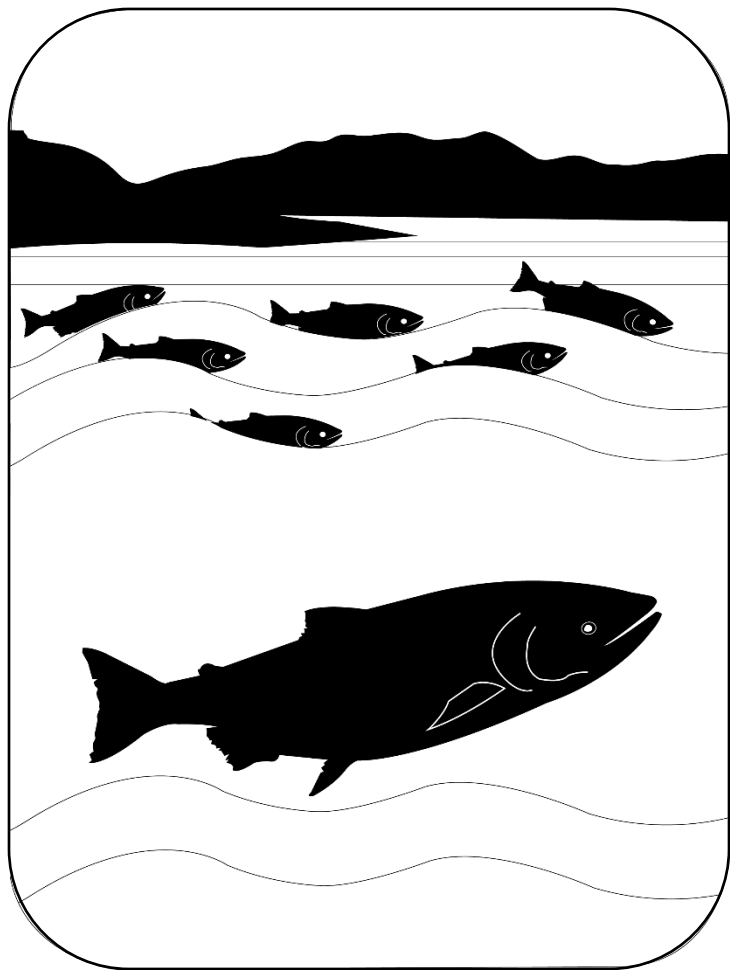
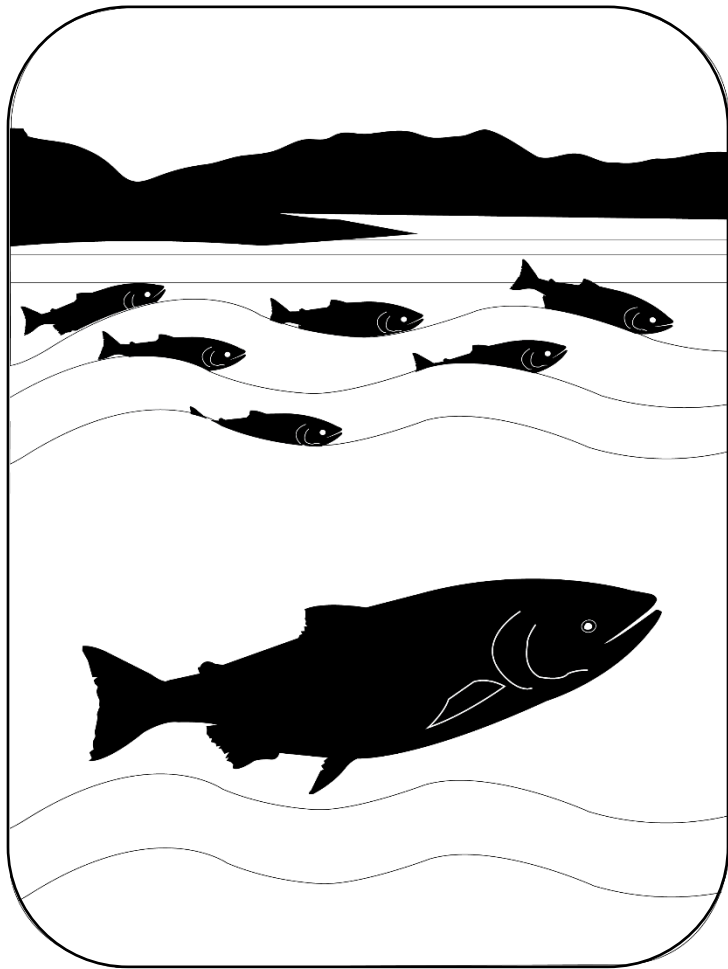
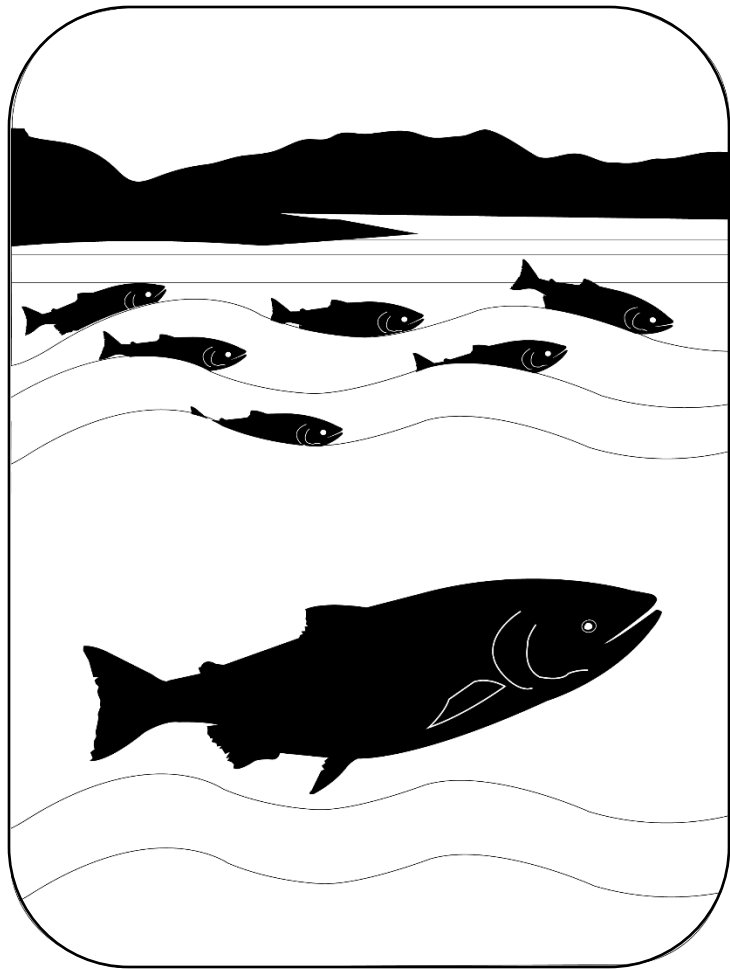
You feel that you and other seiners will need **500 fish**.

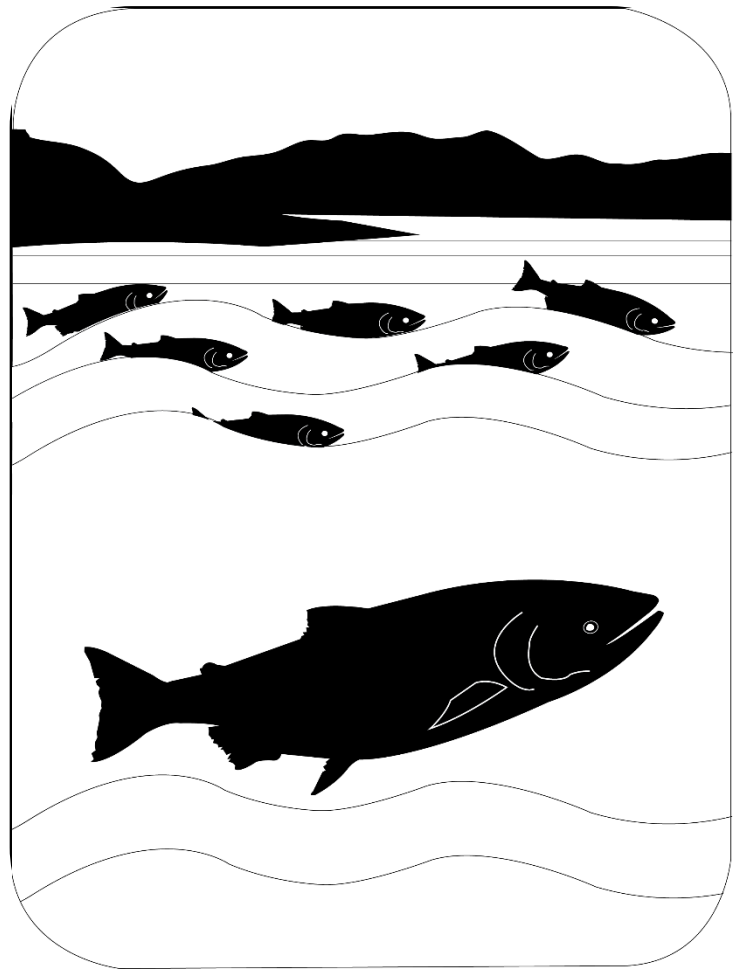
Sport Fishing Guide

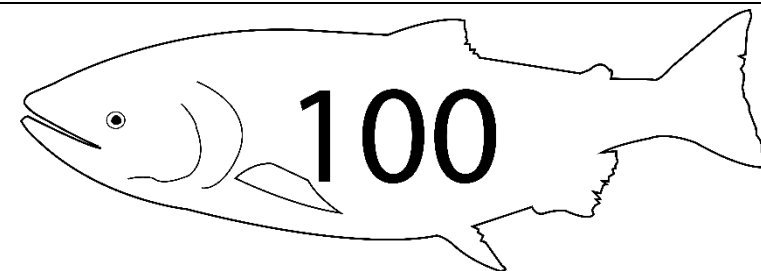
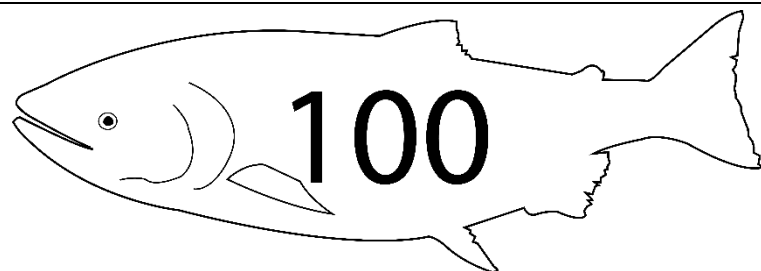
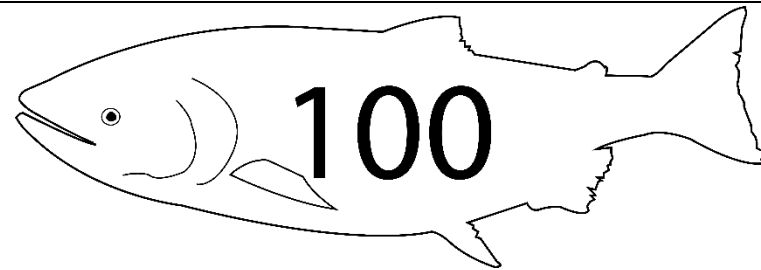
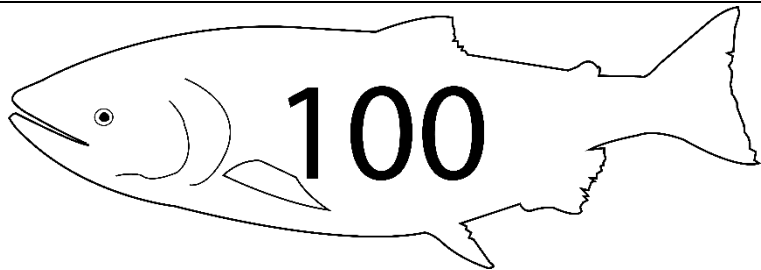
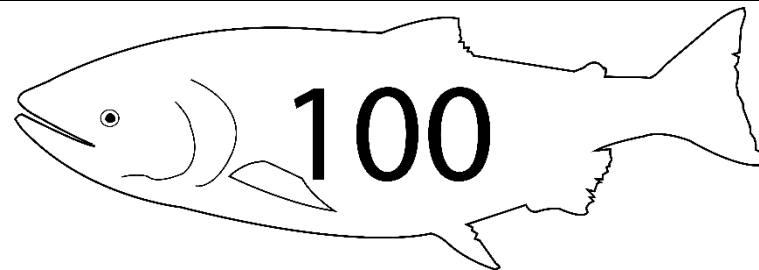
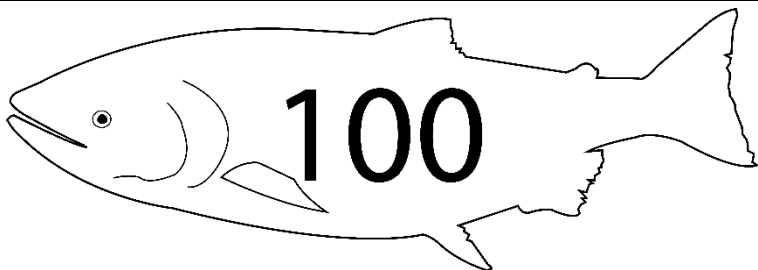
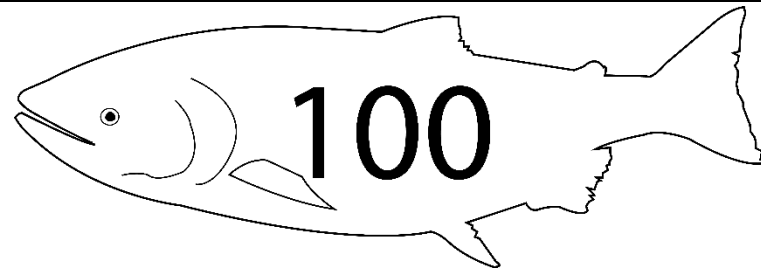
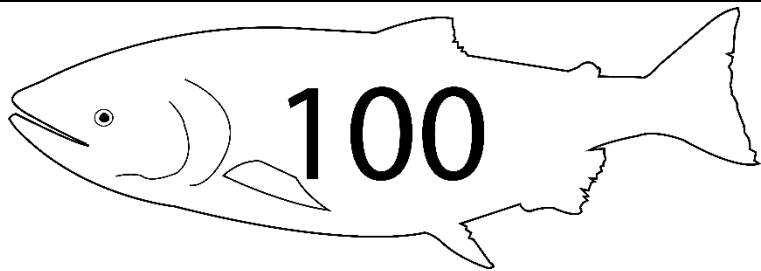
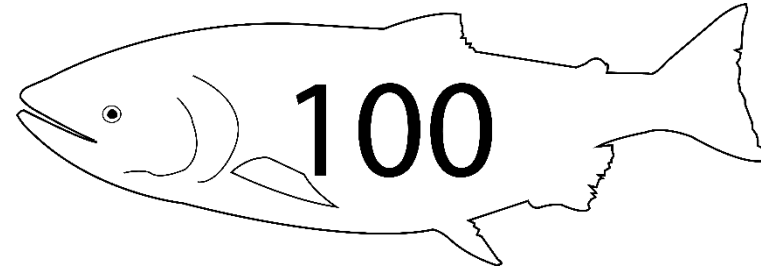
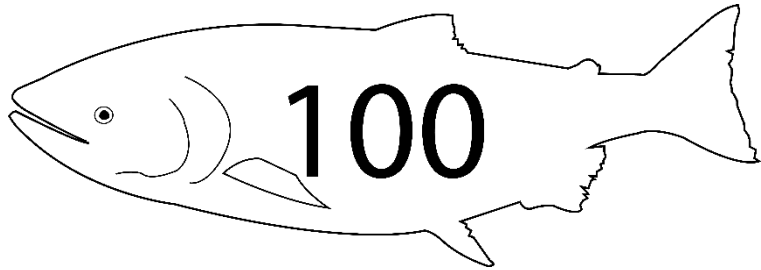
You represent sport fishing guides who take visitors out to fish.

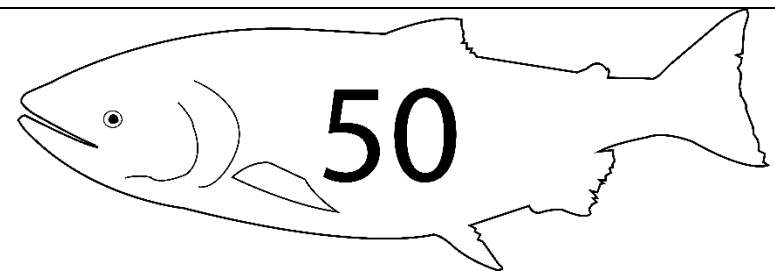
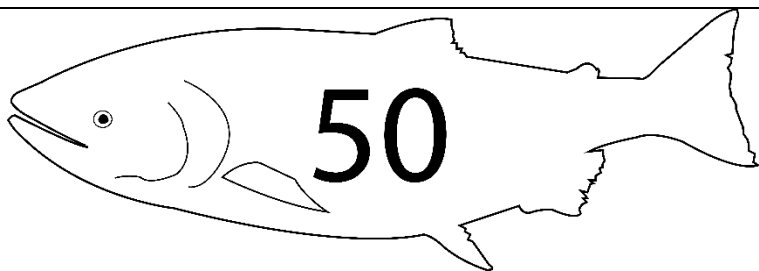
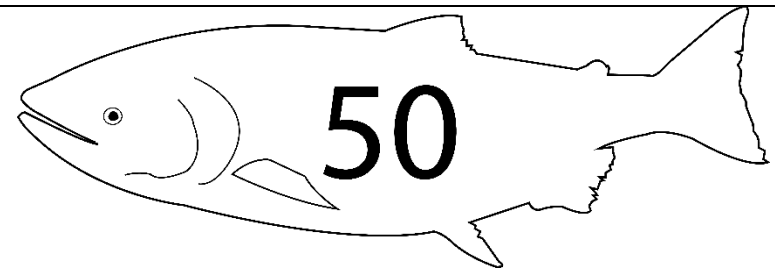
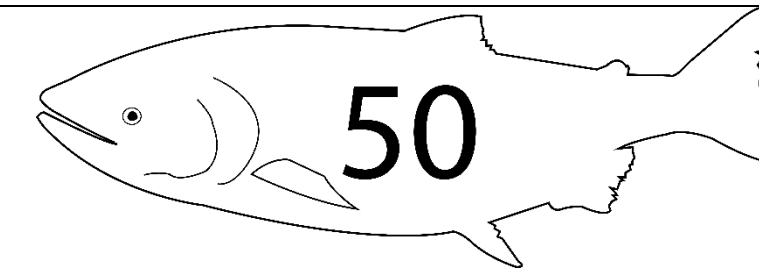
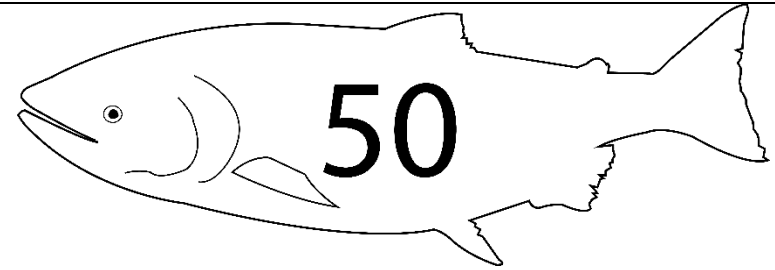
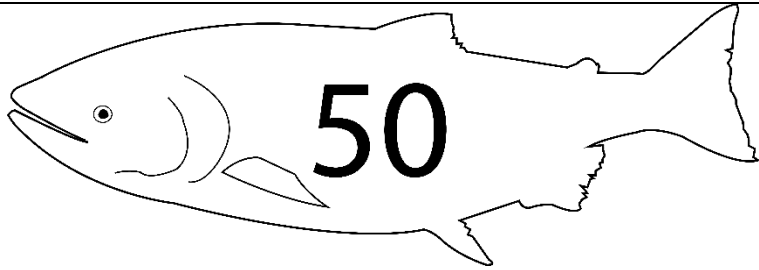
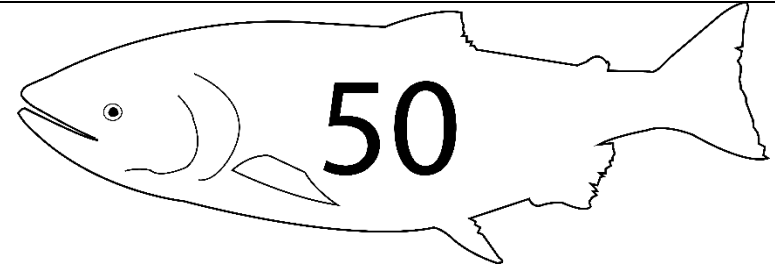
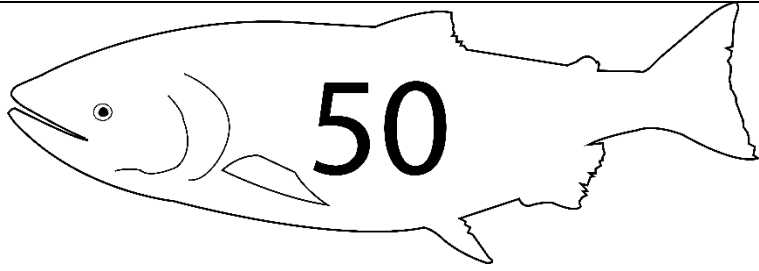
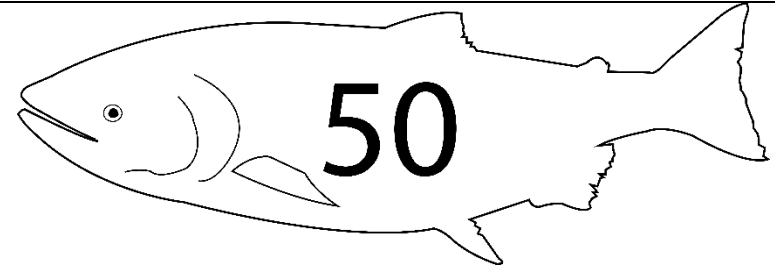
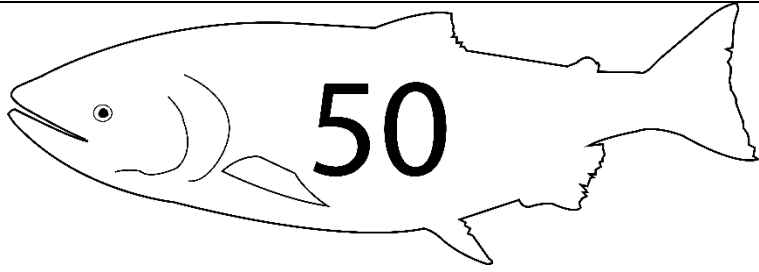
This is your business, and your family and the families of other sport fishing guides depend on the income from fishing to support them throughout the year.

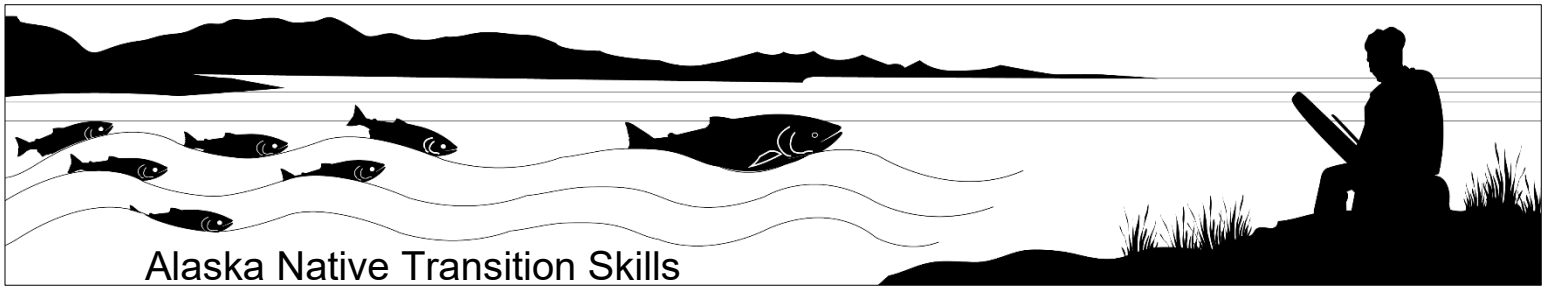
You feel that you and other guides will need **200 fish**.











Alaska Native Transition Skills

Subsistence Fishing Techniques and Traditions

Overview

In this lesson, students will learn about subsistence, the traditions and techniques used to harvest salmon for subsistence, and the benefits of participating in subsistence activities.

Alaska Cultural Standards

- A1, A4, A6, A7, B2, B3, C1, C3, C4, E1, E2, E6, E8

Alutiiq/Sugpiaq Values

- Land - nunapet
- Stewardship - nunapet carlia'arluki
- Subsistence - unguwacirpet
- People - suupet
- Elders - cuqlipet
- Family - ilaapet
- Learning - liicirpet
- Language - Sugt'stun niuwacirpet
- Humor - englarstaisngukut
- Spirituality - agayumaukut
- Sharing - ilakuisngukut
- Trust - sugtanartukut
- Respect - ling'aklluki

Learning Objectives

The student will be able to:

- Define what “subsistence” means.
- Describe current subsistence techniques, traditions, and gear used today to harvest and preserve salmon.
- Describe benefits of participating in subsistence activities.
- Extension: Describe common permits and licenses associated with subsistence.

Materials

- *When Do the Salmon Run?* Student Handout
- *Subsistence in Alaska* Teacher Handout
- Extension: *Set Net Gear* Student Handout

Vocabulary

Gillnet	A fishing net which is hung vertically so that fish get trapped in it by their gills.
Indigenous	Refers to the social norms, belief systems, traditions, values that are held and practiced by the original people native to a specific place. In this curriculum, it refers to the Alaska Native peoples, with specific examples from Alutiiq/Sugpiaq peoples.

License	A type of permit to do a specific thing. In Alaska, when people sport fish, they must have a <i>fishing license</i> . Residents pay less for a license than non-residents. Alaska residents over 60 get a lifetime license, others must renew their license every year.
Permit	A permit is something that allows the holder of the permit to do something. In subsistence, a permit allows a rural Alaskan resident to harvest in specific ways that non-permit holders can't do.
Regulations	Rules about a certain subject. Fishing regulations are rules about how fishing can be done, where it can be done, and who can do it.
Subsistence	Subsistence is when you harvest from the Land the food and other resources you, your family, and your community needs. It also can be an important way to connect to the Land, to community, to the Ancestors, and to a sense of spirit and belonging. State and federal laws define subsistence uses as the "customary and traditional uses" of wild resources for food, clothing, fuel, transportation, construction, art, crafts, sharing, and customary trade.

Activities and Adaptations

- **Share the goal of today's lesson:** "Today we are going to talk about subsistence, which is harvesting food from the Land in a way that connects to cultural traditions and gives meaning as well as nutrition. We will focus on salmon, and traditional ways the Alutiiq/Sugpiaq people harvest and preserve salmon. To learn about this, we will share ideas and look at a handout. By the end of this lesson, you will be able to: define what "subsistence" means; describe some of the subsistence techniques, gear, and traditions used by the Alutiiq/Sugpiaq peoples to harvest and preserve salmon; describe the benefits of participating in subsistence activities; and [Extension] describe common permits and licenses associated with subsistence."
- **Begin by finding out what students already know by asking the following questions:**
 - What does "subsistence" mean or refer to? (*Subsistence is when you harvest from the Land the food you, your family, and your community needs. It also can be an important way to connect to the Land, to community, to the Ancestors, and to a sense of spirit and belonging.*)
 - What animals and plants do you know of that are harvested from the Land by the Alutiiq/Sugpiaq peoples? What animals or plants does your family harvest?
 - What are some of the ways Alutiiq/Sugpiaq people harvest salmon for subsistence? (*Gillnet, rod and reel, fish wheel...*)
 - What are some of the ways Alutiiq/Sugpiaq people preserve salmon to use throughout the year? (*Drying, smoking, pickling, salting, canning, freezing...*)
 - Are there rules people have to follow when harvesting from the Land? (*There are rules made by Fish and Game, as well as some Federal rules, that limit the amounts, sizes, and methods used to harvest from the land with the intent to manage the resources so they will continue to be there for future people...*)

- **Connect the Alutiiq Values of today's lesson with the objectives—**
 - People—suupet—*We work together to care for members of our community.*
 - Stewardship—nunapet carlia'arluki—*We harvest from the Land with gratitude. We only take what we need for our families and community members. We preserve the foods and take care of them so that nothing is wasted. This shows respect to the Land.*
 - Subsistence “Our way of being alive”—unguwacirpet— *“A subsistence lifestyle is respectful and sustained by the natural world.” We have a relationship with the Land where we care for the Land, and the Land takes care of us.*
 - Sharing— ilakuisngukut—*We work together and share with the Land has provided to keep our communities strong and healthy.*
- **Subsistence: Introduction and Background Information**
 - *“When we speak of ‘subsistence,’ we don’t just mean using the resource, but using tribal methods and acting out culture and complying with those values, and we do those things because they are a measure of protection for the land and its resources. – A Venetie hunter”* From the Alaska Fish and Game Subsistence Main page: <https://www.adfg.alaska.gov/index.cfm?adfg=subsistence.main>)
 - **Traditional Harvest Lifeways**—Subsistence goes way beyond food and nutrition. For Indigenous people, subsistence is an all-encompassing way of life which relies on an interdependent relationship with the Land for all things needed to live and thrive. The practices used to gather and process resources have been handed down through the generations. This way of living touches all aspects of life and well-being including mental, emotional, social, ethical, social, and spiritual. “The subsistence way of life is not to be confused with the modern U.S. governmental term ‘subsistence’ for the practice of merely engaging in hunting and resource gathering, which has spurred some Elders to request calling their more comprehensive and spiritually-based practices ‘traditional harvest lifeways.’” Source: <http://alutiiqeducation.org/html/home/earth/subsistence.php>
 - Subsistence fishing and hunting are important for the economies and cultures of many families and communities in Alaska. Subsistence uses of wild resources exist alongside other uses of fish and game (such as commercial fishing) in Alaska and are especially important for most rural families. Many Alaskans in both city and rural communities participate in subsistence activities, but rural Alaskans depend on the Land for much more of their nutrition needs. An estimated 36.9 million pounds of wild foods are harvested annually by rural subsistence users compared with 13.4 million pounds of wild food harvested by people who live in cities in Alaska. (<https://www.adfg.alaska.gov/index.cfm?adfg=subsistence.main>)
 - In rural areas, most families mix money from paid employment (often seasonal) with harvesting needed food from the Land. The money helps buy the gear and technology needed to harvest (fish wheels, skiffs, nets). Families gather what they need for themselves and community members who cannot fish or hunt (such as Elders, people

with disabilities that prevent them from hunting and fishing, and parents with small children). People work together to harvest from the Land, preserve the food, and share the food. These activities are an important way people connect to each other, the Ancestors, Elders, values, spirituality, and the Land. Salmon continue to be the most important source of sustainable resources in terms of pounds of food and in community building and connection (Source: Marchioni et. al 2016).

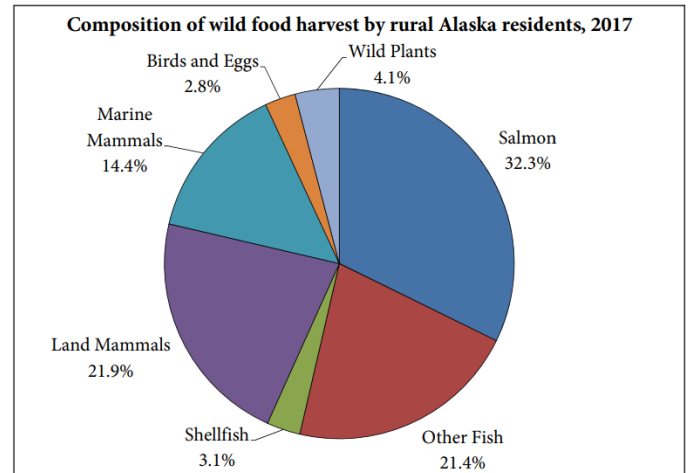
- There are rules (regulations) that are set for the harvest of fish and game in Alaska. The Alaska Department of Fish and Game and the Alaska Board of Fisheries and Game as well as other groups work together to manage the harvest so no one takes more than the Land can sustain, and so the Land will stay healthy and support people into the future. This means finding a balance between commercial and subsistence uses, rural and city uses, and Indigenous and non-Indigenous uses. All Alaskans are allowed to participate in subsistence activities, but people in rural areas get additional permits to harvest that Alaskans in cities do not. This is because people in rural areas depend more on the harvest from the Land and less on money to buy food than city people do. (Rural Alaskans on average get at least 25% of their needed calories from subsistence sources, where city/urban Alaskans get about 2% on average. Source: *Subsistence in Alaska: A Year 2017 Update*)

The greatest effect of subsistence laws in Alaska has been to recognize customary and traditional harvest practices and uses in rural Alaska. Because of the laws, the Alaska Boards of Fisheries and Game and the Federal Subsistence Board have created subsistence regulations (rules) designed to provide opportunities for the continued harvest of the food supply so necessary in much of Alaska. Alaska residents have a legally protected opportunity to fish and hunt to feed their families following long-term customs and traditions. When there is a shortfall of a type of animal, the amounts that can be taken are limited for commercial and non-rural people before they are limited for rural people who depend on them.

- **Activity: Subsistence Brainstorm and Discussion**

- Brainstorm what “subsistence” is: *Go beyond the U.S. Government definition. Prompt for ideas including how families work together to harvest, how the food is shared with Elders and others who need it, how the foods are enjoyed, how the ways people harvest were passed down from the Ancestors.*

- **Share the graph from the Teacher Resource Handout:** “This graph shows all of the kinds of wild foods that are harvested in Alaska. The biggest category is salmon. When you add salmon and other fish together, it is over half the food harvested” (this is from the 2017 Subsistence in Alaska report, page 2, see “Additional Resources for the link). While looking at the graph with students, discuss how it compares to what they see in their community. Which of these foods from the Land are used in their



community? Which land mammals are harvested? What other kinds of fish? What kind or kinds of salmon are harvested for subsistence?

You can also review the graph showing how the majority (98.6%) of game harvested in Alaska is through commercial fishing, and the remaining amount represents subsistence, sport, and personal use.

- **Discuss what students see as positives of subsistence activities and harvesting salmon using traditional subsistence ways.** *These can touch on the values of sharing and community building, fun, the joy of working hard together as a team, enjoying the foods that come from the land, connection to ways that have been passed down from the Ancestors, taking care and having gratitude and respect for the plants and animals that are harvested...*
- **Look at the student handout *When Do the Salmon Run?* to see the timing of the runs of salmon and most common times of harvest.** The handout includes the traditional Alutiiq/Sugpiaq month names and names of salmon. The timing for the care of gear is also noted, and can be used in the Extension: Set Net Gear section, below. Depending on student ability, you can coach them through how to “read” a chart to answer the questions in the handout.
- **Harvest techniques and traditions for salmon:**
 - The most common way to harvest salmon is to use a gillnet, also called a “set net.” A gill net is set in a bay or river, ideally on an incoming tide, and then it is “picked” using a skiff. Usually, multiple families work together to harvest and process the fish that are needed for the families’ needs. You can watch this video, filmed in Kodiak on the Buskin River in 2020 which shows the whole process of gillnetting for red (sockeye) salmon. Salmon Gill Netting - Subsistence Fishing in Alaska (25:39): <https://www.youtube.com/watch?v=K2uXMYrkjfl&t=32s> . Some people set the net out in the water, with both ends anchored, and some set a net in an area where one side is connected to the beach, and one is out in the water. See the Extension: Set Net Gear (below) for more on that.

- Some salmon are caught on rod and reel for subsistence use. For many, this is less efficient than gillnetting as it takes a lot more time fishing for the number of fish harvested.
- Some people who commercial fish keep some of what they catch as “home pack.” This means they catch the fish as part of their commercial fishing, but keep a portion for their subsistence use.
- **Current ways people preserve salmon for use throughout the year—**
 - **Drying fish:** Salmon are filleted so the two fillets are connected at the tail fin (caudal fin) so they can be hung over a rod. Some people rinse the fish with fresh water before drying, others use a soak in a salt brine before hanging them to dry. The drying racks are usually in a smoke house. Sometimes, mosquito netting is placed around the drying shack to keep out flies so they don’t lay eggs in the salmon. Salmon take 3–4 weeks to dry. Once they are dry, some people keep them in bags on a shelf, others like to vacuum pack and freeze the fish. This way of preserving fish has been used for a long time and was passed down from the Ancestors. (Source: Marchioni et. al 2016)
 - **Smoking fish:** Salmon are filleted (with the two sides still attached at the tail fin) and rinsed in fresh water. Then they are laid down with the skin facing down. The meat of the fish is salted, and stacked in layers with the skin side down. It is left to soak in the salt for about 16 hours. The fillets are then rinsed to wash off the extra salt, and then they are hung in a smokehouse over beams. Fish will hang in the smokehouse for about ten days. Longer if it is colder. If it is warm and moist out, care must be taken to watch for mold and flies on the fish. This way of preserving fish has been used for a long time and was passed down from the Ancestors. (Source: Marchioni et. al 2016)
 - **Salted/Pickled fish:** Fish are heavily salted and layered in a tote. The salt removes all the moisture and cures the meat. The fish get very hard after about 3-4 weeks. They can then be removed and stored on the shelf. To use these fish, they are soaked in water to remove the salt, then sliced thinly to eat. Fish preserved this way can also be pickled with pickling spices, vinegar, and onion. This way of preserving fish has been used for a long time and was passed down from the Ancestors. (Source: Marchioni et. al 2016)
 - **Canning fish:** This way is more time intensive, but results in jars of fish that can last on the shelf without being refrigerated. Fish are packed into jars and pressure cooked in a canner on a stove or wood stove to seal the jars. Communities that are close to a cannery may have access to canned fish and not do it at home as much. (Source: Marchioni et. al 2016)
 - **Freezing fish:** This way of preserving fish depends on having electricity and a dependable freezer, and is a more modern way of preserving fish. People in urban areas may be more likely to use this method. Fish are filleted and vacuum sealed in plastic and frozen for use.
- **Extension: Set Net Gear—**When you are part of a team working to harvest salmon, it is important to have the right gear, and to know the parts of the gear, and how to care for it.
 - **Gear:** A gillnet is a type of net that gets tangled in the gills of a fish to catch it. It has net (also called “web”) with a “cork line” on the top, which makes it float, and a “lead line” on

the bottom to make it sink. This suspends the net in the water where the fish will swim into it and get caught. A “buoy” marks each end of the net, and helps keep it afloat. An anchor at each end of the bottom helps keep the net in place so it doesn’t float away in river current or tide.

- **Caring for gear:** The net must be cleaned to remove sea weed and other debris that has caught in it. If the fish can see the net, they will swim around it to avoid it. The net must be repaired when it tears, or if it is damaged (by a seal, for example). If there are tears in the net with big holes, the fish will swim through it and not get caught. Mending of nets is discussed in the lesson “Skill Building: Knots and nets.”
- **Timing:** As shown in the *When Do the Salmon Run* handout, getting gear ready for the season and cleaning, repairing, and storing it after the season are important parts of the rhythms of subsistence fishing.
- **Extension: Permits and Regulations**—There are rules that are set by the Alaska Department of Fish and Game that govern subsistence harvest. Depending on the area you live in, you will need a license and/or permit to harvest salmon. The regulations show what kind of gear you are allowed to use to harvest, and if there are limits on the number of fish you can harvest. You can explore the Kodiak section of the current subsistence regulations to understand what is needed in your area. The 2020–21 book is linked here as an example:
https://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/2020_2021_subsistence_pu_regs.pdf
- Extension: Read an article about current efforts to manage the fishery that includes subsistence interests, and discuss. Example: This 2022 article about Mary Petrola’s efforts to add Alaska Native members to the North Pacific Fisheries Management Council and to limit bycatch by trawlers: Rep. Peltola’s fight for salmon debuts in Resources Committee (September 22, 2022 by Liz Ruskin, Alaska Public Media):
<https://www.ktoo.org/2022/09/22/rep-peltolas-fight-for-salmon-debuts-in-resources-committee/>

Learning stories

- Ask the students to share experiences they have had of participating in subsistence fishing activities. If the students haven’t participated, they can share their favorite way to eat salmon, or the ways their families preserve the salmon.
- Explore the inspiring story of Katie John and how her advocacy secured subsistence rights for the Indigenous people in Alaska.
 - Watch the U.S. Fish and Wildlife service present an award about Katie John’s work and the importance of her life’s work to guarantee the rights of Alaska Native peoples to harvest from the Land. <https://www.youtube.com/watch?v=2V5N5kMiiV8> (3:15).
 - This article goes into greater detail, but is a good resource for more of Katie’s story: <https://narf.org/cases/katie-john-v-norton/>

- Invite a local Alaska Native leader, Elder, or culture bearer to share a traditional story or a personal story of how salmon have been important to the Alutiiq/Sugpiaq people.
- Discuss the importance of sharing what is harvested from the Land. Have the students done this or seen others do this? Why is it important? *Many people believe that you must share the first of something each year with others (such as your first salmon or berries). Many believe this is important for strengthening the community, as well as helps ensure that the Land will continue to provide food to you.*
- Invite someone from Fish and Game to share about Fish and Game, and what they do to manage the fishery and keep the salmon populations strong. They can also share about the permits and licenses that are needed to participate in the subsistence fishery in your area.

Evaluation

At the end of the lesson, ask the students these questions:

- What does “subsistence” mean or refer to?
- What are techniques and gear used today to harvest and preserve salmon for subsistence use? What are examples of traditions Alutiiq/Sugpiaq people have related to harvesting salmon for subsistence?
- What are some of the benefits of participating in subsistence activities?
- Extension: What are some of the common permits and licenses associated with subsistence?

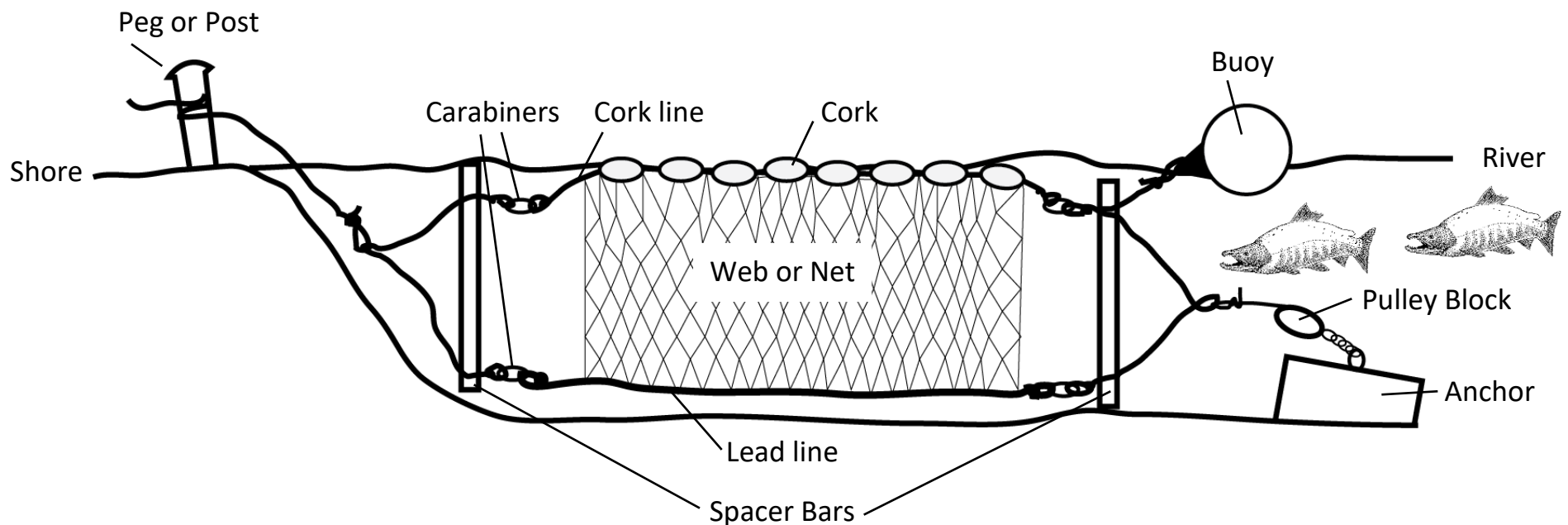
Additional Resources

- Alaska Native Transition Skills *Set-Net Fishing Skills and Cold Water Safety Skills* (Dillingham Region/Yup’ik values), 2019, Van Den Berg/Chaney. This was developed for students with more functional needs, but may have handouts and activities that will help students safely participate in subsistence fishing. https://sesa.org/resources/educational_resources/alaska-traditional-transition-skills/
- *The Salmon Way: An Alaska State of Mind* by Amy Gulick (2019) This beautiful book has great information about salmon and what salmon mean for Alaskan people. Beautiful pictures of fish, people fishing, and a good supplement to the unit. Though the author is white, she has many interviews, photographs, and historic photos with Alaska Native peoples from around Alaska. Available through Alaska Interlibrary Loan. [https://ilc-web.uaa.alaska.edu/client/en_US/asl/search/detailnonmodal/ent:\\$002f\\$002fSD_ILS\\$002f0\\$002fSD_ILS:5150151/ada?qu=the+salmon+way&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A5150151%7EILS%7E1&h=8](https://ilc-web.uaa.alaska.edu/client/en_US/asl/search/detailnonmodal/ent:$002f$002fSD_ILS$002f0$002fSD_ILS:5150151/ada?qu=the+salmon+way&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A5150151%7EILS%7E1&h=8)
- *Salmon Summer* by Bruce McMillan (1998): Though this is a children’s book, it has great pictures and is specific to the Kodiak area. It is a photo essay describing a young Alaskan Native boy fishing for salmon on Kodiak Island as his Ancestors have done for generations.

- *Alutiiq Pride: A Story of Subsistence* (27:28) 1997: The Village of Tatitlek & Alaska Department of Fish & Game Division of Subsistence created the film to show the effects of the Exxon Valdez oil spill and document subsistence ways of life. Not specific to salmon. https://www.youtube.com/watch?v=BdX5m0rY_CY
- Salmon Run Times in the Kodiak area: <https://www.adfg.alaska.gov/Static-sf/Region2/pdftpubs/KodiakAleut.pdf>
- Marchioni, M. A., Fall, J. A., Davis, B., & Zimpelman, G. (2016). Kodiak City, Larsen Bay and Old Harbor: An ethnographic study of traditional subsistence salmon harvests and uses. <https://www.adfg.alaska.gov/download/Technical%20Papers/TP418.pdf>
- *Salmon Gill Netting - Subsistence Fishing in Alaska* (25:39): This video shows the whole process of using a skiff to set and pick a gillnet in the Buskin river in Kodiak to catch red salmon. <https://www.youtube.com/watch?v=K2uXMYrkjfl&t=32s> .
- *How to pick salmon out of a gillnet* (6:11): This shows a very clear explanation of how to pick salmon from gillnets with and without a tool. <https://www.youtube.com/watch?v=xkLVKZhWhgU&t=77s>
- *Subsistence*: Short film on subsistence from Ketchikan, with Tlingit people interviewed. <http://ketchikanstories.com/film/our-native-legacy/history-and-heritage?slide=3&short=4>
- *Hanging a Gillnet* (16:40): For students interested in using a gillnet for subsistence fishing, this goes into detail about nets, corklines, and net repair. It was made in 2013, but information is still current. <https://www.youtube.com/watch?v=AR-SR3gNDdM>
- Alaska Fish and Game site on Subsistence: <https://www.adfg.alaska.gov/index.cfm?adfg=subsistence.definition>
- Alaska Fish and Game subsistence fishing information for Kodiak area: <https://www.adfg.alaska.gov/index.cfm?adfg=ByAreaSubsistenceKodiakIS.main>
- Permits and License information for Alaska residents: <https://www.adfg.alaska.gov/index.cfm?adfg=residentfishing.main>
- Subsistence and Personal Use Permits and Regulations: <https://www.adfg.alaska.gov/index.cfm?adfg=subsistenceregulations.fish>
- Subsistence in Alaska: A Year 2017 Update (Report): https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf

Gear for Set Netting

When you use a gillnet or set net, it is important to know the names of the gear you will use.

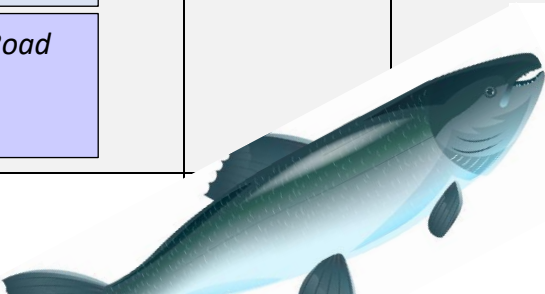


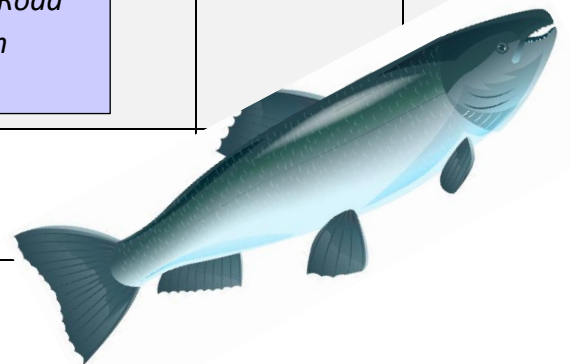
This handout originally developed for the Alaska Native Transition Skills 2019 pilot project in *Set-Net Fishing Skills and Cold Water Safety Skills* (tied to Dillingham Region/Yup'ik values).

When Do the Salmon Run?

Look at the table below to see when the salmon run in and around Kodiak.

	May Nikllit Iraluq (Red Salmon Month)	June Naut'staat Iraluat (Plants' Month)	July Amartut Iraluat (Pink Salmons' Month)	August Alagnat Iraluat (Salmon-berries' Month)	September Qakiiyat Iraluat (Silver Salmons' Month)	October Kak'gllum Iralua (Runny Nose Month)
niklliq (Red/Sockeye)	Buskin River					
			Pasagshak River			
			Saltery Creek River			
	Karluk and Ayakulik Rivers					
qakiiyaq (Silver/Coho)				Buskin River		
				Pasagshak River		
				Saltery Creek River		
				Afognak River		
				Uganik River		
				Other Road System Creeks: American, Olds, Salonie		
amaqaayak (or luuqaanak in Karluk) (Pink/Humpy)			Buskin River			
			Other Road System Creeks			
liliksak (King/Chinook)	Other Road System Creeks					





Questions—Answer these questions using the information in the chart.

- If you wanted to fish for sockeye, where could you go?
- If you wanted to fish in July, what kinds of salmon could you catch?
- What kind of salmon runs in the Uganik river?
- What is the name of the river closest to you? What salmon run there, and when?
- What month is named for the sockeye salmon in Alutiiq?
- What month is named for the silver salmon in Alutiiq?

Getting Your Gear Ready for Harvest

To be ready for the salmon and to harvest salmon successfully, you need to take good care of your gear. It is a good practice to get your gear out to start getting it ready about a month before you plan to fish. Many people start getting ready in March. You will need to check your nets, skiff outboard (if you use a skiff), cork lines and lead lines, and any other gear you use.



You will also need to be ready to process and preserve your fish, so your smokehouse, drying racks, or supplies to can or vacuum pack will need to be ready. Your knives will need to be sharp.

Taking care of your gear: During the fishing months, you will need to repair any tears in your nets and make any other needed repairs when gear breaks.

Putting things away: At the end of the fishing season, it is important to repair and clean your nets, and store them neatly so they are ready to use the next season. Many people store the nets on pallets, wrapped in tarps, inside away from direct sunlight.

Information on fish run timing was based on information from the Alaska Department of Fish and Game handout <https://www.adfg.alaska.gov/Static-sf/Region2/pdfpubs/kodiak.pdf>.

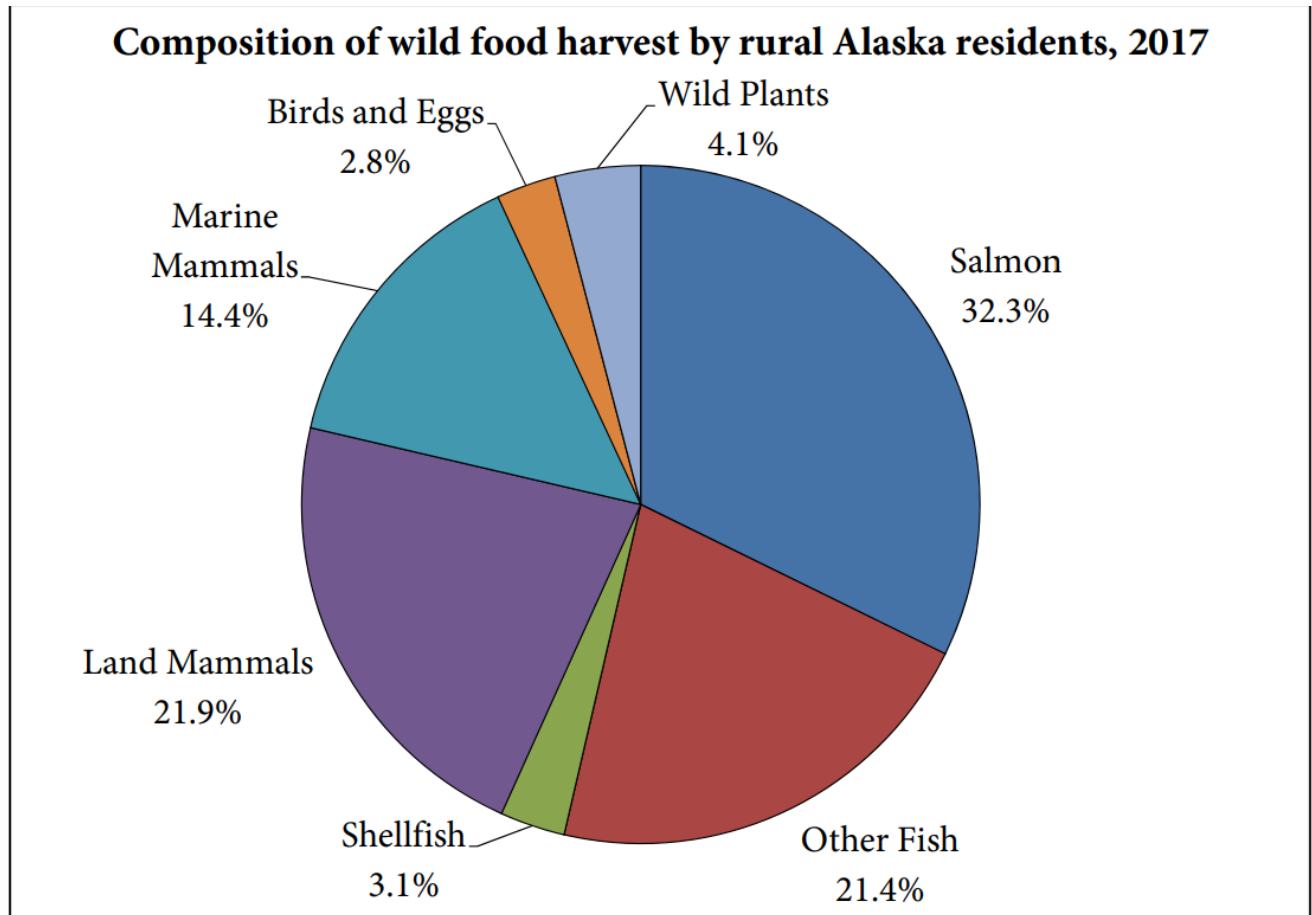
Information on Alutiiq month names provided by the Alutiiq Museum.

Gear information from culture bearer interviews with Joshua Sargent.

Subsistence in Alaska

From Subsistence in Alaska: A Year 2017 Update

https://www.adfg.alaska.gov/static/home/subsistence/pdfs/subsistence_update_2017.pdf



Share this graph with the students and discuss:

How does this compare to what you see in our community?

- Which of these foods from the Land are used in our community?
- Which land mammals are harvested?
- What other kinds of fish are harvested?

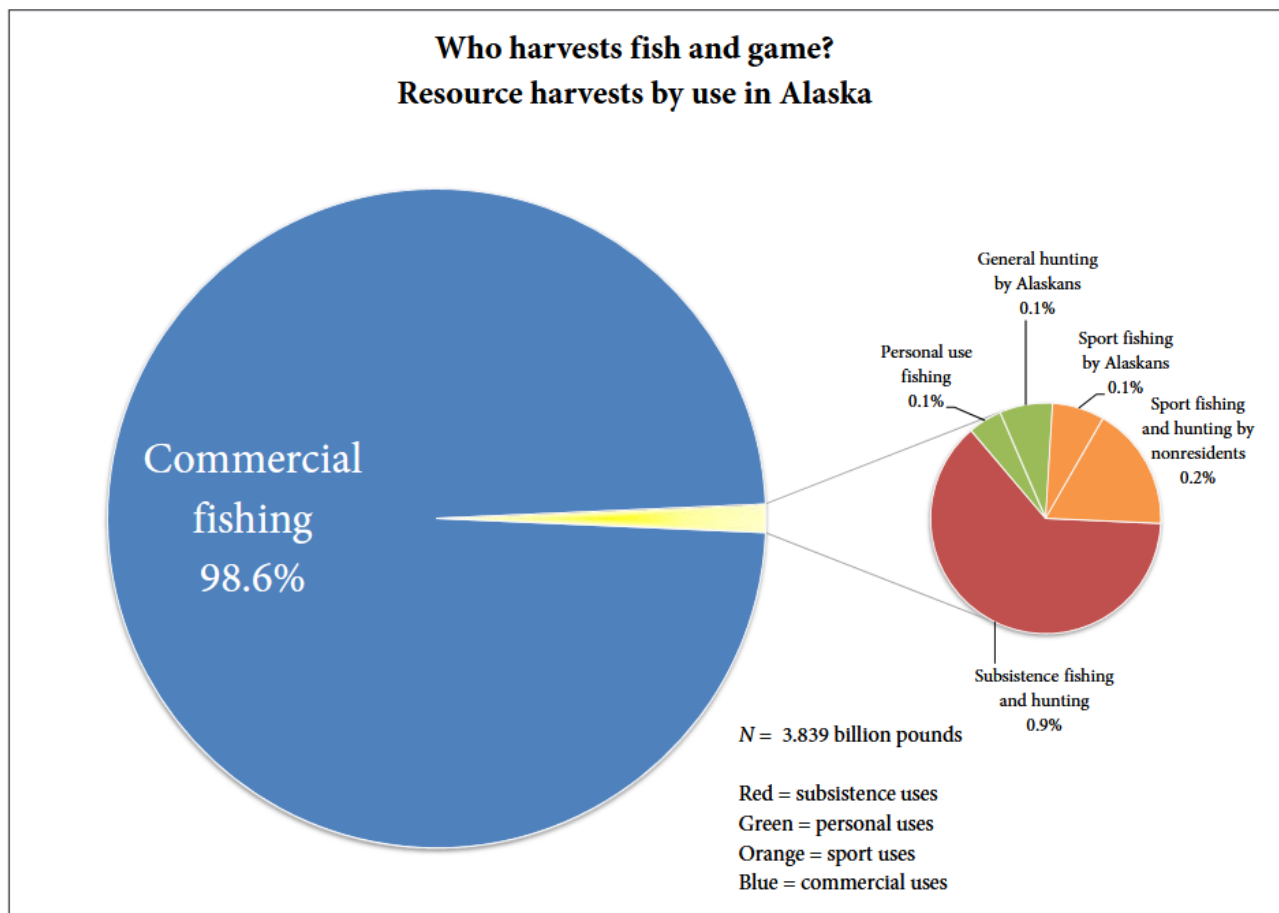
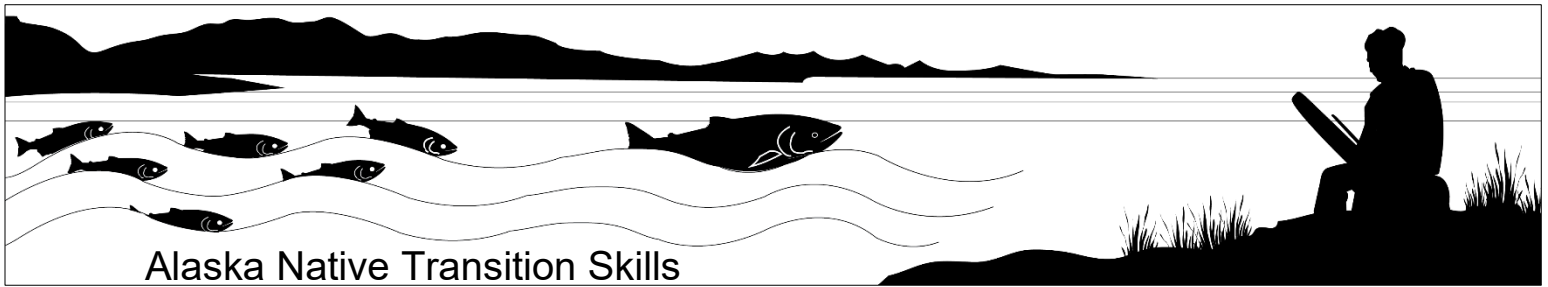


Figure 4

This graph shows how commercial fishing accounts for most of the harvest of fish and game in Alaska.

Discuss the balance of other interests represented by the pie graph on the right.



Alaska Native Transition Skills

Commercial Fishing in Alaska

Overview

In this lesson, students will learn about the different ways people commercial fish in the Kodiak region and other areas of Alaska. Different kinds of jobs in the commercial fishery will also be discussed.

Alaska Cultural Standards

- A1, A4, A6, B2, C4, D5, E1, E2,

Alutiiq/Sugpiaq Values

- Land - nunapet
- Stewardship - nunapet carlia'arluki
- Subsistence - unguwacirpet
- People - suupet
- Elders - cuqllipet
- Family - ilaapet
- Learning - liicirpet
- Language - Sugt'stun niuwacipet
- Humor - englarstaisngukut
- Spirituality - agayumaukut
- Sharing - ilakuisngukut
- Trust - sugtanartukut
- Respect - ling'aklluki

Learning Objectives

The student will be able to:

- Describe the main types of commercial fishing done for salmon in the Kodiak area including the types of boats and general gear used.
- Describe the types of commercial fishing jobs people can do.

Materials

- *Commercial Fishing Learning Story* Student Handout

Vocabulary

Commercial	Intended to make a profit. Related to fishing, commercial fishing is the activity of catching fish and other seafood for commercial profit, mostly from wild fisheries.
Season	(Related to fishing) The period of time during the year it is legal to catch fish. Some fish can be caught year-round, and some are limited to certain periods of time. Fishing regulations define when, how, and how many fish of different types can be harvested by Alaska residents and non-residents.

Activities and Adaptations

- **Share the goal of today's lesson:** "Today we are going to begin to learn about the different kinds of commercial fishing done in Alaska, especially the types done near Kodiak. We will also discuss different kinds of jobs in commercial fishing and what they are like. To learn about this, we will share ideas and watch some videos. By the end of this lesson, you will be able to: describe the main types of commercial fishing done for salmon in the Kodiak area including the types of boats and general gear used; and describe the types of commercial fishing jobs people can do."
- **Begin by finding out what students already know by asking the following questions:**
 - What kinds of commercial fishing are done in the Kodiak area? [*Seining, gillnetting (both drift gillnetting and set netting)*]
 - How is commercial fishing different than subsistence fishing? (*Commercial fishing is done to make money, not for personal use (though sometimes commercial fishermen keep some fish for personal use that they caught on commercial gear, called "home pack"); Different gear is used for commercial fishing than some kinds of subsistence fishing...*)
 - What are some examples of jobs in commercial fishing? (*You can work as a deckhand on a fishing boat, a fish processor, a deckhand on a tender, with experience you can work as a skipper.*)
- **Connect the Alutiiq Values of today's lesson with the objectives—**
 - People—suupet—*We are responsible for the people around us and ourselves. When we work as part of a team, we can achieve more and feel good as part of a community.*
 - Humor—englarstaisngukut—*When we use humor, we can be more productive and enjoy what we are doing. We can lift the spirits of others around us.*
 - Traditional Arts, Skills, & Ingenuity—piciipet uswituu'uq—*We have many important skills and ways of doing things that were passed down to us through our Ancestors. We can bring this ingenuity and creativity to everything we do.*
 - Learning – liicirpet—*Through listening, observing, and trying things, we learn new skills. This learning benefits ourselves and our families and communities.*
 - Respect - ling'aklluki— *Respect for self, others and our environment is inherent in all of our values. When we are confident in ourselves and ask for what we need to be successful, we honor our families, our land, our faith, and our Ancestors.*
- **Types of commercial fishing boats** Review the types of boats and how they are used. This handout by Alaska Fish and Game is a good reference for teachers who are not as familiar with boats:
https://www.adfg.alaska.gov/static/fishing/PDFs/commercial/whatkindofboat_cf.pdf
 - **Purse Seiner:** A purse seine is a large wall of netting deployed around an entire area or school of fish. The seine has floats along the top line with a lead line threaded through rings along the bottom. Once a school of fish is located, a skiff encircles the

school with the net. The lead line is then pulled in, “pursing” the net closed on the bottom, preventing fish from escaping by swimming downward (Source: <https://www.fisheries.noaa.gov/national/bycatch/fishing-gear-purse-seines>).

You can watch a tour of a purse seiner in Kodiak in this video: *Seiner Boat Walkthrough; Kodiak, Alaska: Commercial Salmon Fishing* (3:09): <https://www.youtube.com/watch?v=eK1ahp6QetU>

Here is another video made by crew on a purse seiner out of Kodiak. *Undertow* (4:46) <https://www.youtube.com/watch?v=bM9qKW4Om2U&t=68s>

- **Drift Gillnet:** “Gillnetting is a harvesting technique employing fine-filament nets that are set like a giant [tennis or volleyball] net across the path of migrating salmon. The top edge is held up by floats, and the bottom is pulled down by a heavy lead line forming a wall in the water that entangles fish by their gills. Drift gillnets are lowered off the stern or bow of a boat and allowed to drift freely in deep water, entangling fish that swim into them. A single “set” may last anywhere from a few minutes to the better part of a day, depending on currents, the weather, and the number of fish being caught. The net is slowly pulled in when the floats along the top begin to jiggle vigorously. The entangled fish are pulled up and shaken out of the net and then thrown into the hold. The net is then reset, and the process begins again. Gillnetters are recognizable by the large drum, which looks like a giant spool, mounted on the stern or bow that sets and retrieves the net. In Bristol Bay the drum is kept on the back (stern) of the boat.” (Source: <https://www.jobmonkey.com/alaska/gillnetting/>)

Here are a couple of good videos related to gillnetting.

- *Salmon Gill Netting - Subsistence Fishing in Alaska* (25:39): This video shows the whole process of using a skiff to set and pick a gillnet in the Buskin river in Kodiak to catch red salmon. <https://www.youtube.com/watch?v=K2uXMYrkjI&t=32s> .
 - *How to Set a Beach Set Net* (8:12): Shows a commercial set net operation. This is not Kodiak based, but the gear is very similar to what is used in the Kodiak area. <https://www.youtube.com/watch?v=dyfFu93zv0c>
 - *Commercial Salmon Set Net Fishing* (1:50): Family commercial set net operation in West Cook Inlet. https://www.youtube.com/watch?v=Ol1Wt6jI_bQ
 - *How to pick salmon out of a gillnet* (6:11): This shows a very clear explanation of how to pick salmon from gillnets with and without a tool. <https://www.youtube.com/watch?v=xkLVKZhWhgU&t=77s>
- **Set Gillnet:** A Set Gillnet, or “Set Net” is similar to a drift gillnet, but it is attached to the beach on one end. Spacer bars help keep the net open. It can be picked after the tide goes out and exposes the net, or it can be picked from a skiff while the tide is in. Note: Set gillnets are usually used more for subsistence fishing than for commercial fishing.

- **Troller:** Note: A troller is only used in Southeast Alaska. The fishing boat has two large poles that lower to 45-degree angles on the sides of the boat. Each pole has lines that run out from it with hooks and lures to catch salmon. The boats move the gear slowly through the water, and then are checked for fish. All king and silver salmon caught are gutted, cleaned, and iced in the boat holds until off-loading. Chum salmon are harvested and stored whole in ice until off-loading.
- **Tender:** “During the season it is often impractical for fishing boats to unload at shoreside processors because of the distance separating the processing plants from the fishing grounds. Tender boats fill the gap. Usually, between 50 and 130 feet in length, these boats go to the fishing grounds, buy fish from different boats, and resupply the fishermen with food, fuel, and supplies.”
(https://www.jobmonkey.com/alaska/tender_boats/)
 - This video shows a tender and has someone explaining what a tender is. It is based in Naknek, Alaska. The video is long, recommend starting at 3:58 for the relevant information. *What is a Salmon Tender Boat? - Alaska Seasonal Job 2020* Ep. 4 (10:02): <https://www.youtube.com/watch?v=ZTAJN-VMXms>
- **Boats Field Trip:** Take a field trip to your local harbor to see the different kinds of commercial fishing boats. Have students identify the type of fishing boats and the gear they can see from the dock. Do not go on any boats without the permission of the owner.
- **Different kinds of fishing jobs—**Discuss the different kinds of fishing jobs below. All except the skipper are entry level. Ask the students to share their experience, if they have it, with any of the kinds of work discussed. Much of the information in this section comes from Job Monkey, which has a dedicated section for fishing jobs in Alaska (<https://www.jobmonkey.com/alaska/>). Jobs break down into harvesters and processors. To make it more interactive, students could explore the site and report back on what they found out for the following jobs.

Job Title	Description	Average Pay (2022)
Gillnetter deckhand	Helps deploy and bring in the net, repairs gear, picks fish from the net, sorts and weigh fish. A gillnetter usually has a skipper plus one or two crew.	Inexperienced gillnetters usually earn about 5% of the boat’s gross income, while experienced deckhands make between 8-12%, which usually works out to between \$4,000 and \$7,000 for a two-month season.
Fish Processer	Either on land or on a processing vessel, people in these jobs work on a line where fish are cleaned, iced, sorted, weighed, frozen, and packed.	Earnings of over \$7,000 for only two short months of work are common during a good season.

Troller deckhand	Most trollers are operated by a skipper and a single deckhand. Responsibilities include cleaning and icing fish, running the gear on one side of the boat, fixing broken tackle, standing wheel watch, and sometimes even cooking.	Pay is based on a percentage (usually 12-15 percent) of the gross catch. Deckhands usually earn between \$2,500 and \$5,000 in a two-month season.
Seiner deckhand	Purse seiners require a crew of four to six people who are able to work together efficiently as a team to run the net, sort fish, and deal with gear.	Crew shares typically come to \$5,000–\$10,000 for a two-month season.
Tender deckhand	Four people usually work aboard a tender – a skipper, an engineer, a cook, and a deckhand. Deckhands receive fish from fishing boats, weigh and sort fish, and complete related paperwork.	Pay is either set in advance or is based on a percentage of the fish handled. Typically, pay works out to be between \$100 and \$180 per day for tender boat deckhands.
Skipper	The person who runs the boat, finds the fish, decides where to fish. The person responsible for what happens on the boat. Skippers learn to be a skipper by working on boats and gaining experience. They need to know how to fish and how to manage a team.	

Learning stories

- Read the learning story about Natalie and Josh and how they decided to work on a purse seiner. Discuss the questions on the handout.
- Discuss how it is for Alaska Native people who work in commercial fishing, as well as participate in subsistence fishing. How can they live their traditional Indigenous values through both kinds of activities?
- Invite a local Alaska Native leader, Elder, or culture bearer to share a traditional story or a personal story of working in commercial fishing, and how it may be similar or different from subsistence fishing.

Evaluation

At the end of the lesson, ask the students these questions:

- What are the main types of commercial fishing done for salmon in the Kodiak area?
- What are the kinds of boats and gear used?
- What are examples of the types of commercial fishing jobs people can do?

Additional Resources

- What kind of fishing boat is that? (PDF): Alaska Fish and Game handout: https://www.adfg.alaska.gov/static/fishing/PDFs/commercial/whatkindofboat_cf.pdf
- *Alaska Geographic Commercial Fishing in Alaska*, Volume 24, Number 3 (1997) This is a good primer on commercial fishing in Alaska, as well as the history of how the fishery is managed.
- Alaska Department of Fish and Game Commercial Fishing main page: <https://www.adfg.alaska.gov/index.cfm?adfg=fishingCommercial.main>
- Alaska Department of Fish and Game Commercial Salmon Fishery Info: <https://www.adfg.alaska.gov/index.cfm?adfg=CommercialByFisherySalmon.main>
- *How to Set a Beach Set Net* (8:12): Shows a commercial set net operation. This is not Kodiak based, but the gear is very similar to what is used in the Kodiak area. <https://www.youtube.com/watch?v=dyfFu93zv0c>
- *Commercial Salmon Set Net Fishing* (1:50): Family commercial set net operation in West Cook Inlet. https://www.youtube.com/watch?v=Ol1Wt6jl_bQ
- *Hanging a Gillnet* (16:40): For students interested in using a gillnet for commercial fishing, this goes into detail about nets, corklines, and net repair. It was made in 2013, but information is still current. <https://www.youtube.com/watch?v=AR-SR3gNDdM>
- Alaskan Commercial Fishing on Cook Inlet 2009: A Day on the Grebe (14:45) Shows a family run commercial gillnet operation in Cook Inlet, Alaska. <https://www.youtube.com/watch?v=tGEYjAHjLWk>
- Fishing Jobs in Alaska: Commercial site with jobs information. <https://www.jobmonkey.com/alaska/>
- Bristol Bay Careers Information: Though the fishing is different in the Bristol Bay area, there still is good information about careers in the fishery, and what kinds of experience would be helpful to interested students. https://bbna.com/wp-content/uploads/2019/10/c743e-bristol_bay_career_guide_final.pdf

Natalie and Josh's First Season

Natalie and Josh grew up around fishing. They enjoyed the yearly traditions of harvesting salmon with their aunts and uncles using beach set nets and preserving the tasty salmon for the family members. Their dad had a purse seiner and fished commercially, and was able to keep the fish they needed as “home pack.” They helped their mom can and freeze these salmon to use during the year. When



Natalie and Josh were teenagers, they decided they wanted to crew on fishing boats for the summer. Josh and Natalie started “pounding the docks” in the spring to talk to skippers and see who was hiring for the season. Even though they grew up around fishing, the first season out they would be called “greenhorns.” They had gotten some advice from their dad on which boats might be better to work than others. It was important to find a skipper who would treat them well and fairly. Josh got a position first, and then Natalie found one on another boat. Being local kids with some fishing experience helped them find a skipper to hire them.

Natalie and Josh started out by holding the netting and watching as the more experienced crew members sewed and repaired the nets. They knew it takes a long time to learn how to mend the nets so they are strong, and no fish are lost. After a few days getting the boat and nets ready for the season, everything was ready. They were excited for their first day of fishing, and wanted to see how it all was going to go.

Natalie's skipper was lucky the first day and found a good school of fish for the first set. The skipper barked orders to the crew, and everyone worked hard and fast. Natalie felt a little overwhelmed at times by all the sounds and how fast she had to move. A couple of times, it took her a minute to understand what she was being asked to do. As the first set was emptied onto the deck, Natalie was boots deep in beautiful salmon. It was a great beginning.

Josh's skipper had less success the first couple of days, but then found some good areas to fish. The winds and rain picked up and it made everything on deck extra slippery. He had to really pay attention. The hours ran together as the sets were made and the fish came in. He put in long days, but was enjoying being part of the team all working together.

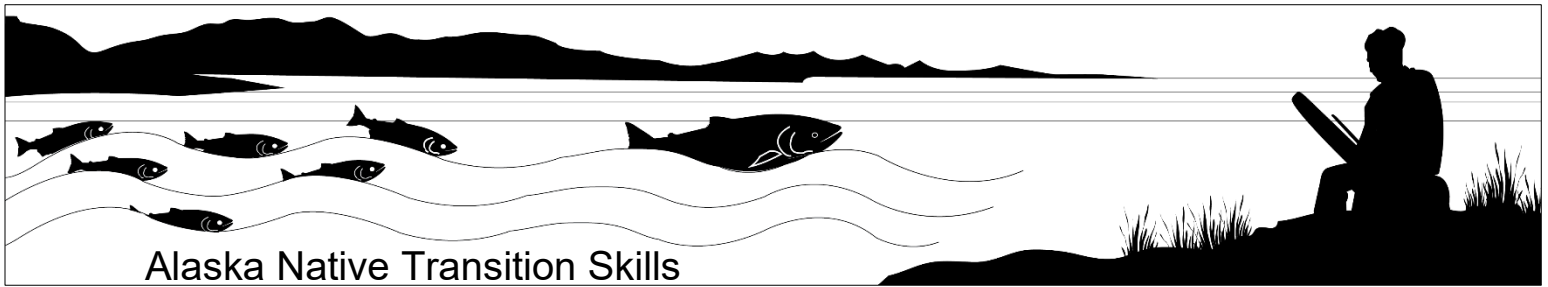
In the late summer, after a long day of fishing, Josh rested on the deck and looked at the sunset over the water. He could smell of the salt air, the smells of the fish, the fuel from the boat, and even the smell of dinner being made in the galley. The sounds of the gulls and the boat thumping through the water surrounded him. He was almost done with his first season, and knew he wanted to come back again the next summer. He could fish in the summers to help him pay for college and reach his goals.

As Natalie looked out at the same sunset from another boat, she realized she wanted to learn more about what it would take to become a skipper and have her own boat. She loved being out on the water and working with others to find and bring in the fish. She decided she would start to learn the business side of having a fishing boat. She wanted to see if she could take over her dad's boat and permit when he was ready to retire, or find other options. She could see herself making a living from commercial fishing long term.

Both Natalie and Josh had made it through their first season. They were not "greenhorns" any longer. Both of them were hard workers and quick learners. They were good members of the team. The next spring, their experience and skills would help them more easily find crew spots for the next season.

Questions for discussion—

- What did Josh and Natalie like about their experiences working as a crew on a commercial fishing boat?
- What experience did they have before their first season?
- How did commercial fishing fit with Josh's goals? How did it fit with Natalie's?
- Discuss what you think you would like or not like about working on a commercial fishing boat.



Alaska Native Transition Skills

Aquaculture

Overview

In this lesson, students will learn about hatcheries and the role of hatcheries to keep the fishery healthy and strong. The students will also discuss what it is like to work at a hatchery.

Alaska Cultural Standards

- A1, A4, A6, A7, B2, C2, E1, E2, E4

Alutiiq/Sugpiaq Values

- Land - nunapet
- Stewardship - nunapet carlia'arluki
- Subsistence - unguwacirpet
- People - suupet
- Elders - cuqllipet
- Family - ilaapet
- Learning - liicirpet
- Language - Sugt'stun niuwacipet
- Humor - englarstaisngukut
- Spirituality - agayumaukut
- Sharing - ilakuisngukut
- Trust - sugtanartukut
- Respect - ling'aklluki

Learning Objectives

The student will be able to:

- Describe the purpose of a fish hatchery and the role of aquaculture in maintaining a strong salmon population.
- Describe the stages of the salmon life cycle and how salmon are reared in a hatchery as they move through these stages.
- Describe the role of the Kodiak Regional Aquaculture Association and how the association supports a strong salmon fishery.

Materials

- *Rearing Salmon at a Hatchery* Student Handout

Vocabulary

Aquaculture Rearing of fish in a controlled environment. It is also called fisheries enhancement. Many Alaskans depend on fishing for both income and subsistence. Hatchery fish account for between 15 and 20 percent (depending on the species) of the yearly harvest and have greatly strengthened the overall profitability of the fishing industry.

Cost recovery	The hatchery can work with processors who hire commercial fishermen to harvest and sell some of the fish to help pay for the costs of the hatchery. The fishermen get a percentage of what they catch, and they know the amount they have to get for the hatchery.
Incubate	To keep eggs at a certain temperature so they hatch.
Indigenous	Refers to the social norms, belief systems, traditions, values that are held and practiced by the original people native to a specific place. In this curriculum, it refers to the Alaska Native peoples, with specific examples from Alutiiq/Sugpiaq peoples.
Milt	The sperm from male salmon.
Smolt	A young salmon that is ready to move out to live in the ocean.
Spawn	When a salmon releases eggs or milt to make baby fish.
Wild	Salmon who live and survive in a natural environment.

Activities and Adaptations

- **Share the goal of today's lesson:** "Today we are going to begin to learn about hatcheries and what it is like to work at a hatchery. To learn about this, we will share ideas and watch videos. By the end of this lesson, you will be able to: describe the purpose of a fish hatchery and the role of aquaculture in maintaining a strong salmon population; describe the stages of the salmon life cycle and how salmon are reared in a hatchery as they move through these stages; and [Extension] describe the role of the Kodiak Regional Aquaculture Association and how the association supports a strong salmon fishery."
- **Begin by finding out what students already know by asking the following questions:**
 - What is the purpose of a fish hatchery? (*To enhance and add more fish to the personal use, sport, and commercial fishery.*)
 - What happens at a fish hatchery? (*Eggs are collected and fertilized and incubated. The eggs are hatched into baby fish called smolt. The smolt are released from different areas so they return to that area after they have gone out to sea.*)
 - What kinds of jobs do you think happen at a fish hatchery? (*People have to run the equipment, move the fish around, take care of the fish, collect and input data on the fish...*)
- **Connect the Alutiiq Values of today's lesson with the objectives—**
 - People—suupet—*We work together to care for members of our community.*
 - Stewardship—nunapet carlia'arluki—*We harvest from the Land with gratitude. We only take what we need for our families and community members. We preserve the foods and take care of them so that nothing is wasted. This shows respect to the Land.*
 - Subsistence "Our way of being alive"—unguwacirpet—*"A subsistence lifestyle is respectful and sustained by the natural world." We have a relationship with the Land*

where we care for the Land, and the Land takes care of us.

- Sharing— ilakuisngukut—We work together and share with the Land has provided to keep our communities strong and healthy.

- **Fish Hatcheries Introduction**—The Alaska hatchery program was designed to increase the overall number of salmon and to enhance the fishery, while protecting wild stocks. To reduce interactions between wild fish and hatchery fish, they are generally located away from large naturally occurring populations of salmon.

Hatcheries use local stock so that fish are locally adapted and have local genetic profiles. The hatcheries protect the fish during their early stages, but then they are released into the wild and grown up in the wild. When the salmon return to the hatchery area, they are available for harvest in personal use, sport, subsistence, and commercial fisheries.

- **Fish Hatchery Videos**—Watch this video to get a brief introduction to what a hatchery is and what it looks like. This is a tour of the Chum salmon hatchery in Juneau, Alaska. *Fish Hatchery Tour in Alaska* (3:12): <https://www.youtube.com/watch?v=xVrb9gnnbnw>

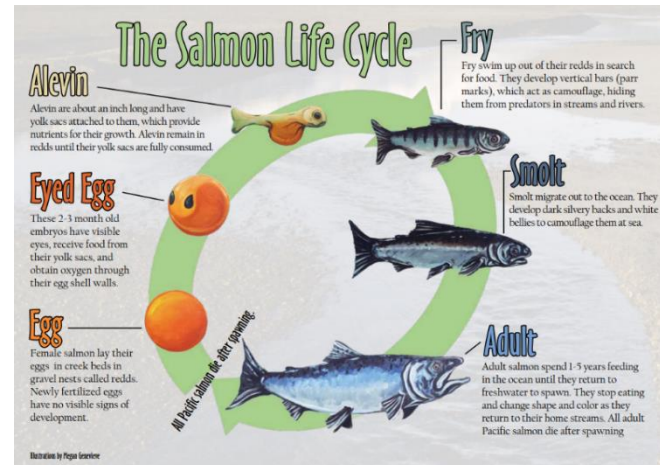
William Jack Hernandez Sport Fish Hatchery Tour (22:49): This Alaska Department of Fish and Game video goes into detail about the hatchery process. This hatchery is the state's largest, and is located in Anchorage. Its focus is to provide fish for sport fishing. Before you watch the video, ask the students to focus on the jobs they think would be at the hatchery to manage the equipment and keep all the systems working well.

https://www.youtube.com/watch?v=en_WZjMGB_8

Discussion questions:

- What kinds of jobs would it take to keep the hatchery running and care for the little fish? *(There are fish biologists, engineers, fish technicians and others. People have to clean the hatchery, monitor the machines, and tend to the little fish. Water temperature and quality is very important, or the little fish die.)*
- What happens to the baby fish, called smolt, that are born at the hatchery? *(The salmon are released at stream sites so they return to the place they were released, providing opportunities for people to catch them at those locations. Some other kinds of fish are released into lakes for people to catch and enjoy.)*
- **Review the salmon life cycle:** Look on page 4 of the *Alaska Salmon Guide* to review the stages of the life cycle of salmon, to understand what each stage is called. The hatchery takes the salmon through the first stages of the life cycle until they are released as smolt. They recapture the adults that come back to spawn, and the cycle starts again.

<https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>



- **What happens at a hatchery?** The following process is used for salmon. As you learn about the steps, notice the people that are doing the work. Does it look interesting to you? Which jobs would you like? What do you think the people like about it? Discuss each step while the students look at their *Rearing Salmon at a Hatchery* handout.
 - **Broodstock/Egg take:** Adult fish that are ready to spawn are collected. The eggs are removed from female fish, and the milt (sperm) is removed from male fish. In this video, watch the egg take collection starting at time marker 5:01. Cook Inlet Aquaculture Association hatcheries video at <https://www.youtube.com/watch?v=zA75ckr1Xd8&t=301s>
 - **Spawning:** The eggs and milt are mixed together in the right amounts of each one for the type of salmon it is. (For example, for pink and chum salmon, the eggs of 10 females are mixed with the milt from 5 males, but for coho salmon, it is 1 female's eggs to 1 male's milt.) Watch the mixing of the eggs and milt starting at time marker 6:10. A couple of different locations and methods are shown. In the first one, the eggs and milt are separate and mixed by weight at the hatchery. In the second example, the eggs and milt are put together right from the fish. Cook Inlet Aquaculture Association hatcheries video at <https://www.youtube.com/watch?v=zA75ckr1Xd8&t=301s>
 - **Incubation:** Eggs are kept in incubation trays with flowing water. Water flow and temperature are watched closely. People dip their hands and shoes in a disinfectant every time they enter or leave the incubation rooms to keep disease from getting into the fish or from spreading from room to room.
 - **Eyed Stage:** Undeveloped eggs are removed. The ones with eyes means they are fertilized, and will stay in the incubator through the Alevin stage.
 - **Fry:** The fish are moved into tanks and fed so they start to grow. Once they are big enough, they will be ready to be imprinted to their stream or release location.
 - **Smolt:** At some hatcheries, fish are held and grown bigger. At others, the smolt are moved to net pens at their release location. The net pens are in salt water. The fish get bigger, and will imprint to that location so that after they are released, they will return when they are adults and ready to spawn.
- [Extension] Kodiak Regional Aquaculture Association is the organization that owns and operates the two hatcheries in the Kodiak area: Pillar Creek and Kitoi Bay Hatchery. The costs of operating the hatcheries are covered by a 2% tax on the fishermen when they sell their fish, and by doing cost-recovery. Cost recovery is when the hatchery works with fish processors who hire commercial fishermen to harvest and sell some of the fish that return to help pay for the costs of the hatchery. You can check out their website, and get a virtual tour of Pillar Creek hatchery. <https://kraa.org/> and <https://www.kraa.org/pch>

Learning stories

- Invite someone from the Alaska Department of Fish and Game to talk about the purpose of hatcheries and how hatcheries are part of sustainability. They can share about the kinds of jobs that people at hatcheries have. They could also speak to how important it is that cultural stakeholders, Alaska Native peoples, participate in the fishery. This could be through subsistence, by working in the fishery at many levels, by serving on committees and boards, and by giving input when the public is asked for comment.

Evaluation

At the end of the lesson, ask the students these questions:

- What is the purpose of a fish hatchery and the role of aquaculture in maintaining a strong salmon population?
- What are the stages of the salmon life cycle and how are salmon reared in a hatchery as they move through these stages?
- [Extension] What is the role of the Kodiak Regional Aquaculture Association and how does the association support a strong salmon fishery?

Additional Resources

- *Alaska's Salmon Hatcheries: Contributing to Fisheries and Sustainability* (2013)—This one-page handout by Alaska Department of Fish and Game explains the roles of Alaska's hatcheries. Reading level is high, but provides good background information.
https://www.adfg.alaska.gov/static/fishing/PDFs/hatcheries/2013_ak_hatcheries.pdf
- Hatcheries Webpage (Alaska Fish and Game): Hub of information about hatcheries, hatchery regulations, and reports and data.
<https://www.adfg.alaska.gov/index.cfm?adfg=fishingHatcheries.main>
- *Alaska Salmon Fisheries Enhancement Annual Report* (2021):
<http://www.adfg.alaska.gov/FedAidPDFs/RIR.5J.2022.02.pdf>
- *Checking Out Macaulay Salmon Hatchery in Juneau* (18:13): Here is a longer video of the Juneau Hatchery, done by Emerald Isle Seafoods (EIS), a Kodiak based business. This is more of an amateur video, showing what you would see on the tour:
<https://www.youtube.com/watch?v=EdTbsy5J2QM>
- *Alaska Department of Fish & Game Hatchery* (2:10): Shorter video about the William Jack Hernandez Sport Fish Hatchery in Anchorage. Fun shot of the fish being released into the river from the tanker truck. https://www.youtube.com/watch?v=n4A_LaCh7L0
- *Map of Hatcheries in SouthCentral Alaska*:
https://www.adfg.alaska.gov/static/fishing/PDFs/hatcheries/sc_hatch.pdf
- Pacific Salmon Lifecycle and Identification Quiz:
<http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportFishingInfo.quiz>

Rearing Salmon at a Hatchery

Here are the steps taken at a salmon hatchery to move the salmon through their life cycle and out into the ocean. Most are harvested through commercial, subsistence, and sport fishing. Some return to spawn and start the cycle again.



Broodstock/ Egg take

Adult fish that are ready to spawn are collected. The eggs are removed from female fish, and the milt (sperm) is removed from male fish.



Spawning

The eggs and milt are mixed together in the right amounts of each one for the type of salmon it is. (For example, for pink and chum salmon, the eggs of 10 females are mixed with the milt from 5 males, but for coho salmon, it is 1 female's eggs to 1 male's milt.)



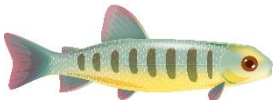
Incubation

Eggs are kept in incubation trays with flowing water. Water flow and temperature are watched closely.



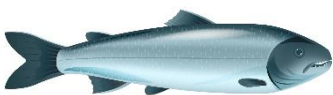
Eyed Stage

Eggs that have eyes were fertilized and will develop. They will stay in the incubator through the Alevin stage (where the egg sac is still attached).



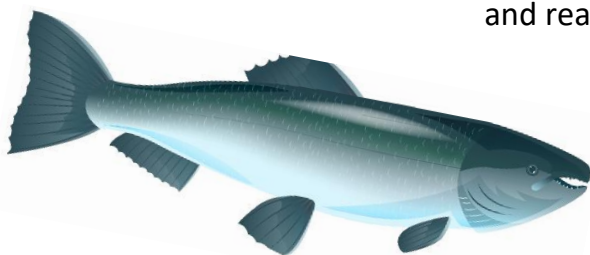
Fry

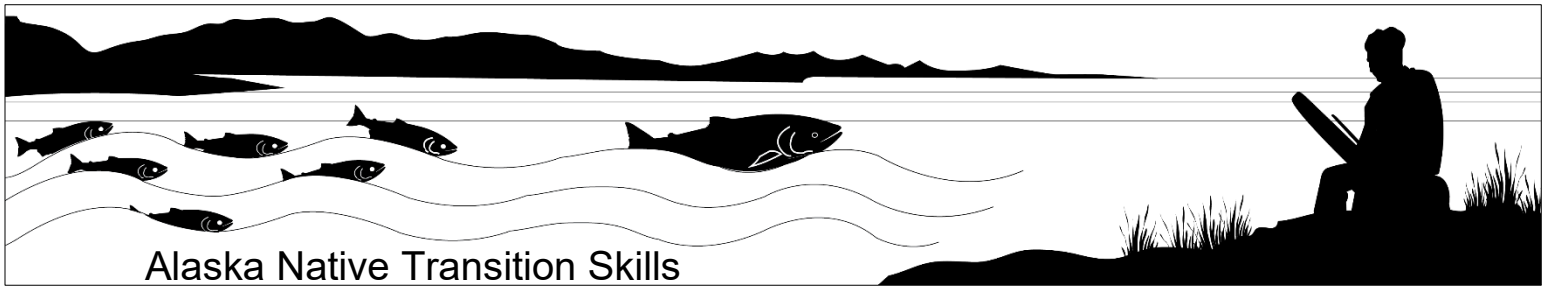
The fry are moved into tanks and fed so they start to grow. Once they are big enough (smolt size), they will be ready to be imprinted to their stream or release location.



Smolt

At some hatcheries, smolt are held and grown bigger. At others, the smolt are moved to net pens at their release location. The net pens are in salt water. The fish get bigger, and will imprint to that location so that after they are released, they will return when they are adults and ready to spawn.





Alaska Native Transition Skills

Aquaculture and Fish Technology Jobs

Overview

In this lesson, students will learn about the kinds of jobs you can get in fish technology (such as working at a hatchery or at Fish and Game). The Applied Fisheries program at the University of Alaska Southeast (UAS) Sitka, is highlighted.

Alaska Cultural Standards

- A1, A4, A6, A7, B2, C2, C3, D5, E1, E2, E4, E7

Alutiiq/Sugpiaq Values

- Land - nunapet
- Stewardship - nunapet carlia'arluki
- Subsistence - unguwacirpet
- People - suupet
- Elders - cuqllipet
- Family - ilaapet
- Learning - liicirpet
- Language - Sugt'stun niuwacipet
- Humor - englarstaisngukut
- Spirituality - agayumaukut
- Sharing - ilakuisngukut
- Trust - sugtanartukut
- Respect - ling'aklluki

Learning Objectives

The student will be able to:

- Describe the kinds of work people can do in fisheries technology, and the training options needed for those kinds of positions.
- Describe organizations who hire people with an occupational endorsement, certificate, or AA degree in Applied Fisheries.
- Explore the UAS Applied Fisheries program website in an activity.

Materials

- Computers or tablets for students to explore the UAS Applied Fisheries program website in an activity.

Vocabulary

Aquaculture Rearing of fish in a controlled environment. It is also called fisheries enhancement. Many Alaskans depend on fishing for both income and subsistence. Hatchery fish account for between 15 and 20 percent (depending on the species) of the yearly harvest and have greatly strengthened the overall profitability of the fishing industry.

Fish Tech Fisheries Technology, or Fish Tech, is the technology and science used to manage the fishery and in aquaculture (hatcheries).

Management Fisheries Management is the work of collecting data and making decisions that keep the fisheries healthy and sustainable.

Activities and Adaptations

- **Share the goal of today's lesson:** "Today we are going to begin to learn about different kinds of work people do in fish technology and the training options and opportunities there are in this field. To learn about this, we will share ideas, watch videos, and explore the UAS Applied Fisheries program website in an activity. By the end of this lesson, you will be able to: describe the kinds of work people can do in fisheries technology, and the training options needed for those kinds of jobs; explore who hires people in fisheries tech; and explore the UAS Applied Fisheries program website in an activity."
- **Begin by finding out what students already know by asking the following questions:**
 - What is fisheries technology? (*The technology and science used to manage the fishery and in aquaculture (hatcheries)*)
 - What kinds of jobs can people get if they have a certificate in Fisheries Technology? (*Hatchery positions, Fish and Game or Tribal Organization field work...*)
 - How long do you think it would take to get a Fisheries Tech certificate that could help you get a good job? (*The Occupational Endorsement is the first level, and it only takes a semester if you go full time. The Fisheries Tech Certificate is a year program. Both can lead to good jobs in either aquaculture or fisheries management...*)
- **Connect the Alutiiq Values of today's lesson with the objectives—**
 - People—suupet—*We work together to care for members of our community.*
 - Stewardship—nunapet carlia'arluki—*We harvest from the Land with gratitude. We only take what we need for our families and community members. We preserve the foods and take care of them so that nothing is wasted. This shows respect to the Land.*
 - Subsistence "Our way of being alive"—unguwacirpet—*"A subsistence lifestyle is respectful and sustained by the natural world." We have a relationship with the Land where we care for the Land, and the Land takes care of us.*
 - Sharing—ilakuisngukut—*We work together and share with the Land has provided to keep our communities strong and healthy.*
- **Exploring Careers in Fisheries Technology:** There are many jobs in the fisheries that do not require a college degree, and many people start in the fisheries by working in the field for Fish and Game or a Tribal organization, or by working at a hatchery. People with an Occupational Endorsement are better prepared for these jobs and will have an advantage over others when applying for a hatchery job.

The Applied Fisheries programs can be completed in your home community online (if you have good internet) or on an iPad that is preloaded with the coursework. The overall timing of how you complete the course work is very flexible. There are many jobs waiting those who successfully complete the program.

Watch this video of fisheries tech work and discuss the kinds of work the people are doing. It starts with a release of fry at a hatchery, and then shows two activities associated with monitoring the smolt migration in Cook Inlet. A team first counts all the smolt that are headed down the river, and another team captures and tags and collects data on some of them. The video continues showing other hatchery and fish tech work. Most of the jobs shown could be done by someone with a Fish Tech OE. *Cook Inlet Aquaculture Association* (8:46): <https://www.youtube.com/watch?v=zA75ckr1Xd8&t=187s>

(From the older UAS Fish Tech Site) “Fisheries technicians work in a wide variety of fields and for a wide variety of agencies, both private and public. Potential positions include:

- Fisheries technician
- Fish culturist
- Fishery observer
- Fish and wildlife surveyor
- Habitat restoration technician
- Stream surveyor
- Fisheries management assistant
- Hatchery technician

Many fisheries technology careers offer an attractive quality of life and great potential for advancement. Agencies often looking for fisheries technology employees include:

- State Department of Fish and Game
- US Fish and Wildlife
- Salmon Hatcheries
- Native Corporations
- Aquaculture / Mariculture Industry”

- **Applied Fisheries Occupational Endorsement (OE), Certificate, and A.A.S** The Applied Fisheries programs at the University of Alaska Southeast Sitka (UAS) are an excellent way for people to start in a career in the fisheries. The three programs connect to each other. Students who complete the Associates degree are then prepared to pursue a 4-year degree with the UAF (University of Alaska Fairbanks) School of Fisheries and Ocean Sciences. Most coursework can be done online at your own pace. For those living in rural areas with limited or unreliable internet, courses can be completed on a pre-loaded iPad provided by the program.

- **The Alaskan Aquaculture Occupational Endorsement** takes one semester to complete. Coursework can be done online. Courses introduce students to the fundamentals of marine aquaculture and provide knowledge and applied training on rearing salmon and other marine organisms. The knowledge and skills learned in this program are essential to workforce development in the aquaculture sector. Emphasis options include either Fisheries Emphasis or Vessel Operator Emphasis. Learn more at <https://catalog.uas.alaska.edu/certificate-degree-programs/occupational-endorsements/alaska-salmon-enhancement-oe/index.html#text>
- **Alaska Mariculture OE** takes one semester to complete. This occupational endorsement provides training for students interested in careers in mariculture. Courses introduce students to the fundamentals of marine mariculture and provide knowledge and applied training on rearing shellfish, seaweed, and other marine organisms. Most of this program can be completed online. Learn more at <https://catalog.uas.alaska.edu/certificate-degree-programs/occupational-endorsements/alaskan-mariculture-oe/#occupationalendorsementrequirementstext>
- **Fisheries Management Occupational Endorsement** takes one semester to complete. provides lecture and training for students entering into fisheries management occupations. Courses introduce students to subjects spanning international and local fisheries management doctrine, fisheries law, fisheries economics and fisheries biology. The knowledge learned in this program will provide students with a base of knowledge to work in state or federal fisheries management. Learn more at <https://catalog.uas.alaska.edu/certificate-degree-programs/occupational-endorsements/fisheries-management-oe/#occupationalendorsementrequirementstext>
- **Applied Fisheries Certificate** takes two semesters to complete. It offers students a broad training and background in fisheries, while also including courses encompassing broad areas of knowledge that support advanced learning. This program is articulated with the A.A.S. in Applied Fisheries and is intended to offer students practical skills and knowledge to enter careers in fisheries. Students may elect a certificate with an Aquaculture or Fisheries Management emphasis. The Certificate requires 3 credit hours of internship. Learn more at <https://catalog.uas.alaska.edu/certificate-degree-programs/certificates/fisheries-technology-certificate/#text>
- **Associate of Applied Science (A.A.S.) in Fisheries Technology** takes two years to complete. Students completing the A.A.S. degree will be prepared to pursue a four-year degree program with the UAF School of Fisheries and Ocean Sciences, or for entry-level employment in federal and state agencies, hatcheries, and the private sector. <https://catalog.uas.alaska.edu/certificate-degree-programs/associate-degrees/fisheries-technology-aas/#text>

- **Scientific Diving Dive Semester in Sitka** Over the semester, students learn everything from basic dive skills, underwater rescue procedures, underwater data collection techniques, and they become familiar with local fish, algae, and invertebrate species, and participate in new and ongoing marine-related research projects. Additionally, students develop skills in basic skiff handling and small engine maintenance techniques, critical to underwater field work. Apply for the program at <https://divesemester.alaska.edu/>
- **Explore the UAS Applied Fisheries website—**
 - Go to https://uas.alaska.edu/career_ed/fisheries/index.html
 - Explore what students do in the Aquaculture semester at UAS. Which activities look the most fun and interesting? What is your favorite picture on the page, and why? (Direct link to this page is <https://aquaculturesemester.alaska.edu/>)
 - What kinds of classes do students in the program take? Which classes are the most interesting to you, and why? (Direct link to this page is <https://aquaculturesemester.alaska.edu/courses.html>)

Learning stories

- Share these learning stories with students to bring the information to life. Discuss with students which track they would be more interested in, and if they identify with either person in the learning stories.
 - **Melissa's story:** Melissa grew up participating in the yearly harvest of salmon and enjoyed preparing and smoking the fish as she knew her Ancestors had done for thousands of years before. She loved the chewy smokey flavor of salmon. She enjoyed hearing stories as she worked in the smokehouse with her mom and auntie and brother. Melissa wanted to learn more about jobs that supported sustaining the salmon. She wanted the salmon to be managed well so they would continue to be around for people forever. Melissa lived in Ouzinkie, and didn't want to have to move to a big city to go to college. When she learned about the option to do the UAS Alaskan Aquaculture Occupational Endorsement (OE), she was excited. She could do most of the course work without leaving her community.

Since she lived in a place without very good internet, the program would send her an iPad with everything on it to do her studies. When the work was complete, she would send it back to be graded. She had the option to go to Sitka to do in person intensives on the topics she was most interested, but the rest could be done on the iPad. The Alaskan Aquaculture OE would take one to two semesters to complete, and then she would be able to get a job at a hatchery, or do field work for Fish and Game or the Tribe. If she liked the work, she could complete coursework for the Applied Fisheries certificate and eventually even an AA degree or a Bachelor's degree in Biology from UAF. She was most interested in aquaculture and being outside, so she decided to focus on that in her program.

- Dan also grew up practicing subsistence ways, and he worked on his family's commercial gillnet operation in the summers. Dan was interested in how the fishery was managed so that everyone who fished could make a living from it. He found out about the Fisheries Management OE. Dan didn't feel ready for college, but the idea of doing an intensive to get his OE in one semester in Sitka sounded fun. If he wanted to continue toward an Applied Fisheries certificate, he could do that online at his own pace. He wanted to be involved in managing the fishery and being part of the system that helped keep the salmon population strong for subsistence and commercial fishing.
- Invite someone from a local Tribal organization with activities related to managing the fishery to describe what local efforts look like and the kinds of jobs that are available.
- Invite someone from the Alaska Department of Fish and Game to talk about the kinds of entry level jobs (including field work) that fish and game has. They could also speak to how important it is that cultural stakeholders, Alaska Native peoples, participate in the fishery. This could be through subsistence, by working in the fishery at many levels, by serving on committees and boards, and by giving input when the public is asked for comment.

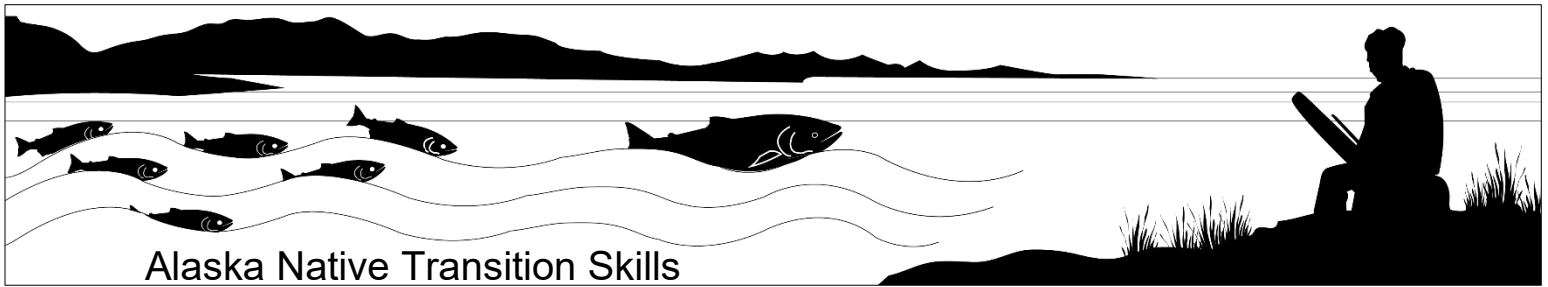
Evaluation

At the end of the lesson, ask the students these questions:

- What kinds of work can people can do in fish technology or applied fisheries?
- What kind of training is needed to work at a fish hatchery or a fisheries field worker?
- What kinds of organizations hire people with an occupational endorsement, certificate, or AA degree in Aquaculture, Applied Fisheries, and Fisheries Management?
- What is something interesting about the UAS Applied Fisheries program that you learned in the activity?

Additional Resources

- **General program information:** https://uas.alaska.edu/career_ed/fisheries/
- **More detailed program and degree information:** <https://uas.alaska.edu/apply/programs/fisheries.html>
- **Specific Degree information:**
 - **Alaskan Aquaculture O.E. Degree Requirements:** <https://catalog.uas.alaska.edu/certificate-degree-programs/occupational-endorsements/alaska-salmon-enhancement-oe/#occupationalendorsementrequirements>
 - **Fisheries Management O.E. Degree Requirements:** <https://catalog.uas.alaska.edu/certificate-degree-programs/occupational-endorsements/fisheries-management-oe/>
 - **Certificate Degree Requirements:** <http://catalog.uas.alaska.edu/certificate-degree-programs/certificates/fisheries-technology-certificate/#certificaterequirementstext>
 - **Associates of Applied Sciences Degree Requirements:** <http://catalog.uas.alaska.edu/certificate-degree-programs/associate-degrees/fisheries-technology-aas/>
- **Course Descriptions:** <http://catalog.uas.alaska.edu/course-descriptions/ft/>



Alaska Native Transition Skills

Skills: Five Important Knots to Know

Overview

In this lesson, students will learn about the top five knots to know in subsistence, commercial fishing, and fish tech work. There is an extension about repairing nets for students who are interested in more.

Alaska Cultural Standards

- A4, B2, B3, C1

Alutiiq/Sugpiaq Values

- | | |
|---------------------------------------|-----------------------------------|
| • Land - nunapet | • Language - Sugt'stun niuwacipet |
| • Stewardship - nunapet carlia'arluki | • Humor - englarstaisngukut |
| • Subsistence - unguwacirpet | • Spirituality - agayumaukut |
| • People - suupet | • Sharing - ilakuisngukut |
| • Elders - cuqllipet | • Trust - sugtanartukut |
| • Family - ilaapet | • Respect - ling'aklluki |
| • Learning - liicirpet | |

Learning Objectives

The student will be able to:

- List the 5 basic knots people need to know to fish subsistence, work at a hatchery, or work on a fishing boat, and what they are used for.
- Demonstrate how to tie these basic knots: clove hitch, bowline, sheet bend, square, and a cleat hitch.
- Extension: Demonstrate how to mend a fishing net.

Materials

- *Five Important Knots* Student Handout
- Length of rope about 4 feet long to practice the knots.
- For the hitches, you will need a post and a cleat to practice tying to. You can consider taking the students to the dock to practice.
- Extension: Bring in a piece of web (net) and hang it so students can practice mending it. This is an important skill in subsistence, commercial, and aquaculture.

Vocabulary

Bowline	This knot is used for attaching lines to gear, such as the lines of the cork line to a carabiner on a set net.
Cleat hitch	This knot is used to tie a boat to a dock that has cleats, or to tie gear to a cleat on a boat.
Cleat	A T-shaped piece of metal or wood, used to tie ropes to.
Clove hitch	This knot is used when tying boats to a dock that has rails or posts.
Hitch	A knot that ties to an object, such as a line to a dock.
Knot	A fastening made by tying a piece of line or rope.
Line	The ropes used in fishing are called lines.
Sheet Bend	This knot is used to join a thin line to a thick line.
Square Knot	This knot is used to connect two ends of line. It is best when the line is of a similar type and size. It is also a good knot to use when tying a line around your gear for storage.

Activities and Adaptations

- **Share the goal of today's lesson:** "Today we are going to learn about five important knots people use when participating in subsistence fishing, commercial fishing, and in other fisheries work like working at a hatchery. To learn about this, we will use handouts and videos to learn the knots. We will make a video showing how to tie the knots. By the end of this lesson, you will be able to: list the 5 basic knots people need to know to fish subsistence, work at a hatchery, or work on a fishing boat, and what they are used for; demonstrate how to tie these basic knots: clove hitch, bowline, sheet bend, square, and a cleat hitch; and [Extension]: demonstrate how to mend a fishing net."
- **Begin by finding out what students already know by asking the following questions:**
 - What kinds of knots do you need to know for subsistence and other fishing work? *(Students can share examples for sport fishing and subsistence fishing...)*
 - Have you heard of square knots? Bowline knots? Clove Hitch? Sheet Bend? Cleat hitch? If you have heard of them, can you give an example of what they are used for?
 - Why is it important to know how to tie these knots? *(They are used in many ways to tie boats and gear...)*
- **Connect the Alutiiq Values of today's lesson with the objectives—**
 - Traditional Arts, Skills, & Ingenuity—*piciipet uswituu'uq—We honor our families and communities when we learn new skills and do well. We come from a long line of creative people and we honor our Ancestors when we use these skills.*

- People – suupet—*We are responsible for the people around us and ourselves. We can take care of those around us when we use our skills and work as a team.*
- Learning – liicirpet—*Through listening, observing, and trying things, we learn. This learning benefits ourselves and our families and communities.*
- **Important Knots**
 - Using the student handout, go over the five knots, and what they are used for.
 - Square Knot: “Explain the knot and what it is used for in set netting: Example, “This is a good knot to use to tie two ropes of the same size together, or to tie things together like when you tie up the nets with string at the end of fishing season to store them. It is not a very strong knot, so do not use this one if it needs to bear a heavy load. This knot is stronger than using an overhand knot or a granny’s knot.”
 - Bowline: “This is a good knot because it doesn’t slip when being used. It is easy to tie and untie. In set net fishing, a bowline will need to be tied at each end of the net to connect it to the lines and spreader bars. A bowline will need to be tied on the buoy line to connect the buoy to the end of the net.”
 - Sheet Bend: “This is used when you have to tie a thick line to a thin line. It will also work for lines that are the same thickness. There is a simple version, and a more sturdy version that is less likely to slip called a ‘double sheet bend.’ If you are using a nylon line, it will be more slippery, so the double sheet bend would be a better choice.”
 - Clove hitch: “A ‘hitch’ is a knot that ties to an object. One common use for a clove hitch is to tie a boat to a dock when you are attaching to a rail instead of a cleat.”
 - Cleat hitch: This is a challenging knot to do unless you have a cleat to practice on. You can use a cleat that is mounted to a board, or consider going to a local harbor to tie to a cleat on the dock. While you are there, you can look at commercial boats, and look for examples of knots being used. “A cleat hitch is used to tie a boat to a dock with a cleat, or to tie gear on a boat that has cleats.”
 - Give each student a piece of line (rope) to practice with. Learn one knot at a time. For the square knot, it may help to color one end of the line a different color. Show the video as students practice. Students can also work in teams, if some are more familiar or get it quicker than others.
- **Video Activity** Using a smartphone or tablet, have the students work in pairs to make a short video showing the knot and explaining what it is used for. This reinforces the steps used to make the knots.

- **[Extension]: Net mending:** This is a skill needed in most fishing jobs.
 - Watch the video showing an Iñupiaq fishermen from Kotzebue, Alaska explaining how to mend a net. Additional videos are located in the additional resources. *Fish Net Mending Workshop* (11:08): <https://www.youtube.com/watch?v=Btgqf7bBjEM&t=10s>
 - Hang a piece of net that needs repair, and let the students practice mending the net. Bring in people who can help instruct the students as they mend.

Learning stories

- Invite a local Alaska Native leader, Elder, or culture bearer who participates in subsistence fishing with a set net or gillnet or who is a commercial setnet fisherman to come in and share a story about set-netting, and how they use knots in the lesson to get fish. They can also be asked to share how they learned the knots.

Evaluation

At the end of the lesson, ask the students these questions:

- What are the five basic knots people need to know to fish subsistence, work at a hatchery, or work on a fishing boat, and what are they used for?
- After making your videos and practicing, can you tie these basic knots: clove hitch, bowline, sheet bend, square, and a cleat hitch?
- Extension: After your practice, do you feel comfortable mending a fishing net?

Additional Resources

- These are the links to the instructional videos in the knots handout:
 - *How to Tie the Square Knot* (2:29)
<https://www.youtube.com/watch?v=LOAxiQk8wj8&t=112s>
 - *How to Tie the Sheet Bend Knot* (1:07)
<https://www.youtube.com/watch?v=x3reZ3NuGaQ>
 - *How to Tie a Sheet Bend, Slipped Sheet Bend and Double Sheet Bend* (4:15)
<https://www.youtube.com/watch?v=MITXMnu8jo8>
 - *How to Tie the Most Useful Knot in the World (Bowline)* (1:17)
<https://youtu.be/Q9NqGd7464U>
 - *How to Tie a Clove Hitch Knot* (1:00)
<https://www.youtube.com/watch?v=aewgmUeHpuE>
 - *Boating knots: Cleat Hitch* (0:18) <https://www.youtube.com/watch?v=2CLt4BEBMRk>
 - *How to repair a cast net* (7:34) There is no audio, but it clearly shows how to do a repair.
<https://www.youtube.com/watch?v=mox0KFZeEsY>

The Square Knot

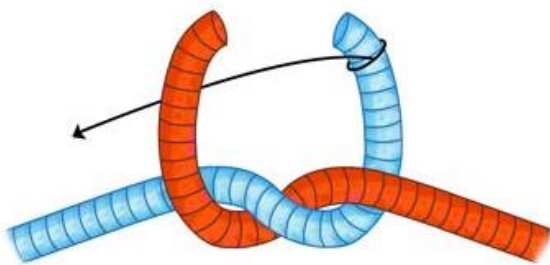
This is a good knot to use to tie two ropes of the same size together. You can tie things together, like when you tie up the nets with string at the end of fishing season to store them. It is not a very strong knot, so do not use this one if it needs to bear a heavy load.



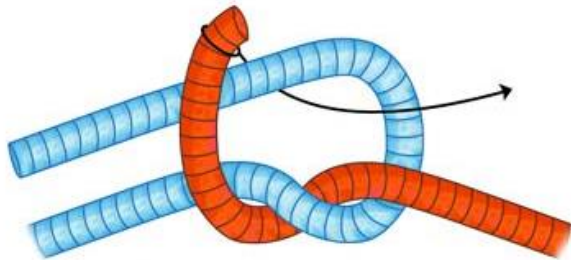
Photo by Robyn Chaney

Tip: Remember how to tie the square knot by first tying **right over left, then left over right**. If it looks different than step 4, above, you may have tied a granny's knot instead, which is not as strong as a square knot.

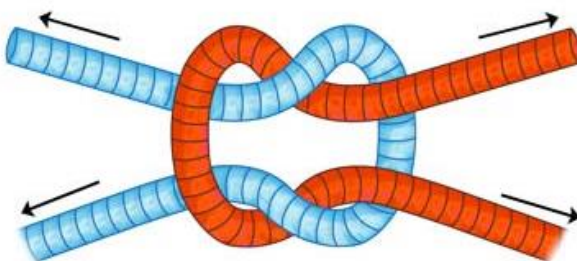
How to tie a square knot



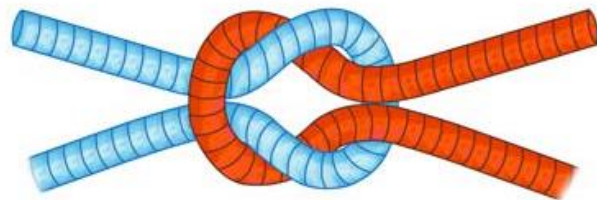
1 Cross the blue and red ends



2 Pass the red end through the blue loop



3 Pull the ends to tighten



4 The knot is complete

101KNOTS

Image: <http://www.101knots.com/square-reef-knot.html>

Video example: *How to Tie the Square Knot* (2:29)

<https://www.youtube.com/watch?v=LOAxIQk8wi8&t=112s>

The Sheet Bend Knot

You can use a sheet bend knot when you need to tie together a thick and a thin piece of line (rope). It is important when you are finished tying it that both short ends are facing the same direction. In the picture here, both ends are on the lower side of the knot. There is a stronger variation called the “double sheet bend.”



How to tie a sheet bend knot

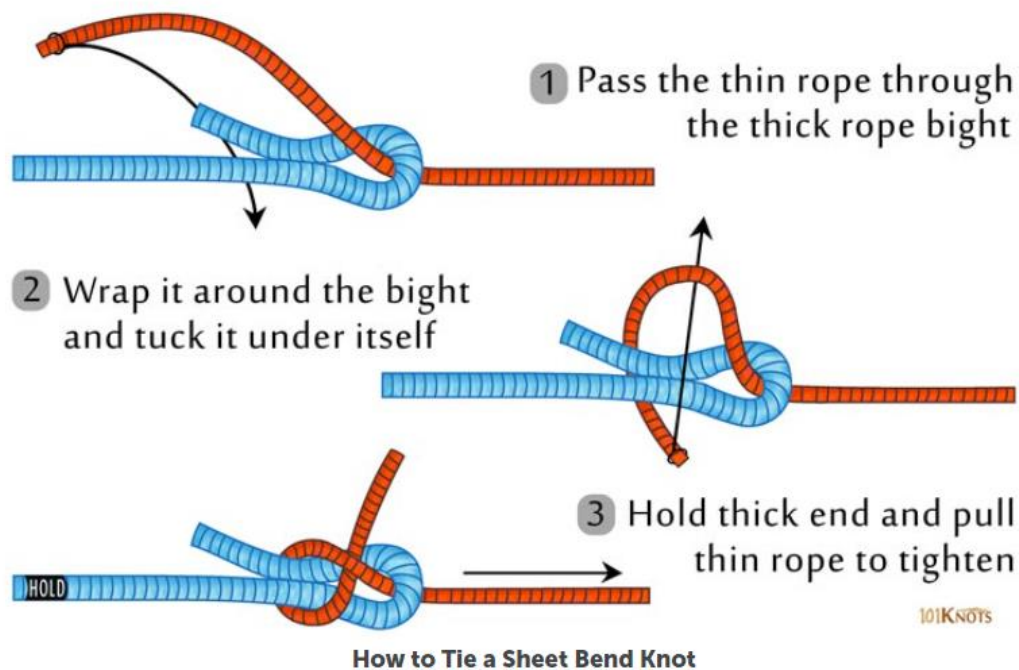


Image source: <https://www.101knots.com/sheet-bend.html>

Video examples: *How to Tie the Sheet Bend Knot* (1:07)

<https://www.youtube.com/watch?v=x3reZ3NuGaQ>

How to Tie a Sheet Bend, Slipped Sheet Bend and Double Sheet Bend (4:15)

<https://www.youtube.com/watch?v=MITXMnu8jo8>

The Bowline Knot

You can use a bowline knot to tie buoys to nets, and nets to carabiners. It is a good knot because it doesn't slip when being used. It is easy to tie and untie.



Photo by Robyn Chaney

How to tie a bowline knot

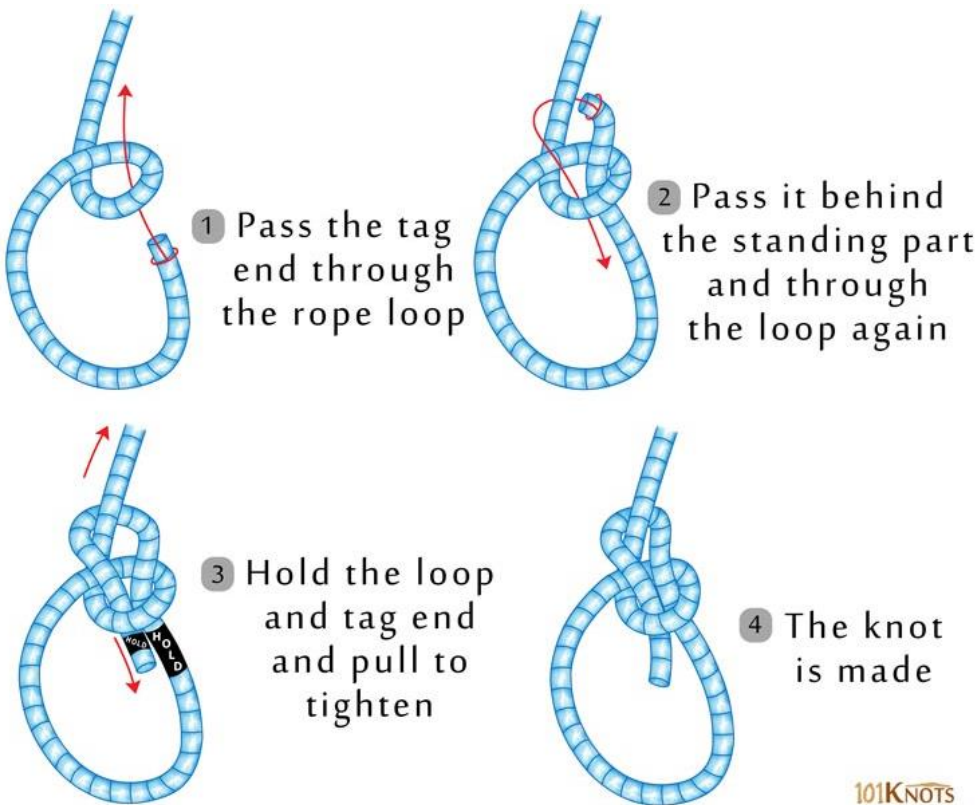


Image source: <http://www.101knots.com/bowline-knot.html>

Video example: *How to Tie the Most Useful Knot in the World (Bowline)* (1:17)

<https://youtu.be/Q9NqGd7464U>

The Clove Hitch

A “hitch” is a knot that ties to an object. One common use for a clove hitch is to tie a boat to a dock when you are attaching to a rail or post instead of a cleat. Tip: When tightening the knot, the ends are pulled opposite of each other. You want to see two parallel lines that have half of an “X” on the top.



How to tie a clove hitch

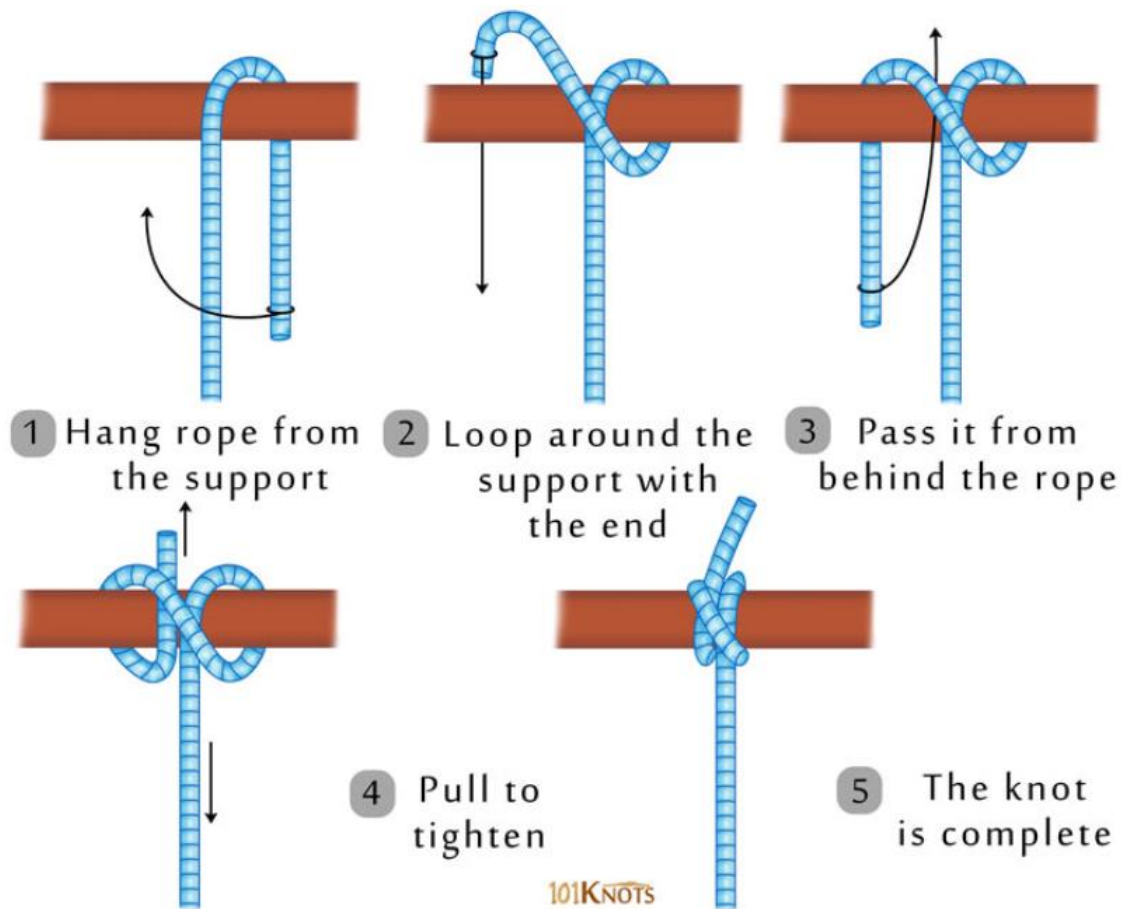


Image source: <https://www.101knots.com/clove-hitch.html>

Video example: *How to Tie a Clove Hitch Knot* (1:00)

<https://www.youtube.com/watch?v=aewgmUeHpuE>

The Cleat Hitch

You can use a cleat hitch to tie a boat to a dock that has cleats. It can also be used to tie gear to cleats on a boat.



How to tie a cleat hitch

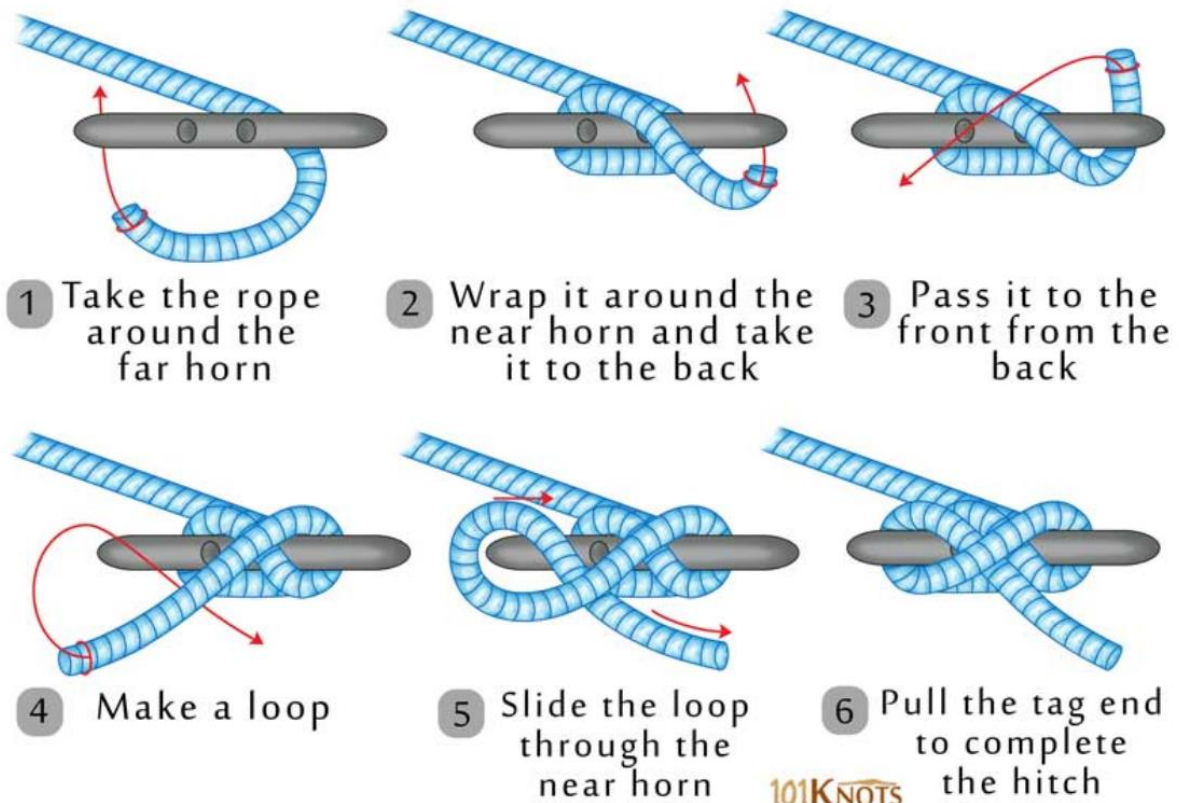
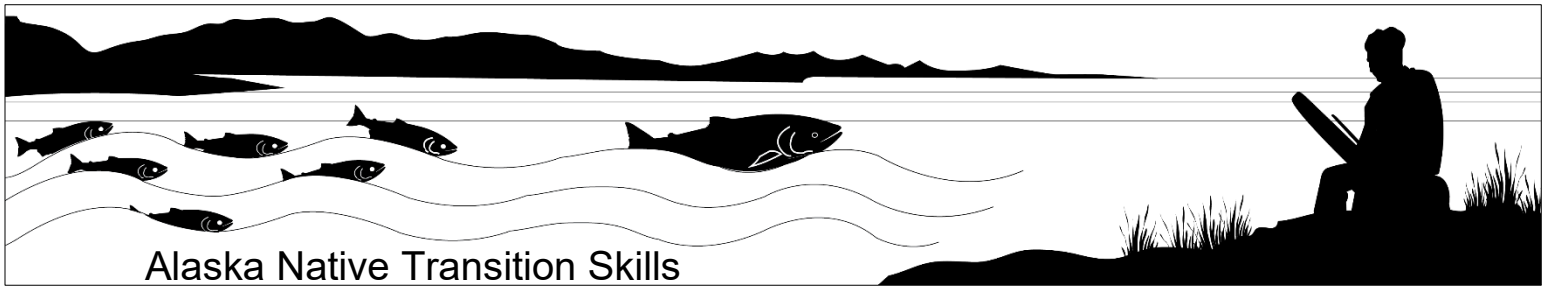
- 
- 1 Take the rope around the far horn
 - 2 Wrap it around the near horn and take it to the back
 - 3 Pass it to the front from the back
 - 4 Make a loop
 - 5 Slide the loop through the near horn
 - 6 Pull the tag end to complete the hitch

Image source: <https://www.101knots.com/cleat-hitch.html>

Video example: *Boating knots: Cleat Hitch* (0:18)

<https://www.youtube.com/watch?v=2CLt4BEBMRk>



Alaska Native Transition Skills

Skill: How to Identify Salmon

Overview

In this lesson, students will learn about the five species of salmon and how to identify which species a fish is. Being able to identify the type of salmon is an important skill for subsistence, sport, and commercial fishing.

Alaska Cultural Standards

- A1, A4, A5, A6, B3, C1, C3, D6, E1, E2

Alutiiq/Sugpiaq Values

- Land - nunapet
- Stewardship - nunapet carlia'arluki
- Subsistence - unguwacirpet
- People - suupet
- Elders - cuqllipet
- Family - ilaapet
- Learning - liicirpet
- Language - Sugt'stun niuwacipet
- Humor - englarstaisngukut
- Spirituality - agayumaukut
- Sharing - ilakuisngukut
- Trust - sugtanartukut
- Respect - ling'aklluki

Learning Objectives

The student will be able to:

- List the five types of Pacific salmon in Alutiiq and English.
- Describe ways to identify the five types of Pacific salmon.
- Identify salmon from pictures in a game.

Materials

- *Salmon Sorting Cards* Teacher Resource
- Alaska Fish and Game Identification Guide:
<https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>

Vocabulary

Identify	To use information to decide what something is. When identifying what type a salmon is, you look for certain clues to help you decide what kind it is.
Indigenous	Refers to the social norms, belief systems, traditions, values that are held and practiced by the original people native to a specific place. In this curriculum, it refers to the Alaska Native peoples, with specific examples from Alutiiq/Sugpiaq peoples.
Species	A type of something. In science, a species is a group of living things that share

a genetic heritage, are able to breed with each other, and to create offspring that can also breed and create offspring.

Activities and Adaptations

- **Share the goal of today's lesson:** “Today we are going to begin to learn about how to tell the difference between kinds of salmon. If you are participating in subsistence or personal use fishing, or you are working in commercial fishing, it is important to know how to identify different kinds of salmon. To learn about this, we will look at some videos and then practice our skills. By the end of this lesson, you will be able to: list the five types of Pacific salmon in Alutiiq and English; describe ways to identify the five types of Pacific salmon; and identify salmon from pictures in a game.”
- **Begin by finding out what students already know by asking the following questions:**
 - What are the 5 types of Pacific salmon? [*King (Chinook)/ iiliksak; Red (Sockeye)/ niklliq; Pink (Humpy)/ amaqaayak or luuqaanak (Karluk); Dog (Chum)/ alimaq; and Silver (Coho)/ qakiiyaq.*]
 - How can you tell what kind of salmon a fish is? What do you look for? (*It could be the time of year or a location such as when the pinks run in a certain river, it could be the way a fish looks like spots on the tail or the shape of the head or tail, or the color of the mouth and gums...*)
 - Why is it important to know which type of salmon you have caught? (*If you are working on a commercial fishing boat, fish have to be sorted by type because some sell for more money than others. If you are fishing for subsistence or personal use, there may be limits on certain kinds of fish or the gear allowed to catch them, so to follow the fish and game rules, you need to know what you are catching.*)
- **Connect the Alutiiq Values of today's lesson with the objectives—**
 - Stewardship—*nunapet carlia'arluki—We harvest from the Land with gratitude. We only take what we need for our families and community members. We preserve the foods and take care of them so that nothing is wasted. This shows respect to the Land.*
 - Subsistence “Our way of being alive”—*unguwacirpet— “A subsistence lifestyle is respectful and sustained by the natural world.” We have a relationship with the Land where we care for the Land, and the Land takes care of us.*
 - Language—*Sugt'stun niuwacirpet—When we learn the names of the salmon in our heritage language, it ties us to our Land, our traditions, and our Ancestors.*
- **Seasons of Salmon—** In the Kodiak area, there are times of the year when we have all five kinds of salmon around. Other times of year, or in certain areas, there will be a main kind of salmon that is returning in large numbers. In Alaska, there are limits for how many fish of each kind that you can catch in a day, as well as rules for how you are allowed to catch them. These rules vary based on location, as well as if you are fishing in fresh water or salt water. If you are working on a commercial fishing boat, it is an important skill to be able to sort salmon quickly and accurately. Salmon are brought to a tender, and sorted by type. Each type will have a different price per pound. Some types

of salmon will sell at market for more than others. To review from lesson one:

There are five types of Pacific salmon that we have in the Kodiak area. Each of the five kinds is commonly called by two different names in English. The Alutiiq name is also included here (from <http://www.alutiqlanguage.org/dictionary>).

Type of salmon	Other common name	Alutiiq name
King	Chinook	<i>iiliksak</i>
Red	Sockeye	<i>niklliq</i>
Pink	Humpy	<i>amaqaayak or luuqaanak (Karluk)</i>
Dog	Chum	<i>alimaq</i>
Silver	Coho	<i>qakiiyaq</i>

- **Identifying salmon: Following the clues**

- 1) Talk about general ways and clues to tell what kind of salmon a salmon is. When you see a salmon, you get a first impression on what you think it is, then you can check for a few things to confirm you are right. With experience you will be able to quickly tell the difference between the salmon. Build on experience the students have, and what they know. Things to look for:
 - Overall size: There are small King salmon and big pink salmon, but overall the average size will help give a clue about the kind of salmon you have.
 - Spots: Some fish have spots on the tail and or back. Some only have spots on the top part of the tail, and not the bottom. The shape of the spots can also be a clue.
 - Mouth: The color of the mouth, as well as the gumline, are a good clue.
 - Eye color: Red salmon have a golden eye, for the other salmon eye color isn't a clue.
 - Tail fin shape: Some tail fins are more square, others have a deeper "V" shape in the middle. This shape can give you a clue.
 - Thickness of the tail: With experience, some people can tell by the thickness of the area right before the tail and how it feels in the hand.
 - Time of year/location: There are times of the year when one type is returning in large numbers to an area. For example, it would be unusual to see a King salmon in the middle of a run of pink salmon in a river.
- 2) **Video:** Watch this video that talks through the types of salmon, and how to tell them apart: *How to identify Pacific Salmon - Part 2 Beta* (8:13):
<https://www.youtube.com/watch?v=l7PH8v-lbUQ> Start the video at time mark 0:52. It covers Chinook, Coho and Chum, with identification practice about all 5 species (starts at 5:34). It includes Steelhead, which you can skip. The video is good because it talks through what to look for, and compares the 5 species. It shows both marine (while still in salt water) and spawning (in fresh water) appearance.
- 3) Using the [Alaska Fish and Game guide](#), talk about each species, and the clues a salmon gives you. Talk about the difference between a spawning salmon's appearance and the marine phase (what it would look like in salt water when it is "bright.")

- **Salmon Identification Game—**
 - Preparation: Print the fish identification cards and cut them out before the activity. If you are able to laminate them so they are sturdier, they will be easier to play with.
 - Lay the cards out and mix them up. Have the students practice looking at each one and guessing which fish is which. Have them sort the Alutiiq/Sugpiaq name card, the English name, and the marine and spawning pictures of the fish together by species. They can use their Alaska Fish and Game guide if needed.
 - At the end of the game, each should be sorted back into a group as they appeared before you cut them apart. *Refer to the original image handout before it was cut if you need to know if the students have sorted correctly.*
- **Pacific Salmon Lifecycle and Identification Quiz—**You can have individual students complete this quiz, or do it together in a group as an activity. Hit the link again to get a fresh quiz.
<http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportFishingInfo.quiz>

Learning stories

- Invite a local fisherman to share how they identify the different kinds of salmon. You could have them there when the students do the sorting game to give additional tips on how to quickly identify salmon. Have them share a story about what it is like to work on a fishing boat, and why it is important to know how to identify salmon.
- Invite a local Alaska Native leader, Elder, or culture bearer to share a traditional story or a personal story about salmon returning or the relationship and dependence the local people have with salmon.

Evaluation

At the end of the lesson, ask the students these questions:

- What are the five types of Pacific salmon in Alutiiq and English?
- What are some of the clues you can look for when identifying which kind of salmon you are looking at?
- What are some things that tell you it is a king/ *iiliksak* / chinook salmon?
- What are some things that tell you it is a red/ *niklliq* / sockeye salmon?
- What are some things that tell you it is a pink/ *amaqaayak* or *luuqaanak* (*Karluk*)/ humpy salmon?
- What are some things that tell you it is a silver/ *qakiiyaq* / coho salmon?
- What are some things that tell you it is a chum/ *alimaq* / dog salmon?

Additional Resources

- *Types of Salmon: The Complete Guide Blog Entry*—Goes through salmon identification. Includes Atlantic salmon, which we don't have in Alaska.
<https://fishingbooker.com/blog/types-of-salmon/>
- *How to identify Pacific Salmon - Part 2 Beta (8:13)*:
<https://www.youtube.com/watch?v=l7PH8v-lbUQ> Start the video at time mark 0:52. It covers Chinook, Coho and Chum, with identification practice at the end about all 5 species (starts at 5:34). It includes Steelhead, which you can skip. The video is good because it talks through what to look for, and compares the 5 species. It shows both bright and spawning appearance.
- Alaska Fish and Game Identification Guide:
<https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>
- Washington State fish guide has good identification pages for salmon. The rest of the booklet is specific to Washington and not relevant to Alaska.
https://wdfw.wa.gov/sites/default/files/publications/01384/2012-13_marine.pdf
- Alaska Fish and Game Life Cycle and Identification page:
https://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=714
- Salmon Run Timing for the Kodiak Area: <https://www.adfg.alaska.gov/Static-sf/Region2/pdfpubs/KodiakAleut.pdf>

King

Chinook

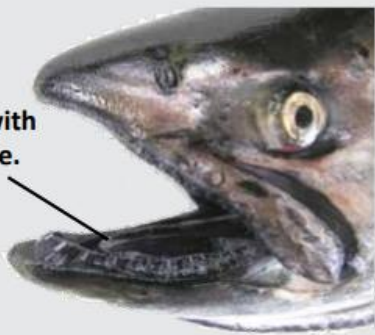
iiliksak

Marine phase

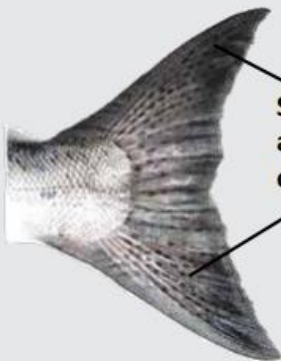
Black spots on the back (including the dorsal fin).



Black mouth with a black gumline.



Spots on upper and lower lobes of the tail fin.



Spawning phase



Photos from Alaska Fish and Game Identification Guide: <https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>

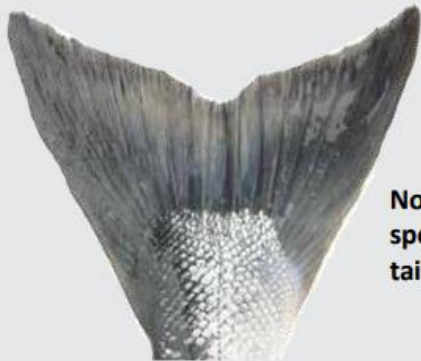
Red

Sockeye

niklliq

Marine phase

No distinct spots on the back or tail fin.



No distinct spots on the tail fin.



Golden eye

Spawning phase



Photos from Alaska Fish and Game Identification Guide: <https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>

Alaska Native Transition Skills, *Salmon Identification Cards* Teacher Resource, Salmon: Our Way of Life Unit, 2022 (Rev 2025),
Van Den Berg / Sargent, UAA Center for Human Development

Pink

Humpy

*amaqaayak or
luuqaanak (Karluk)*

Marine phase

Large, oval shaped black spots on the back (including the dorsal fin).



Oval shaped spots
on upper and
lower lobes of the
tail fin.

Spawning phase



Photos from Alaska Fish and Game Identification Guide: <https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>

Dog	Chum	<i>alimaq</i>
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Marine phase

No distinct spots on the back or tail fin.



No distinct spots
on the tail fin.
Notice silver
striations.

Spawning phase



Photos from Alaska Fish and Game Identification Guide: <https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>

Silver

Coho

qakiiyaq

Marine phase

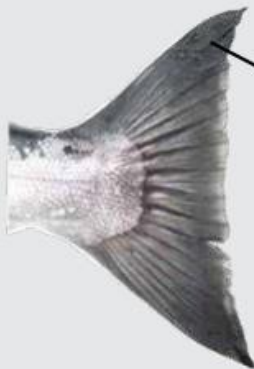
Black spots on the back (including the dorsal fin).



Black tongue with a white gumline.



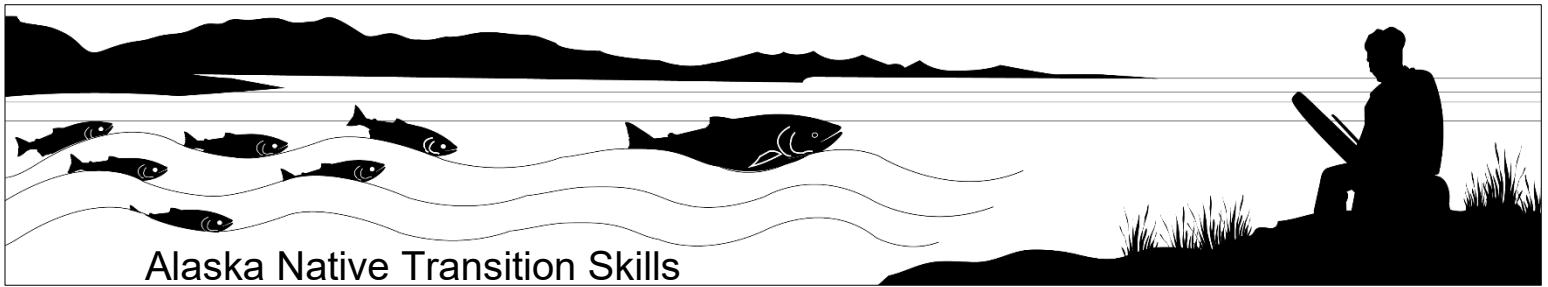
Spots only on upper lobe of the tail fin.



Spawning phase



Photos from Alaska Fish and Game Identification Guide: <https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>



Alaska Native Transition Skills

Skills: Working as Part of a Team

Overview

In this lesson, students will learn about the importance of team work when participating in subsistence fishing, commercial fishing, and fish tech or hatchery work. Having strong team work skills will help students enjoy working, and will be skills that are valued by employers.

Alaska Cultural Standards

- A1, A4, A6, B2, B3, C1, C3, C4, D5, D6, E1, E2, E3, E7, E8

Alutiiq/Sugpiaq Values

- Land - nunapet
- Stewardship - nunapet carlia'arluki
- Subsistence - unguwacirpet
- People - suupet
- Elders - cuqllipet
- Family - ilaapet
- Learning - liicirpet
- Language - Sugt'stun niuwacipet
- Humor - englarstaisngukut
- Spirituality - agayumaukut
- Sharing - ilakuisngukut
- Trust - sugtanartukut
- Respect - ling'aklluki

Learning Objectives

The student will be able to:

- Describe important team work skills that are needed to work at a hatchery, on a commercial fishing boat, or as part of subsistence salmon harvest.
- Give at least three examples of what it looks like when someone works as part of a team.

Materials

- *Salmon Sorting Game* Teacher Resource. Game pieces need to be printed and cut before use in the activity. If available, laminating the game pieces is recommended.

Vocabulary

Teamwork	When people work together to achieve a common purpose or goal.
Indigenous	Refers to the social norms, belief systems, traditions, values that are held and practiced by the original people native to a specific place. In this curriculum, it refers to the Alaska Native peoples, with specific examples from Alutiiq/Sugpiaq peoples.

Activities and Adaptations

- **Share the goal of today's lesson:** "Today we are going to begin to learn about the importance of teamwork and some specific skills that will help you be a good member of a working team. These are important skills for subsistence fishing, commercial fishing, and fish tech or hatchery work. To learn about this, we will share ideas and play a game. By the end of this lesson, you will be able to: describe important team work skills that are needed to work at a hatchery, on a commercial fishing boat, or as part of subsistence salmon harvest and give at least three examples of what it looks like when someone works as part of a team."
- **Begin by finding out what students already know by asking the following questions:**
 - What does it mean to work as part of a team? (*A group of people working together to accomplish a shared effort or goal...*)
 - What makes someone a good member of a team? (*Reliable, hard worker, focused, follows directions...*)
- **Connect the Alutiiq Values of today's lesson with the objectives—**
 - People—suupet—*We work together to care for members of our community.*
 - Sharing— ilakuisngukut—*We work together and share with the Land has provided to keep our communities strong and healthy.*
 - Learning – liicirpet—*Through listening, observing, and trying things, we learn. This learning benefits ourselves and our families and communities.*
 - Respect - ling'aklluki— *Respect for self, others and our environment is inherent in all of our values. When we are confident in ourselves and work together with others, we honor our families, our land, our faith, and our Ancestors.*
- **Team work introduction**
 - What are some examples of team work? *Two families working together to harvest the fish they need for the year, sharing a set net and skiff. A hatchery crew doing egg take for spawning. A gillnet crew harvesting salmon and taking it to the tender to sell.*
 - What are the benefits of team work? Ask the students what they think on this one, and then provide some of these ideas, in case these don't come up.
 - Each person brings their own experiences and skills to the team effort, which makes it much stronger than the individuals on their own.
 - Relationships and bonding between team members can be a good source of support and motivation when anyone gets tired or needs help to keep moving toward the goal.
 - Facing challenges: Many perspectives working toward a common goal can help think of creative ways to face challenges.

- **Team Work Skills** These are skills that are important to subsistence fishing, commercial fishing, and fish tech or hatchery work (and many other kinds of work). Discuss these skills, and ask students to describe what these skills look like in action. Share the example and discuss how the person showed the skill.

Skill	Example
Listen to and follow directions	Jamie’s skipper asked him and another crew member to do some repairs on the gillnet and get it ready for the next day. Jamie showed the other crew member how to hang and repair the holes, and then he carefully put the net away so it would deploy from the boat the right way. When his skipper came to check on his work, he was impressed at what Jamie had done.
Do what is required, even if it’s not your favorite task	Nina was tired, as it had been a long day picking the set net. Everything was covered in sand and fish slime. All she wanted was to be done for the day. Her uncle asked her to wash down the tubs the salmon had been placed in, and stack and put away the gear for use the next day as the other family members began to process the day’s harvest. Nina nodded and got busy doing as he had asked. Her uncle could see that Nina was tired, and was proud that she was able to work through it.
Clean up after yourself	[The person in this example identifies as non-binary, and uses They/Them as their pronouns.] Morgan was working at a remote hatchery for the summer. It was their first time living away from home. They lived in a bunk house with 4 other people. When they had left home, their grandmother reminded them to be sure to be good to the others living in the bunkhouse, and to clean up after themselves. Morgan picked up their clothes and kept them folded under their bunk. They washed up their dishes and put them away. The other bunk mates noticed how Morgan pitched in to keep the bunk house looking nice, and it made them want to do their part as well.
Follow-through on tasks	The supervisor at the hatchery was deciding who he should hire again the for the following summer. He had a good crew that worked hard, but there were not going to be spots for all of them. As he thought about each worker, he considered how Sarah always followed through on things he had asked her to do. He could give her instructions and then leave, and when he came back he knew things would be done, and done well. Every morning it was her job to check the net pens and scoop out the “morts” (fish that had died). She was up early to check the pens, and never missed it. He added her name to the top of the list to return the next year.
Cooperate with others	When Ryan and his brother Dylan are home, sometimes they wrestle and argue with each other. When they are working on the family’s skiff picking fish from the gillnet, they work as a smooth team. They keep an eye out for each other, in case one of them has a fish that is too stuck. If one gets a little behind, the other will jump in to help.

Think on your feet	It was Emily's first summer working on the seiner. She was excited. They went out, and the weather turned rough. The boat was pitching around. The skipper found a good spot to make a set, and the skiff was starting to pull out the net. She looked over and saw that another crew member was standing near a coiled line that was part of the net, and that he could get caught. It was loud with the sound of the wind and the gear moving, but she moved quickly and pulled him out of harm's way. He was glad she was paying attention and acted quickly.
Follow safety rules	Jeremy didn't like the way it felt to wear a life jacket. He grew up on skiffs and hadn't always worn one. At his hatchery job, everyone was expected to wear a lifejacket when they went out on the skiff. One day, Jeremy and another worker were out in the bay, and Jeremy lost his balance. It took just a second, and he was in the water. It was so cold, and he was having cold water shock. It took a few minutes for the other crew member to get the boat turned around to get back to where Jeremy was. His co-worker helped get him back into the boat, coughing and sputtering. He was sure glad he had been wearing his lifejacket!
Respond well in a crisis	Joel was driving a skiff with his fellow co-worker, Jeremy, out in the bay after a day of work. They were laughing and having a good time. They were joking and Jeremy stepped a little wrong just as Joel hit a wave, and suddenly, Jeremy was in the water! Joel couldn't believe it, it happened so fast. He looked back and could see that Jeremy was floating, and coughing. He immediately pulled the throttle back and slowly turned the boat around so he didn't make a big wake that would hit Jeremy. He motored slowly back, to be sure he was in good control of the boat as he got close to Jeremy. He was shaking, but stayed calm. He stopped the motor and drifted close enough to grab Jeremy's life jacket and he helped get Jeremy back in the boat. He headed right back to get Jeremy warmed up and dry.
Have a good attitude and use humor to make work more fun	Everyone called Phyllis "Auntie," even if they weren't related to her. She was so fun to be around. She smiled and was encouraging as the family brought the tubs of fish up for her to fillet and hang. When she saw that her young nephew didn't know quite what to do, she gently showed him the next step. Her stories and laughter made getting all the fish hung in the smokehouse feel like it took no time at all.
Work hard	Sean's family had a good harvest today. As the tide went out, they could see the set net was full of fish. Everyone worked together to pick the fish from the net. Webbing that had been torn was repaired. Fish were hauled up the beach to bins in the back of his auntie's pickup. At the end of the day, Sean was tired but felt very satisfied. He slept hard, knowing there would be work and processing tomorrow to fillet and hang the fish in the smokehouse to preserve it.

- **Salmon sorting game** Practice some of the skills above in this cooperative activity. Students will work as a team as if they were working on a fishing boat, taking fish to a tender. They will do the activity twice. After going through it once, debrief and have them think of ways to do it a little more efficiently, based on how the first round went. They will use a stopwatch to time the activity, then try to beat their time using teamwork the second round.
 - **Preparation:** Cut out the fish cards and if possible, laminate them or glue them to something that makes them stiffer, like cereal box cardboard.
 - **Game Instructions:**
 1. Mix up the fish and divide them into a couple of small boxes. On one end of the room, have a “tender crew member” with a calculator, and their assistant. On the other side, have the “gillnet fishermen” bringing their fish.
 2. **When everyone is ready, start the stopwatch or timer.** The gillnet crew pair need to sort the fish by species. Once sorted, they can bring the sorted fish to the tender crew. The tender assistant will read out the weights of the fish, and they will get added up by species, and written on the tally sheet. Once all the fish have been sorted and their weights recorded, the time on the stop watch is noted on the tally sheet.
 3. **Discussion:** What worked well? Is there a better way to do any part of it? Have them decide what they would try differently to do it faster.
 4. **Repeat the activity, and note the time.** Did they improve? Did they run into challenges? How did the teamwork skills come into play? Review all of the skills and look for any specific examples from the activity that connect. If desired, you can do the math on one of the tally sheets to show how much the fishermen would get from their “catch.” See completed example in the game pieces document.

Adaptations: depending on your students, you can label the fish to make them easier to sort. You can label with just the Alutiiq name to reinforce the language skills. You can have less or more fish in the activity by printing more or less fish pages.

Learning stories

- Share the example stories for each job skill, and then ask the students for examples of those skills that they have seen or experienced.
- Invite a local Alaska Native leader, Elder, or culture bearer to share a traditional story or a personal story of how a group of people worked together to achieve a shared goal. This could be a story of how a family worked together to harvest and preserve the year’s salmon. It could be about a community project that took many people to accomplish.

Evaluation

At the end of the lesson, ask the students these questions:

- What are important team work skills that are needed to work at a hatchery, on a commercial fishing boat, or as part of subsistence salmon harvest?
- What are examples of what it looks like when someone works as part of a team?

Additional Resources

- Soft Skills to Pay the Bills, Teamwork (handout with activities by the Department of Labor for youth with disabilities):
<https://www.dol.gov/sites/dolgov/files/odep/topics/youth/softskills/teamwork.pdf>
- Soft Skills to Pay the Bills site: This site by the Department of Labor focuses on work place skills such as communication, attitude, and more. There are videos that go with the skills, but they are not as relevant for rural Alaskans, as the setting is very urban and the jobs focus on office jobs. <https://www.dol.gov/agencies/odep/program-areas/individuals/youth/transition/soft-skills>
- If you want to find out current wholesale prices for salmon for the activity, you can look at https://www.adfg.alaska.gov/index.cfm?adfg=commercialbyfisherysalmon.salmoncatch_wholesale The 2021 prices on the game tally sheet were rounded up for easier math.

Salmon Sorting Teamwork Game

Preparation: Print the following pages. Cut out the fish cards and if possible, laminate them or glue them to something that makes them stiffer, like cereal box cardboard.

Game Instructions:

1. **Mix up the fish and divide them into a couple of small boxes.** On one end of the room, have a “tender crew member” with a calculator, and their assistant. On the other side, have the “gillnet fishermen” bringing their fish.
2. **When everyone is ready, start the stopwatch or timer.** The gillnet crew pair need to sort the fish by species. Once sorted, they can bring the sorted fish to the tender crew. The tender assistant will read out the weights of the fish, and they will get written down and added up by species on the tally sheet. Once all the fish have been sorted and their weights recorded, the time on the stop watch is noted on the tally sheet.
3. **Discussion:** What worked well? Is there a better way to do any part of it? Have them decide what they would try differently to do it faster.
4. **Repeat the activity, and note the time.** Did they improve? Did they run into challenges? How did the teamwork skills come into play? Review all of the skills and look for any specific examples from the activity that connect. If desired, you can do the math on one of the tally sheets to show how much the fishermen would get from their “catch.” This completed tally sheet example shows the results if you print and use without adding extra fish.

Adaptations: Depending on your students, you can label the fish to make them easier to sort. You can label with just the Alutiiq name to reinforce the language skills. You can have less or more fish in the activity by printing more or less fish pages.

Note: Pictures of the salmon in this handout from Alaska Fish and Game Identification Guide: <https://www.adfg.alaska.gov/static/fishing/PDFs/sport/AKSalmonFishingGuide.pdf>

Salmon Tally Sheet

King	Red	Silver
20	6	12
18	5	10
	5	14
	7	9
	6	
	5	
	5	
	7	
Total: 38	Total: 46	Total: 45

Price per pound:

King: 38 lbs @ \$14/lb= \$532

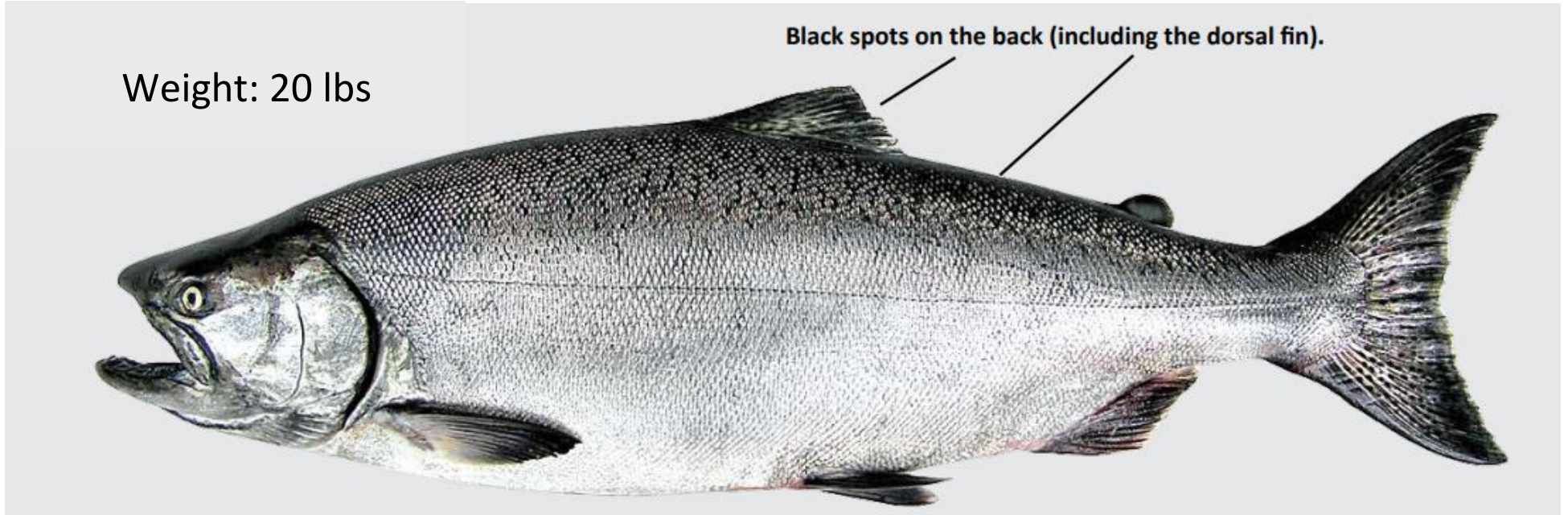
Red: 46 lbs @ \$4/lb= \$184

Silver: 45 lbs @ \$4/lb= \$180

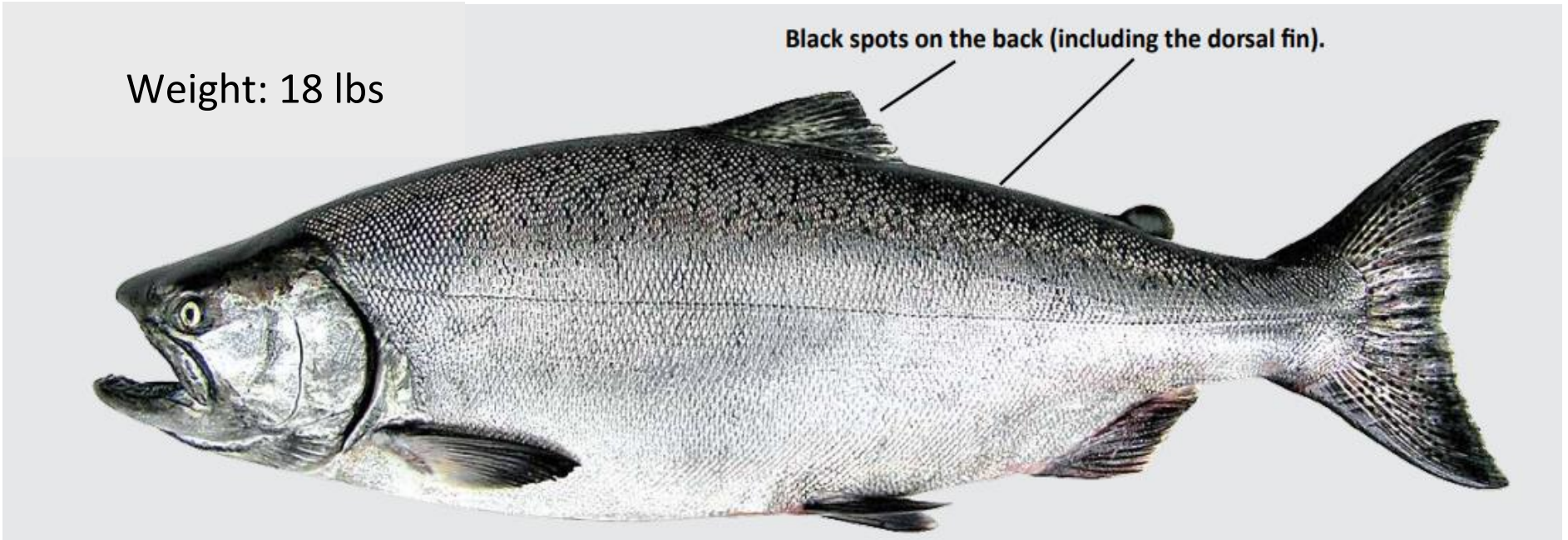
Total to be paid: \$896

iiliksak /King Salmon/Chinook

Weight: 20 lbs



Weight: 18 lbs



niklliq /Red Salmon/Sockeye

Weight: 6 lbs

No distinct spots on the back or tail fin.



Weight: 5 lbs

No distinct spots on the back or tail fin.



Weight: 7 lbs

No distinct spots on the back or tail fin.



Weight: 5 lbs

No distinct spots on the back or tail fin.



Re

niklliq /Red Salmon/Sockeye

Weight: 6 lbs

No distinct spots on the back or tail fin.



Weight: 5 lbs

No distinct spots on the back or tail fin.



Weight: 7 lbs

No distinct spots on the back or tail fin.

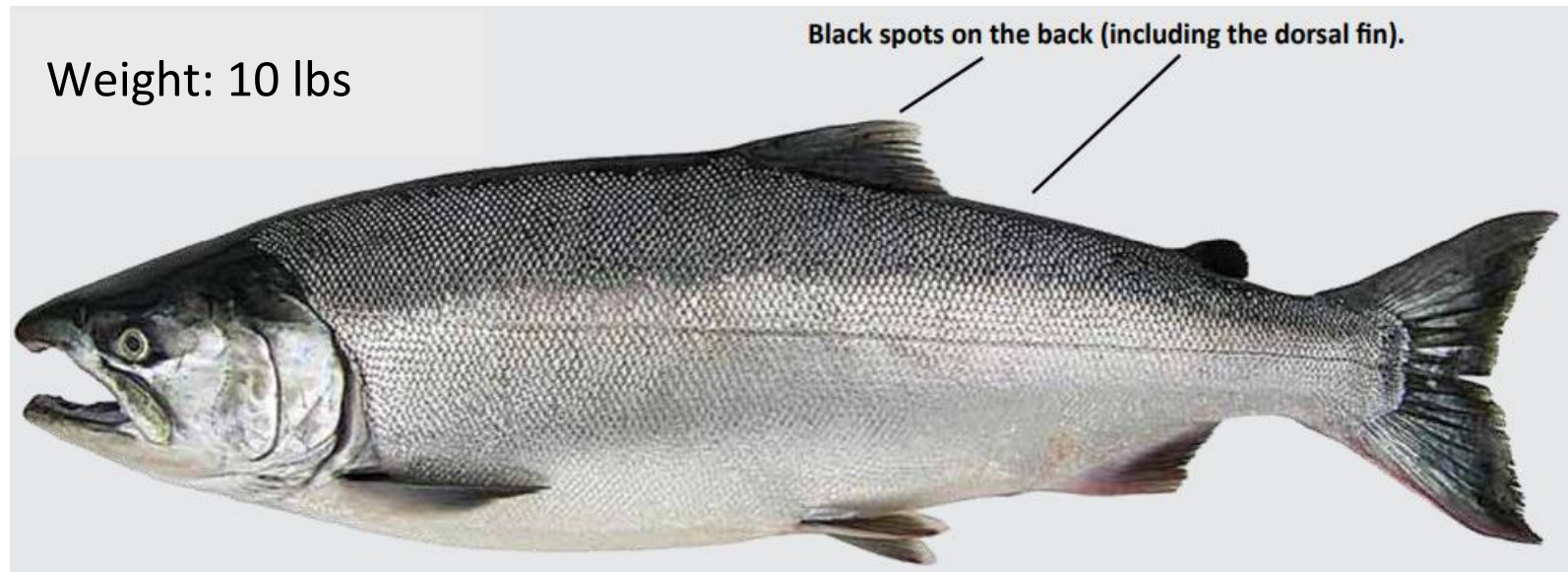
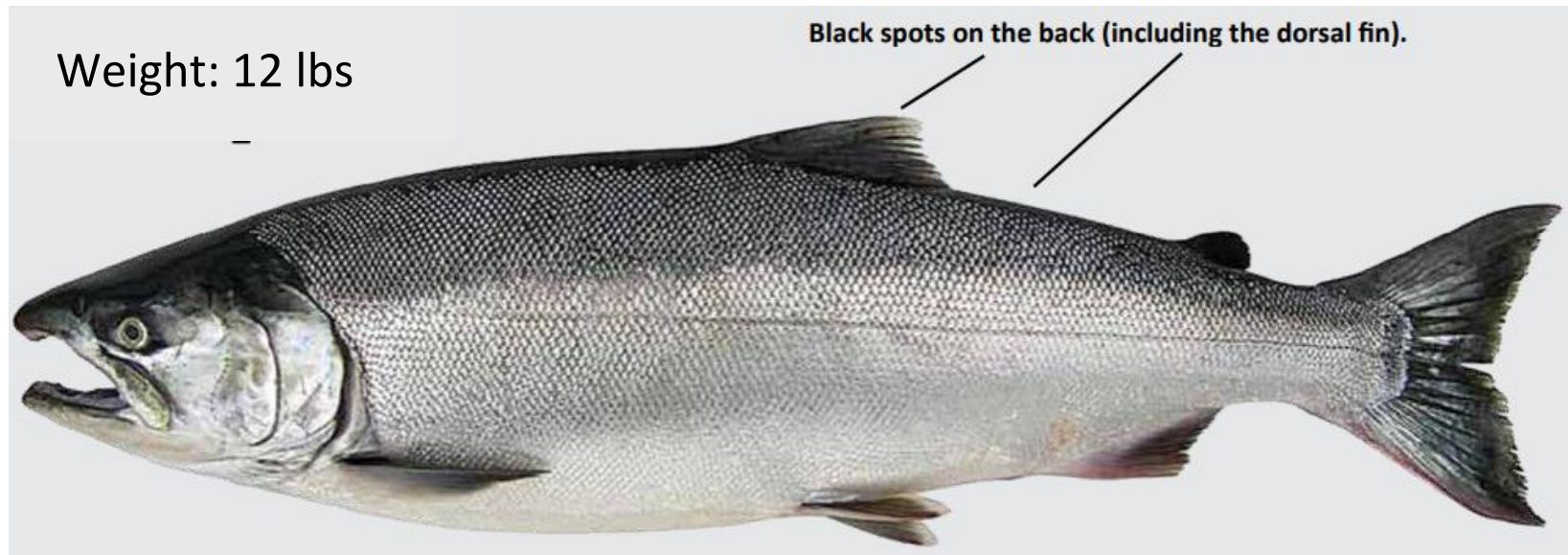


Weight: 5 lbs

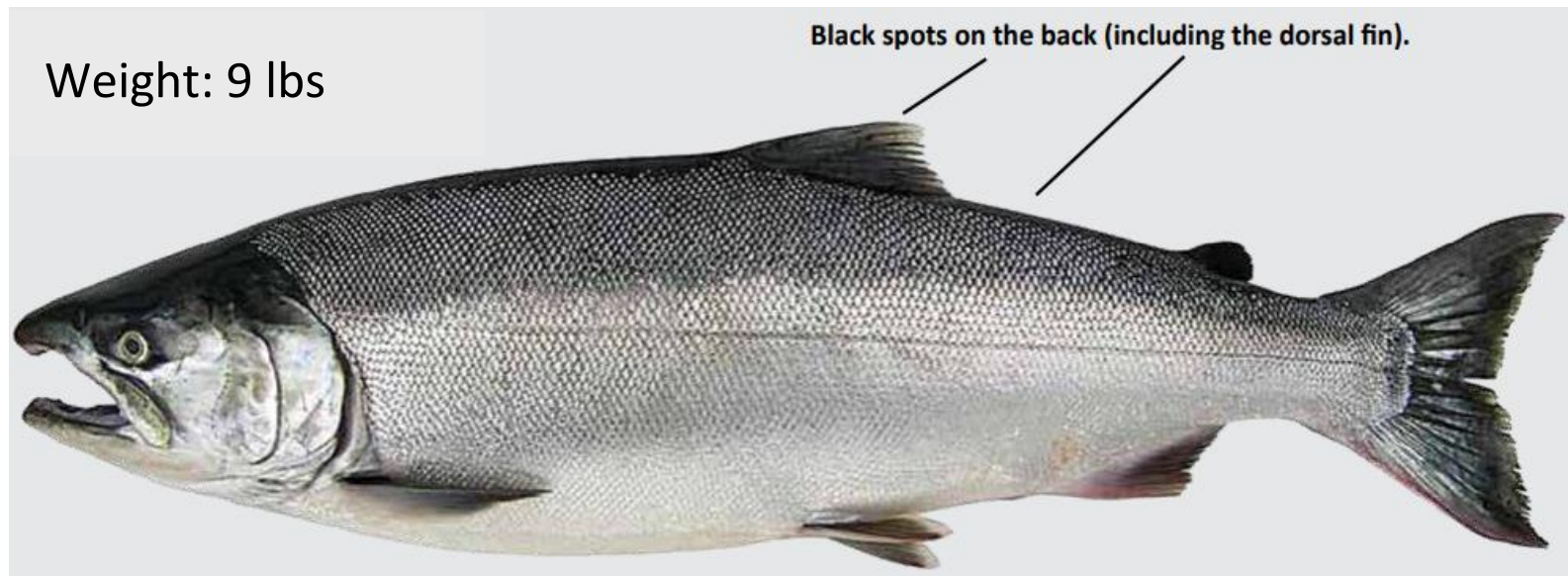
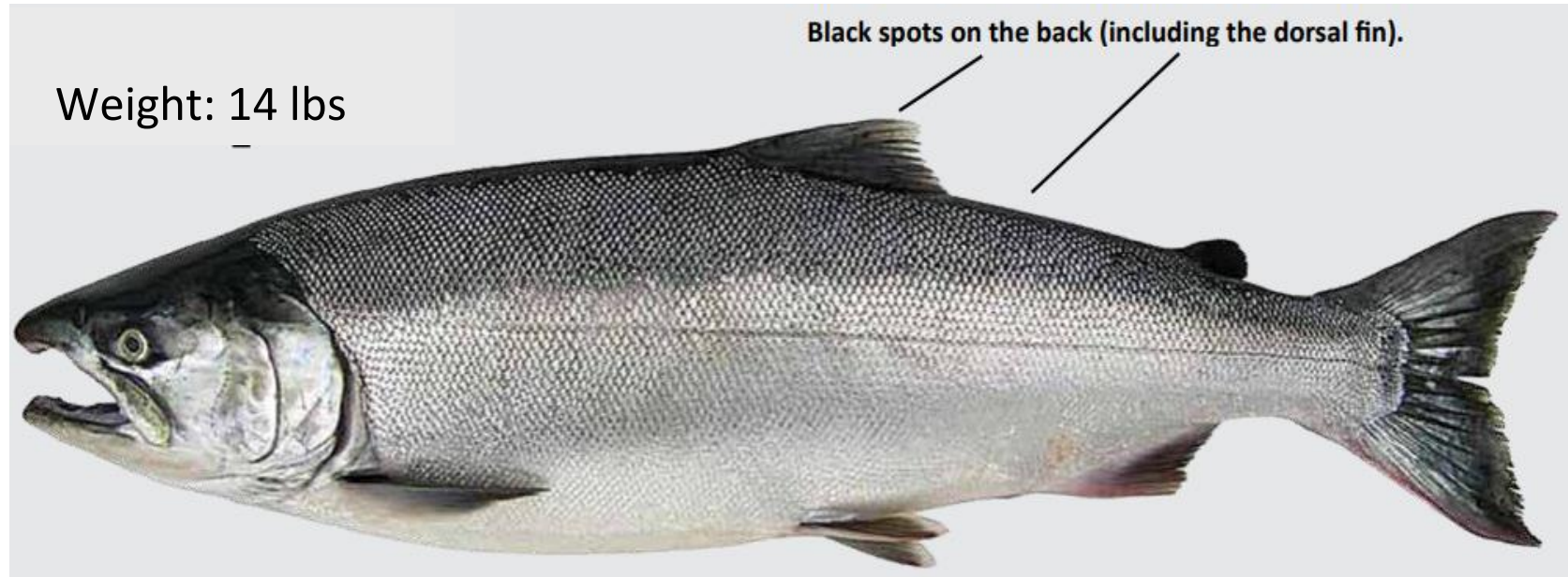
No distinct spots on the back or tail fin.



qakiiyaq /Silver Salmon/Coho



qakiiyaq /Silver Salmon/Coho



Salmon Tally Sheet

King	Red	Silver
Total:	Total:	Total:

Price per pound:

King: _____ lbs @ \$14/lb=_____

Red: _____ lbs @ \$4/lb=_____

Silver: _____ lbs @ \$4/lb=_____

Total owed:

Salmon Tally Sheet

King	Red	Silver
Total:	Total:	Total:

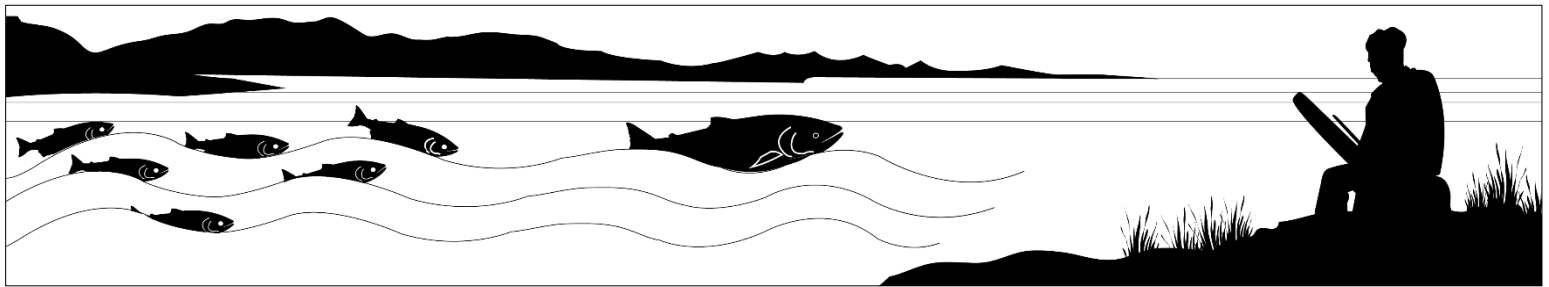
Price per pound:

King: _____ lbs @ \$14/lb=_____

Red: _____ lbs @ \$4/lb=_____

Silver: _____ lbs @ \$4/lb=_____

Total owed:



Additional Resources for Teachers

Check out these resources that may be helpful. These links were accessed 4-2025.

The Alaska Department of Fish and Game has many great resources for teachers related to teaching about salmon:

- Salmon In the Classroom: Resources and materials to use. You can also arrange to have an education specialist come from Fish and Game.
<http://www.adfg.alaska.gov/index.cfm?adfg=educators.salmonclassroom>
- Salmon Cam: Learn about the salmon life cycle and watch eggs develop at
<http://www.adfg.alaska.gov/index.cfm?adfg=viewing.salmoncam>
- Pacific Salmon Lifecycle and Identification Quiz:
<http://www.adfg.alaska.gov/index.cfm?adfg=fishingSportFishingInfo.quiz>
- *It Takes an Entire Watershed to Raise a Fish*: Curriculum for more information focused on ecology and healthy habitats related to keeping fish populations healthy.
<http://www.adfg.alaska.gov/index.cfm?adfg=curricula.watersheds>

Tips for Non-Alaska Native Teachers who want to invite an Elder in to speak:

This is part of a unit on weather, and also has good guidance on incorporating traditional knowledge systems into lessons. See page 3 for information on how to appropriately invite an Elder or culture bearer into the classroom:

<http://ankn.uaf.edu/Curriculum/Units/PredictingWeather/PredictingWeather.pdf>

Alaska Native Knowledge Network: More curriculum and other resources related to Alaska Native ways of knowing. <http://www.ankn.uaf.edu/>

Alaska Native Language Center: Great resources on incorporating indigenous language into lessons: <https://www.uaf.edu/anlc/index.php>

Tribal Vocational Rehabilitation Program (TVR): Each region of Alaska has a TVR. In the Kodiak area, the Kodiak Area Native Association Tribal Vocational Rehabilitation Program (TVR) provides culturally relevant vocational rehabilitation services to Alaska Native / American Indian adults and transition age youth with disabilities who reside in the Kodiak Region that leads them to successful employment outcomes. To learn more about the individual supports available, visit: <https://ak.db101.org/documents/Alaska%20TVR%20Programs.pdf>

Alaska Cultural Standards

A: Culturally-knowledgeable students are well grounded in the cultural heritage and traditions of their community.	B: Culturally-knowledgeable students are able to build on the knowledge and skills of the local cultural community as a foundation from which to achieve personal and academic success throughout life.	C: Culturally-knowledgeable students are able to actively participate in various cultural environments.	D: Culturally-knowledgeable students are able to engage effectively in learning activities that are based on traditional ways of knowing and learning.	E: Culturally-knowledgeable students demonstrate an awareness and appreciation of the relationships and processes of interaction of all elements in the world around them.
<p>A1: Assume responsibilities for their role in relation to the well-being of the cultural community and their lifelong obligations as a community member;</p> <p>A2: Recount their own genealogy and family history;</p> <p>A3: Acquire and pass on the traditions of their community through oral and written history;</p> <p>A4: Practice their traditional responsibilities to the surrounding environment;</p>	<p>B1: Acquire insights from other cultures without diminishing the integrity of their own;</p> <p>B2: Make effective use of the knowledge, skills, and ways of knowing from their own cultural traditions to learn about the larger world in which they live;</p> <p>B3: Make appropriate choices regarding the long-term consequences of their actions; and</p> <p>B4: Identify appropriate forms of technology and anticipate the consequences of their</p>	<p>C1: Perform subsistence activities in ways that are appropriate to local cultural traditions;</p> <p>C2: Make constructive contributions to the governance of their community and the well-being of their family;</p> <p>C3: Attain a healthy lifestyle through which they are able to maintain their social, emotional, physical, intellectual, and spiritual well-being; and</p> <p>C4: Enter into and function effectively in a</p>	<p>D1: Acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders;</p> <p>D2: Participate in and make constructive contributions to the learning activities associated with a traditional camp environment;</p> <p>D3: Interact with Elders in a loving and respectful way that demonstrates an appreciation of their role as culture-bearers</p>	<p>E1: Recognize and build upon the interrelationships that exist among the spiritual, natural, and human realms in the world around them, as reflected in their own cultural traditions and beliefs as well as those of others;</p> <p>E2: Understand the ecology and geography of the bioregion they inhabit;</p> <p>E3: Demonstrate an understanding of the relationship between world view and the way knowledge is formed and used;</p>

<p>A5: Reflect through their own actions the critical role that the local heritage language plays in fostering a sense of who they are and how they understand the world around them;</p> <p>A6: Live a life in accordance with the cultural values and traditions of the local community and integrate them into their everyday behavior.</p> <p>A7: Determine the place of their cultural community in the regional, state, national, and international political and economic systems.</p>	<p>use for improving the quality of life in the community.</p>	<p>variety of cultural settings.</p>	<p>and educators in the community;</p> <p>D4: Gather oral and written history information from the local community and provide an appropriate interpretation of its cultural meaning and significance;</p> <p>D5: Identify and utilize appropriate sources of cultural knowledge to find solutions to everyday problems; and</p> <p>D6: Engage in a realistic self-assessment to identify strengths and needs and make appropriate decisions to enhance life skills.</p>	<p>E4: Determine how ideas and concepts from one knowledge system relate to those derived from other knowledge systems;</p> <p>E5: Recognize how and why cultures change over time;</p> <p>E6: Anticipate the changes that occur when different cultural systems come in contact with one another;</p> <p>E7: Determine how cultural values and beliefs influence the interaction of people from different cultural backgrounds.</p> <p>E8: Identify and appreciate who they are and their place in the world.</p>
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This handout was created from the Alaska Cultural Standards. Source: <https://kpbsd.org/departments.aspx?id=6834&transitionUi=1>

Alutiiq/Sugpiaq Values

Nunapet (Our Land): “Ties to our homeland”

Nunapet carlia'arluki (Stewardship): “Taking care of our land”

Unguwacirpet (Subsistence): “Our way of living”

Suupet (People): “Our people or community”

Cuqllipet (Elders): “Our Elders”

Ilaapet (Family): “Our family”

Liicirpet (Learning): “Our way of learning”

Sugt'stun niuwacirpet (Language): “Our heritage language”

Englarstaisngukut (Humor): “We like to laugh”

Agayumaukut (Spirituality): “We are prayerful”

Ilakuisngukut (Sharing): “We favor sharing”

Sugtanartukut (Trust): “We trust”

Ling'aklluki (Respect): “We respect them”

Piciipet uswituu'uq (Traditional Arts, Skills, & Ingenuity): “Our ways of doing are wise”

Source: <http://alutiiqeducation.org/html/home/earth.php>