Traditional Lifeways Curriculum: FISHING

Upper Kuskokwim Region of Interior Alaska, K-12

Alaskan Clipart by Alan Dick

*Nok'olonh ena luk'a hit'os.*
*Ladies cutting fish*

A Culturally-based Curriculum created by
Telida Traditional Council’s
Indian General Assistance Program
Environmental Protection Agency

*Upper Kuskokwim Athabascan language translations by Steven Nikolai Sr.*

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These education lessons are dedicated to the next generation to help protect our traditional way of life.

Dina'ena tsaye ghinet tu hidinelghwts'
jiya huniya deno.

People are boiling water for tea while they are picking berries.
Traditional Lifeways Curriculum: FISHING
Upper Kuskokwim Region in Interior Alaska, K-12

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Foreword

Telida Village has developed a series of subsistence education lessons that will keep the tribal members healthy and the environment clean for the future generations, fulfilling the Indian General Assistance Program’s objective to reduce the risk to human health and the environment.

The “Bird Hunting in the Upper Kuskokwim, Interior Alaska” unit is composed of five educational lessons: Waterfowl Game, Upland Game Birds, When and Where to Hunt Birds, How to Hunt, and Uses of Game Birds. There are a total of 28 activities included. Educational activities include the Elders sharing on waterfowl and game birds, upland bird spotting field trip, planning for the bird hunt, practicing traditional and modern bird hunting methods, and an Elder’s and experienced hunter’s luncheon.

The education lessons meet the Alaska State Content Standards and Alaska Standards for Culturally Responsive Schools. The activities in the lessons are based on “Translating Standards to Practice: A Teacher's Guide to Use and Assessment of the Alaska Science Standards” developed by the Alaska Rural Systemic Initiative and on the Alaska Native Interior Educator’s Association’s K-12 Student’s and Teacher’s Resources books. The project was funded by a grant from the Environmental Protection Agency Indian General Assistance Program.
Curriculum Development Team

Charlene Dubay (Team Leader, Contributor) is the IGAP Environmental Director for Telida Traditional Council overseeing the development of the culturally-based Traditional Lifeways curriculum. Ms. Dubay has a Master’s Degree in Cross-Cultural Studies from the University of Alaska Fairbanks and a Bachelor’s of Science Degree in Wildlife Biology from the University of Massachusetts Amherst. Charlene has been integrating subsistence and language issues into preservation and outreach programs for over 20 years. She can be reached at charlenedubay@hotmail.com.

Steven Nikolai Sr. (Native Cultural Specialist) was born and raised in the Upper Kuskokwim region and is a First Speaker of Upper Kuskokwim Athabascan (UKA). Mr. Nikolai has taught bilingual classes at the Nikolai School in the Iditarod Area School District and is an experienced subsistence hunter, trapper and fisherman. Steven Sr. also worked with the Alaska Native Language Center. Steven Nikolai Sr. was Chief of the Telida Tribal Council for many years and has a heart for economic and social development as well as preserving traditional ways of living in the U.K. region. Steven provided UKA translations in the Series.

Teresa Hanson (Researcher, Contributor) holds a Masters Degree in Northern Studies and a Bachelors Degree in History from the University of Alaska Fairbanks. She currently consults curriculum development projects, as well as develops grant proposals for Alaskan cultural issues such as language preservation. Teresa homeschooled her four children and other small groups for over 15 years. Her Oral History collection Master’s thesis: “Homeschooling in Alaska” interviews are housed in the Oral History collection in the UAF Archives at Rasmuson Library. If you would like contact her about curriculum development or other educational consulting services, she can be reached at teresaconsulting@hotmail.com.

Susan L. Brown (Contributor) holds a Bachelor of Science in Education with endorsements in Special Education and Speech Pathology from the University of Central Arkansas. She also has completed graduate work in Education, Alaskan History, and Cross-Cultural Communication from the University of Alaska, University of Wisconsin and the University of Arkansas. As a former special needs teacher, homeschool educator and tutor, Susan specializes in curriculum development and educational consulting as well as grant writing. Susan has lived in Alaska for 22 years. She can be reached at mailto:newsongarise@hotmail.com.
Acknowledgements

Telida Village would like to thank the following people and organizations for their contributions to this project:

Steven Nikolai Sr. from Telida Village who assisted the tribe with the subsistence fishing lessons. He served as the Alaska Native Knowledge Consultant for the project as well as providing the translations for the illustrations.

Denali National Park Service which gave us permission to use Ray and Sandy Jo Collins “Nikolai-Telida Village History Report.” This document provided the historical information for the founding of Telida Village; the people’s pattern of life; and their yearly cycle of subsistence activities.

The Alaska Rural Systemic Initiative work showed us why “math and science education must reflect—and strengthen—the values and wisdom of traditional Native Alaskan cultures.”(Boyer, pg.2)

The Alaska Native Interior Educator’s Association’s K-12 Student and Teacher’s Resource’s books formed the basis for the culturally relevant, education lessons in the subsistence fishing unit.

The Alaska Department of Fish and Game generously allowed us to use written information and images from technical reports and the “Alaska Wildlife Notebook Series.” (Source of Information: Alaska Department of Fish and Game, Alaska Wildlife Notebook Series)
The wisdom of any culture lies not in the monuments constructed or the books written but rather within the skills it gives to its children for their continued survival.

When a community teaches co-operation, sharing and respect for the natural world it insures that the earth will continue to provide the necessities to nurture both the body and spirit of its people. From their earliest years the children of the Upper Kuskokwim Region are taught respect for land, water and the creatures of the earth.

Young children are encouraged to watch what others are doing. In this way they are learning what to do for themselves. They are being taught to be self-sufficient and when necessary to improvise with what is at hand. This ability to make independent decisions may someday be necessary for their own survival or that of another person.

Within the Upper Kuskokwim Region subsistence is necessary for day-to-day living. Hunting, trapping, fishing, gathering and gardening are crucial activities for the majority of the native population. (State of Alaska Website) Understanding rural issues such as sanitation, healthy drinking water and responsible solid management are necessary for the health of the environment and the individual.

The curriculum provided is not intended to replace the training of the elders but rather to provide a method which supports this training.

**Pattern of Life** (Collins, Ray)

“The people of the Upper Kuskokwim area developed a pattern of life that was determined to a large extent by their environment. There were no permanent, year-round villages in the past. People had to move seasonally to harvest food and would winter in different locations to keep from depleting the resources such as food, fur, and firewood in any given place. As with other Athabaskans who reside near the head of a river system surrounded by mountains, they share a number of environmental constraints.

The climate is that of the Alaskan Interior with cold winters and relatively warm summers. The boreal forest provides a number of micro-environments. Black
spruce and moss lie over areas of frozen ground that requires a hot fire to clear and thaw, thus allowing willow and birch to move in. The thawed ground along the rivers is covered with stands of white spruce and birch on the higher cut bank side of the river, with thick stands of willow and alder on the sandbars. Cottonwood are found along the river and aspen on the higher ground. Cross-country travel is difficult in much of the lowland area because of numerous swamps and boggy areas drained by small streams that flow into the major rivers. The rivers are the main highways for travel both in summer and winter.

Food resources vary in type, quantity and habitat. Three species of salmon ascend the Kuskokwim streams: Chinook (King), Chum (Dog), and Coho (Silver). Whereas hundreds of thousands, and even millions, of salmon enter the Kuskokwim River, but by the time they reach the headwaters only a few thousand or even a few hundred are left to spawn in any given stream.

Until the late 1800's and early 1900's moose were absent in most of the area. The large animals most harvested were Dall sheep, caribou, Black bear and Grizzly bear. Dall sheep habitat is limited to the Alaska Range. Caribou also spend much of the year in the mountains, moving down to the lowlands primarily during the winter. Today, moose is widely hunted.

Small game species such as rabbits, grouse and ptarmigan are widely dispersed but their populations are cyclic and in some years they are very scarce.

Ducks and geese pass through the area by the thousands in the spring when the headwaters of the rivers first open, but most move on to nest elsewhere. During the fall migration, when there is plenty of open water, most fly over the area without stopping except for a brief rest.

**Yearly Cycle of Subsistence Activities**

"A yearly cycle in one of these territories might begin with relocating to a fishing site in the late spring to take advantage of the fish runs that began moving upriver at breakup.

The original method for catching these fish was by constructing a fence and wire in a shallow side stream that was utilized for spawning. They were more difficult to catch in the main Kuskokwim River until the fishwheel was introduced in the 1900’s, and large twine and nylon fish nets became available.

Nikolai and Telida were suitable sites for winter villages. Other sites that were used at times included East Fork, Big River and Vinasale. During the winter some families dispersed to trapline cabins. As trade goods and industry such as mining became more available at McGrath, Takotna and Medora, trapping began to play a bigger role in the yearly cycle.

The Environmental Protection Agency Indian General Assistance Program funded the project.
K-12 Subsistence Lessons

Authors: Telida Village Council, Environmental Protection Agency

Context: Throughout the Year

Alaska Region: Upper Kuskokwim Athabascan

Alaska Cultural and State Content Standards

Source of Information: Alaska Standards for Culturally Responsive Schools

The following standards are excerpts from the Alaska Cultural and State Content Standards.

Cultural Standards

A. Culturally-knowledgeable students are well grounded in the cultural heritage and traditions of their community.

Students who meet this cultural standard are able to:

1. assume responsibility for their role in relation to the wellbeing of the cultural community and their life-long obligations as a community member;
2. recount their own genealogy and family history;
3. acquire and pass on the traditions of their community through oral and written history;
4. practice their traditional responsibilities to the surrounding environment;
5. 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;
6. live a life in accordance with the cultural values and traditions of the local community and integrate them into their everyday behavior.

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.

Students who meet this cultural standard are able to:

1. acquire insights from other cultures without diminishing the integrity of their own.
2. 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.
3. make appropriate choices regarding the long-term consequences of their actions.
4. identify appropriate forms of technology and anticipate the consequences of their use for improving the quality of life in the community.

C. Culturally knowledgeable students are able to actively participate in various cultural environments.

Students who meet this cultural standard are able to:

1. perform subsistence activities in ways that are appropriate to local cultural traditions;
2. make constructive contributions to the governance of their community and the well-being of their family;
3. attain a healthy lifestyle through which they are able to maintain their own social, emotional, physical, intellectual and spiritual well-being;
4. enter into and function effectively in a variety of cultural settings.

D. Culturally knowledgeable students are able to engage effectively in learning activities that are based on traditional ways of knowing and learning.

Students who meet this cultural standard are able to:

1. acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders.
2. participate in and make constructive contributions to the learning activities associated with a traditional camp environment.
3. interact with Elders in a loving and respectful way that demonstrates an appreciation of their role as culture-bearers and educators in their community.
4. gather oral and written history information from the local community and provide an appropriate interpretation of its cultural meaning and significance.
5. identify and utilize appropriate sources of cultural knowledge to find solutions to everyday problems.
6. engage in a realistic self-assessment to identify strengths and needs and make appropriate decisions to enhance life skills.

E. Culturally-knowledgeable students demonstrate an awareness and appreciation of the relationships and processes of interaction of all elements in the world around them.

Students who meet this cultural standard are able to:

1. recognize and build upon the inter-relationships 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;
2. understand the ecology and geography of the bioregion they inhabit;
Alaska State Content Standards

English/Language Arts

B. A student should be a competent and thoughtful reader, listener, and viewer of literature, technical materials, and a variety of other information.

A student who meets the content standard should:

1. comprehend meaning from written text and oral and visual information by applying a variety of reading, listening and viewing strategies; these strategies include phonic, context, and vocabulary cues in reading, critical viewing, and active listening;
2. reflect on, analyze, and evaluate a variety of oral, written, and visual information and experiences, including discussions, lectures, art, movies, television, technical materials, and literature; and
3. relate what the student views, reads, and hears to practical purposes in the student’s own life, to the world outside, and to other texts and experiences.

C. A student should be able to identify and select from multiple strategies in order to complete projects independently and cooperatively.

A student who meets the content standard should:

1. make choices about a project after examining a range of possibilities;
2. organize a project by
   a. understanding directions;
   b. making and keeping deadlines; and
   c. seeking, selecting, and using relevant resources;
3. select and use appropriate decision-making processes;
4. set high standards for project quality; and
5. when working on a collaborative project,
   a. take responsibility for individual contributions to the project;
   b. share ideas and workloads;
   c. incorporate individual talents and perspectives;
   d. work effectively with others as an active participant and as a responsive audience; and
   e. evaluate the processes and work of self and others.

D. A student should be able to think logically and reflectively in order to present and explain positions based on relevant and reliable information.

A student who meets the content standard should:

1. develop a position by
a. reflecting on personal experiences; prior knowledge, and new information;
b. formulating and refining questions;
c. identifying a variety of pertinent sources of information;
d. analyzing and synthesizing information; and
e. determining an author’s purposes;
2. evaluate the validity, objectivity, reliability, and quality of information read, heard, and seen;
3. give credit and cite references as appropriate; and
4. explain and defend a position orally, in writing, and with visual aids as appropriate.

E. A student should understand and respect the perspectives of others in order to communicate effectively.

A student who meets the content standard should:

1. use information, both oral and written, and literature of many types and cultures to understand self and others;
2. evaluate content from the speaker’s or author’s perspective.

Mathematics

A. A student should understand mathematical facts, concepts, principles, and theories.

A student who meets the content standard should:

2. select and use appropriate systems, units, and tools of measurement, including estimation;
5. collect, organize, analyze, interpret, represent, and formulate questions about data and make reasonable and useful predictions about the certainty, uncertainty, or impossibility of an event.

B. A student should understand and be able to select and use a variety of problem-solving strategies.

A student who meets the content standard should:

1. use computational methods and appropriate technology as problem-solving tools;
3. formulate mathematical problems that arise from everyday situations;
4. develop and apply strategies to solve a variety of problems.

C. A student should understand and be able to form and use appropriate methods to define and explain mathematical relationships.
A student who meets the content standard should:

1. express and represent mathematical ideas using oral and written presentations, physical materials, pictures, graphs, charts, and algebraic expressions.

D. A student should be able to apply mathematical concepts and processes to situations within and outside of school.

A student who meets the content standard should:

2. use mathematics in daily life; and
3. use mathematics in other curriculum areas.

Science

A. A student should understand scientific facts, concepts, principles, and theories.

A student who meets the content standard should:

14. understand:

   a. the interdependence between living things and their environments; (Interdependence).
   b. that the living environment consists of individuals, populations, and communities; (Interdependence).
   c. that a small change in a portion of an environment may affect the entire environment (Interdependence).

15. use science to understand and describe the local environment (Local Knowledge).

C. A student should understand the nature and history of science.

A student who meets the content standard should:

   c. understand that society, culture, history, and environment affect the development of scientific knowledge.

D. A student should be able to apply scientific knowledge and skills to make reasoned decisions about the use of science and scientific innovations.

A student who meets the content standard should:
1. apply scientific knowledge and skills to understand issues and everyday events.
3. recommend solutions to everyday problems by applying scientific knowledge and skills.

**Geography**

**D. A student should be able to make and use maps, globes, and graphs to gather, analyze, and report spatial (geographic) information.**

A student who meets the content standard should:

1. use maps and globes to locate places and regions.

**E. A student should be able to utilize, analyze, and explain information about the human and physical features of places and regions.**

A student who meets the content standard should:

1. know that places have distinctive geographic characteristics;
2. analyze how places are formed, identified, named, and characterized;
3. relate how people create similarities and differences among places;
4. discuss how and why groups and individuals identify with places;
5. describe and demonstrate how places and regions serve as cultural symbols, such as the Statue of Liberty;
6. make informed decisions about where to live, work, travel, and seek opportunities;
7. understand that a region is a distinct area defined by one or more cultural or physical features; and
8. compare, contrast, and predict how places and regions change with time.

**E. A student should understand and able to evaluate how humans and physical environments interact. There are two E’s and an F. I’m not sure what the letters should be.**

A student who meets the content standard should:

1. understand how resources have been developed and used;
2. recognize and assess local, regional, and global patterns of resource use;
3. understand the varying capacities of physical systems, such as watersheds, to support human activity;
4. determine the influence of human perceptions on resource utilization and the environment;
5. analyze the consequences of human modification of the environment and evaluate the changing landscape; and
6. evaluate the impact of physical hazards on human systems.

F. A student should be able to use geography to understand the world by interpreting the past, knowing the present, and preparing for the future.

A student who meets the content standard should:

1. analyze and evaluate the impact of physical and human geographical factors on major historical events;
2. compare, contrast, and predict how places and regions change with time;
3. analyze resource management practices to assess their impact on future environmental quality;
4. interpret demographic trends to project future changes and impacts on human environmental systems.

History

A. A student should understand that history is a record of human experiences that links the past to the present and the future.

A student who meets the content standard should:

1. interpret demographic trends to project future changes and impacts on human environmental systems.
2. understand chronological frameworks for organizing historical thought and place significant ideas, institutions, people, and events within time sequences;
3. know that the interpretation of history may change as new evidence is discovered;
4. recognize different theories of history, detect the weakness of broad generalization, and evaluate the debates of historians;
5. understand that history relies on the interpretation of evidence;
6. understand that history is a narrative told in many voices and expresses various perspectives of historical experience;
7. know that cultural elements, including language, literature, the arts, customs, and belief systems, reflect the ideas and attitudes of a specific time and know how the cultural elements influence human interaction;
8. understand the history is dynamic and composed of key turning points;
9. know that history is a bridge to understanding groups of people and an individual’s relationship to society; and
10. understand that history is a fundamental connection that unifies all fields of human understanding and endeavor.
B. A student should understand historical themes through factual knowledge of time, places, ideas, institutions, cultures, people, and events.

A student who meets the content standard should:

1. comprehend the forces of change and continuity that shape human history through the following persistent organizing themes:
   a. the development of culture, the emergence of civilizations, and the accomplishments and mistakes of social organizations;
   b. human communities and their relationships with climate, subsistence base, resources, geography, and technology.

D. A student should be able to integrate historical knowledge with historical skill to effectively participate as a citizen and as a lifelong learner.

A student who meets the content standard should:

1. understand that the student is important in history;
2. solve problems by using history to identify issues and problems, generate potential solutions, assess the merits of options, act, and evaluate the effectiveness of actions;
3. define a personal position on issues while understanding the historical aspects of the positions and roles assumed by others;
4. recognize and demonstrate that various issues may require an understanding of different positions, jobs, and personal roles depending on place, time, and context;
5. base personal citizenship action on reasoned historical judgment with recognition of responsibility for self and others; and
6. create new approaches to issues by incorporating history with other disciplines, including economics, geography, literature, the arts, science, and technology.
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Alan Dick, Alaska Native Clipart, Alaska Native Knowledge Network


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Skills and Knowledge

A student will:

- listen, participate and communicate respectfully with Elders who participate in the fish lessons.
- make journal entries of all topics discussed by Elders and all material covered in this unit.
- identify Athabascan values.
- locate on regional maps, traditional boundaries, campsites, trails, rivers, lakes and streams, etc., that are traditional Upper Kuskokwim fishing areas.
- learn UK Athabascan names for all traditional boundaries, campsites, trails, rivers, lakes and streams, etc., that are traditional fishing areas.
- establish a personal knowledge base of the Upper Kuskokwim people and their traditional way of living.
- understand fishing dynamics of clans and families.
- learn the traditional tools and technology used for fishing.
- learn the current tools and technology used for fishing.
- research historical patterns of fishing and current regulations.
- learn fishing strategies that are dependent on the flow of water, water source, season, weather, time of day, etc.
- learn how to process fish.
- learn how to care for and preserve fish.
- understand the traditional ways of distributing, sharing, and bartering fish.
- learn any ceremonial uses of fish.
- share fishing stories.
- learn traditional Native stories concerning fish.
All students can benefit from inter-generational contacts. In Alaska Native cultures, grandparents were held in high regard as they contributed to the community by passing on knowledge and skills. Children learned by listening to and watching Elders and often didn't realize they were in training. Bringing grandparents in to share personal knowledge when studying subjects like nutrition, customs, plants, biology, and history can benefit the entire class.

To get started, first look to your class members. Send home a note or survey expressing your desire to include parents, grandparents, and Elders in your lessons. Get referrals for possible speakers from organizations that work with Natives and/or the Elderly.

The way to ask Native American Elders for help is different from Western customs. Initial and subsequent contact should be subtle. Visit with them, allowing time for the conversation to wander. Allow for extended pauses, giving them time to think and decide. If their hearing is poor, sit on the side of their better ear and make sure your lips can be seen. Direct eye contact should be limited. Standing or sitting at an angle can increase an Elder's comfort level. Keep your questions basic and specific.

Begin the request by telling a little story about your class and how the Elder could help. If you are not sure if the Elder is interested, hint strongly that you would like to have their help and ask if she or he knows of someone who might be willing to participate. Custom teaches that it is rude to give someone a frank "no" to a request for help, so you need to recognize that a noncommittal response might mean "no," or it might mean that the request is being considered. If at some point the Elder changes the subject more than once while you are explaining your request, you should be aware that she or he might be trying to say "no." Don't force a response; if it is clearly not a "yes," let it go, or suggest they can contact you after they've thought about it.

It is important to ask before a meeting for permission to make audio or video recordings. Don't show up with the equipment; you may force consent and cause bad feelings. Permission to listen to or tape a story or lecture does not give you any right to rebroadcast or write the story with you as author.

If an Elder has agreed to participate in a classroom, suggest an activity or topic outline so they know what you are expecting. Provide them with optional dates and the logistics. It is helpful to explain the routine, consequences for students' misbehavior, and possible options if problems come up during the lesson. It is your responsibility to ensure discipline is maintained. Be aware, however, that Elders generally do not support strict discipline in a public setting. Discuss how to make a smooth transition to help the Elder leave the class. Agree on some visual signs and ground rules.

When the Elder arrives, properly introduce her or him so the Elder understands your respect for them. The teacher should be alert for visual cues from the Elder during the
visit and be prepared to give unspoken signals back. The teacher should stay in the room.

Give the Elder a chance to use traditional discipline. Be prepared to move a child to sit by an adult who can role model how to listen respectfully. If you have problems with students degrading or ignoring an Elder, have a teacher's aide or adult Native quietly intervene.

Most traditional stories are like a round, crocheted pot holder. The story teller goes round and round the subject until it all comes together and finally comes to the lesson or point. Be patient; allow the Elders to share their culture in their own way. Your students are learning how to listen. Students should refrain from interrupting to ask questions. There will be a proper time to ask questions.

As a thank-you, Elders usually appreciate students and teacher letters, pictures, and story booklets, which are treasured and shown to friends and relatives. This may also encourage other Elders to participate in classroom projects.

Sometimes you will find a resource person who is available for a wide variety of subjects and projects. If you use an Elder more than once, the school should provide some type of stipend in appreciation of the energy and knowledge the Elder is contributing. Be careful not to burn out your Elders. Whenever you make a request, be sure the Elder understands she is not obligated.

Keep your lessons flexible in case the Elder can't come at the last minute. Once an Elder has agreed on a time to come into your classroom, avoid changing or postponing the visit.
The Story of the Upper Kuskokwim People and Fishing
This story was adapted from the subsistence fishing education lessons in this book.

Łuk'a lonh
The man is cutting lots of fish.

History of Fishing

We fish for lots of salmon during the warm weather and for other fish like blackfish, Northern pike and whitefish throughout the year. When the weather warms up, the King salmon, Dog salmon, Silver salmon, and whitefish return up the river where we have traditionally caught them with spears, fish fences and traps and now catch them with fish wheels, gill nets, and rod and reel.

We name the warm months of the year for the fish. The month of June is called King salmon month or Gasno'o'; July is Dog salmon month or Srughot'ayeno'o'; August is Silver salmon month or Nosdlagheno'o'; and September is Whitefish month or Tilayano'o'.

In the spring, we travel to fish camps by foot or by boat. Along the way, people visit with other families at their fish camps so they can eat freshly dried fish and share stories. After we reach our fish camp, we set it up, catch salmon, and then process enough for ourselves, and our dogs for the winter months.
Fish Hanging

When the weather gets cold, people also set up also camps for ice fishing so they can catch blackfish, burbot, grayling, Northern pike and whitefish for their families. In the past, there were lots of fish in the river. In the old days, we caught fish with hooks made from animal bones, or used spears, nets, and traps. Because the families worked together to build fish fences and traps, they were able to catch many fish and share them with others who could no longer fish.

Today, there are not as many fish in the river. Since we have to use rod and reel to catch the fish, our families are not able to work together with others as much as they used to.
Salmon Fishing

Our yearly cycle begins with people walking or traveling in a boat to spring camp where we can fish for the salmon that are coming up the river to spawn. Salmon arrive at spring camp depending on how high the water is and how soon the ice breaks up.

King salmon usually return to the Upper Kuskokwim during mid-June with runs going into July. We prefer King salmon because there is a lot of meat on them and they are a nutritious fish that helps people stay healthy. In the beginning of July, the Dog salmon, which we feed to our dog teams, swim up the river. The Silver salmon that people use for food follow them in early August.

In the past, we used bare hands, spears, fish fences, fish nets and fish traps to catch the salmon in the river. At first, people used their bare hands and spears to catch salmon in their spawning grounds into the late fall.

Later, we used a fish fence made from spruce and nets made from babiche or willow bark to catch salmon in a shallow side stream where they were spawning. However, the nets were hard to make, needed lots of work, and rotted when they stayed...
in the water for a long time. So, we began to use fish traps made from green spruce strips to catch the salmon.

In the late 1800s, gold miners brought the fish wheel to the Upper Kuskokwim River. We learned about using a fish wheel to catch the salmon that came up the river. However, people used it mostly for the Dog salmon because the fish wheel could catch enough fish to feed a dog team for the year. In the 1970’s, the snowmachine replaced the dog team and most of the people stopped using the fish wheel.

In 1959, the fish traps for harvesting salmon were made illegal and we had to stop using them when the law was enforced in 1966. Now, we are expected to use rod and reel and gill nets. The gill nets work in water that is silty but do not work well in water that is clear because the fish can see the nets and do not want to swim into them. The rod and reel works until the fish get too far into the spawning cycle and no longer want to bite.
Our people harvest many species of freshwater fish during the year including whitefish, blackfish, sheefish, pike, grayling and burbot. In the past, we caught the fish with spears, traps, small sinew and willow bark nets, and hooks made from animal bones. Now, people catch the fish with dip nets, fishwheels, hand lines, spears, set nets, and rod and reel.

People harvest whitefish for their families through the year. The best time to catch whitefish is when they are moving from the lakes to the rivers in the fall, and when they head back to the lakes to spawn in the spring. In the past, we caught whitefish with spears made from caribou antlers, fish hooks made from beaver leg bones, dipnets made of sinew or willow bark; fish traps; fences and fishwheels as they moved from the rivers to the lakes.
Today, people put traps under the ice to catch the whitefish in the spring, use dip nets, gill nets, rod and reel and fish wheels during the summer, and put nets under the ice or use handlines to fish for them in the winter.

Because the lakes run out of oxygen in the winter, many blackfish gather at the holes in the ice so they can breathe. We look for blackfish in beaver holes, muskrat pushups, or around holes that are surrounded by bird and animal tracks and also cut holes in the ice so the blackfish will come up to them for air.

People catch blackfish with a funnel shaped trap that is made from hardware cloth, spruce or tamarack strips. We use the blackfish when we do not have food, or as bait for other fish, and to feed our dogs.

Sheefish are one of the first fish that come back to the Upper Kuskokwim in the early spring and migrate up the mountains to spawn in the fall around the time the river freezes up. In the past, the people caught sheefish with spears and nets that drifted along the gravel bar with one man moving on the shore and another in canoe. We also used a toss net, and traps and nets set underneath the ice. Now, we harvest the sheefish with fishwheels, rod and reel and set nets. We make nemaje which is Native ice cream from the meat and notnsodiiside which looks like smashed berries from the eggs.

People fish for pike in the lakes and the rivers most of the year. In the past, we used fish traps and nets to catch the pike. Now, people catch the pike with gillnets and rod and reel in the summer and use gillnets set under the ice along with jigging with handlines to fish for them during the winter.

We catch grayling during most of the year. Long ago, people caught them with bone hooks, dipnets, spears, traps and weirs that were put in the creeks. Now, we fish for
them with set nets and hand lines under the ice in the spring and with nets and traps
placed under the ice during the winter. During the spring, summer and fall, people fish
for suckers in the lake outlets and the river. We catch them with set nets, traps, and fish
wheels and use them for food for ourselves and our dogs.

Burbot are taken year round by the people. In the past, we caught many burbot
with traps and partial fences that were set under the ice along the river. Today, people
fish for them with set nets under the ice and with rod and reel once the ice has broken up.
Traditionally, our people have used their bare hands, spears, dip and set nets and fish fence and traps to harvest the fish from the rivers and the lakes. We caught fish with our bare hands in the shallow water and off the sand bars that were along the river. It took a lot of energy!

To make a fish spear, we used natural materials found around us like animal bones, moosehide, and wood. People created the tip of the spear from animal bone or metal, then attached it with a piece of beaver snare or rope to the spear.

Because tamarack wood sank faster into the water than birch or spruce, we made the shank of the spear from tamarack and fastened a piece of babiche to it so the person could retrieve the spear once he caught the fish. Although some people fished in the middle of the stream, the best place to stand when spearing the fish was on the shore.

Fish Nets

We wove the original fish nets together from babiche or willow bark. The nets were difficult to make, required a lot of upkeep, and when they were left in the water for a long time they would rot and fall apart. So they had to be taken out of the water and
dried frequently. Because they took a lot of work, these nets were smaller than the ones we use now.

We also used a dipnet to catch salmon. People fashioned the dipnet from sinew or willowbark and attached it to a long wooden handle. They used the dipnet to catch salmon in shallow spawning grounds, to remove the salmon from two fish fences that were placed one behind the other, and to take the salmon out of a lake.

Our people used a variety of natural materials to design the early set nets. They created the netting from caribou sinew or willow bark; the floats that kept the net drifting in the water from cottonwood or spruce; and the weights that held the lower part of the net down in the water from hollowed caribou or bear leg bones.

Although the nets were not strong enough for the salmon runs, they worked for the smaller fish such as grayling and whitefish which lived in the lakes and the creeks. Even though we used spooled twine to weave the netting for the set nets later on, we still used the traditional weights and floats for the set nets.

**Fish-Trap Fence**

The fish-trap fence was the most efficient traditional technology that our people designed to harvest the salmon that were coming up the river. The fish-trap fences were built to stand up against the strong river currents and powerful runs of salmon that were returning to their spawning grounds. Every part of the fish-trap served an important purpose in catching the salmon. Several households often worked together on the fish-trap fence to build it, keep it up and process the salmon that they caught in it.
How the Fish-Trap Fence Worked

Our fish-trap fence was composed of posts, slats, fence sections, a funnel and a trap made from straight grained spruce. This is how it worked.

The run of salmon returning to spawning grounds was blocked by the fence that was set across the width of the river. Looking for a way to continue upriver, the salmon swam along the wings of the fence and into the corral. When the salmon could not find an opening, they headed back downstream, swam through the funnel and were caught in the trap where they were removed them with gaff hooks and spears.

Making the Parts for the Fish-Trap Fence

These are the steps we took to make the fish-trap fence parts (posts, slats, fence sections, a funnel and a trap) and put them together.

1. Prepared fence posts from wood to support the sections of the fence.
2. Split bundles of ½ -¾ inch slats from straight grained spruce to make up the sections of the fence.
3. Built the sections of the fence by placing the slats about three inches
apart in a horizontal pattern. Made each section of fence 7’-10’ tall and 10’ long.

4. Split slats from straight grained spruce and used them to build a cylinder shaped funnel that connected to the trap.

5. Split slats from straight grained spruce to build a cylinder shaped trap that was 16” in diameter and constructed a door for the end to remove the fish. The total length of the funnel and the fish trap was 18-30’ long.

Building the Fish-Trap Fence

To build the fish trap, we:

1. Set the posts two feet apart in the river and pounded them into the dirt with a wooden mallet.

2. Placed the sections of the fence on the upstream side of the posts and tied them into place to build the fence, the wings and the corral for the fish-trap.

3. Fastened the funnel and the trap to the corral.

4. Banked gravel against the bottom of the fence on the upstream side to prevent salmon from escaping underneath the fence.
Modern Technology

The modern technology that our people use to harvest salmon and other fish throughout the year includes the fish wheel, various kinds of nets, as well as the rod and the reel.

History of the Fish Wheel

In 1914, a trader introduced the fish wheel to us. He built the fish wheel to provide fresh salmon to the miners in the area and gave it to us when the market for fish declined. We began constructing fish wheels because it made it easier for us to catch salmon in the muddy river waters. With a reasonable amount of time, skill and money, several households were able to build a fish wheel that allowed them to catch Coho and Chum salmon for themselves. They also sold the salmon to trading posts, fox and mink farmers, and people with dog teams. Because people wanted to participate in other seasonal employment, they used up to three fish wheels at a time to shorten the fishing season.
How a Fish Wheel Works

The fish wheel is made up of a log raft which holds the fish wheel, an axle that turns the fish wheel, and lines and spars that anchor the fishwheel to the shore. The fish wheel also has baskets, paddles, and fish boxes to catch the fish as they are swimming up the river.

As salmon swim upriver they head towards the fishwheel. The water which is flowing down the river pushes against the paddles of the fish wheel and makes the axle turn. The baskets that are attached to the axle dip into the water and scoop up the salmon from the bottom of the river. The salmon slide down the basket into the fish box where they are removed. We use the line and the spars help keep the fish wheel in place while it is operating.

Building the Fish Wheel

Because dry wood floats the best in water, we build the raft for our fish wheel from four pieces of dry spruce logs, and then attach cross pieces of wood to both ends of the raft to hold the sides together. We make the axle that turns the fish wheel from
straight spruce poles, and suspend it from upright posts attached that are built on the raft. The axle is turned by paddles made from straight poles which extend at a ninety degree angle away from the axle.

We fashion the framework for the baskets from peeled, white spruce poles; the inside of the basket from heavy gauge wire mesh; and the slides from aluminum or scraps of plywood. The boxes that the fish slide into are built around the wooden upright posts. The line which keeps the fish wheel in position is hooked to a tree or post on the shore and the spars that are attached to the sides of the fish wheel allow it to be pulled into the shore or pushed out into the water depending upon the depth of the river.

**Operating the Fish Wheel**

Because the right fishing site determines how many salmon we can harvest, we usually place the fish wheel on the outside of a river bend that has a gravel bottom. We also check to make sure there are no logs or snags on the river bottom that can catch in the fish wheel and damage it.

When placing a wheel at a new site, we usually move it up or downstream a short distance to figure out the best place to put it. We don’t always catch a lot of fish in one place because high water may help or reduce the amount of fish that we can harvest.

The wheel works best when the dipper can reach within a few inches of the river bottom. A basket that keeps striking the bottom of the river may frighten the fish away and break. A basket that is too high in the water may allow the salmon to swim under it.

To maintain the fish wheel in the summer, we grease the axle. Because the level of the river changes, we adjust the basket so that it is a few inches above the bottom of the river. When the water is high, we bring the fish wheel close to the bank so that it will
not be damaged by trees floating down the river. If a tree does become caught in the fish wheel, we take the paddle or dipper off so the tree can be removed from the fish wheel.

In the winter, we store fish wheels by leaving them in the river and bringing the axle up to the highest point between the posts, or moving them into a slough near the river. One problem with leaving the fish wheel in the river is that it may be damaged when the ice settles in the winter, or during spring breakup. To help reduce damage during breakup, spreading ashes and sand, or shoveling off the snow, weakens the ice around the fish wheel.

Because birds and bears like to feed on fish that are in the boxes, people put ribbons on the fish wheel to scare away the birds, wash out the boxes to discourage the bears, and place fish scraps on the sandbars so the birds and the bears can eat them. Since several families usually help to build and maintain the fish wheel, as well as process the harvest, a fish wheel can provide a family with their main source of fish for the summer or add to what they catch in set nets.

**Fish Nets**

The modern gill net, drift net, and set net that we use all have the same basic design. They have a net (Tamel) made from nylon mesh, floats (tameldilisr) to keep the net hanging in the water, and anchors (tameltsa’) which holds the net down in the water. The fish swim into the net and are caught by their fins, gills, or tail.
We started using ready made nets about 50-60 years ago. The set net is a type of gill net that stays in one place in the water. To make a drift net, we adapt our set net and float down the river using two boats to catch fish like King salmon.

**Rod and Reel**

To catch King salmon as they are swimming up the river, we usually work with a medium weight rod and reel that we can take apart in the middle, and then use a bail type spinning reel with a medium strength fishing line that can hold a 20-35 pound fish. Because the current of the river is strong at times, we use an 18-24 inch leader and attach smaller leaders to them so that it will sink when the waters are rough. Lures have different colors, weights, sizes, and movements to hook the salmon in the mouth.

Since salmon mill in traditional areas, we fish for them by standing on the banks, in boats that are tied to the shore, or by drifting down the river in boats. We catch the salmon with lures or by snagging them and bringing them in with gaffs and landing nets.
In the past, our families set up fish camps when the ice broke up on the river. We built tipis to live in by cutting willow poles, placing them in a circle and lashing them together. Then, we covered the poles with caribou skins that were tightly sewn together to keep the rain out. We made a flap to cover the door. Then we placed spruce boughs on the floor, built a fireplace so we could cook inside when the weather was bad, and left a hole in the top of the tipi so the smoke could get out.

During the winter, people built more permanent homes along fresh water rivers or lakes that were not silty so that we could fish. We lived in above and below ground homes. The above ground homes were made from willow poles that were either covered with layers of skins, or rolls of birch bark sewn tightly together with spruce roots, and sealed with spruce pitch. We banked snow or dirt around the home to help keep out the cold. The below ground homes, which were dug two to three feet into the ground, were a rectangle with straight sides and a triangular roof.
When our children started attending school, the families with kids went to fish camp after school was out and most of the permanent villages were abandoned during the summer as people went fishing.

Our modern family summer camps usually have a large canvas wall tent that is set up on a wooden platform or set on the ground. To keep the moisture and the dust down, we cover the floor with spruce boughs. The fish racks usually have a roof for smoking and drying the fish and an above ground cache for storage. Many camps have a small canvas covered bathhouse for the men. Some fish camps have a fishwheel, and some set gill nets.

We prepare fish camp long before the fish arrive. Fish racks must be repaired and made ready after the winter and the spruce sticks used to hang fish need to be cut from trees and sharpened at the ends. Most fish racks have a roof and open sides with level poles across the top and open shelves on one side. The base of the shelves is chicken
wire. Once a fish dried, it is placed on the shelves and a fresh fish is hung from the poles. Fish eggs are also placed on the chicken wire to cure. Fish heads are hung from the top poles to dry.

In most of our fish camps, we hang cut salmon over or near cottonwood or alder smoke, away from bad weather. Some people use cottonwood, while some Elders say that alder is better because it seals in the moisture of the fish while the fish are drying. The smoke helps dry the fish, adds flavor, and keeps the bugs away.

Our fish racks work best in open areas away from trees, brush, and other plants on the ground because this allows the air to circulate and reduces the humidity which are both important factors for the salmon drying process.
We make our tables for cutting fish from spruce poles, scrap lumber, and other materials. The larger tables let several people work together at once. To keep the fish from slipping, we cover the tables with sheets of white spruce or burlap bags. We wash these materials once a day by placing them in the river or running fresh water over them.

People cut up fish in different ways, depending on how they want to preserve the fish. Some people separate the belly meat from the upper part of the fillet because it has more oil and dries slower than the upper, drier meat. Others leave the backbone in, others cut it out. Some people cut their fish in half for strips while others cut their fish along the belly to make flat fish.

When we put our fish on the rack to dry, some of us use sharpened sticks to hold the fish open while it is drying and others hang their fish right on the rack. Either way keeps the oil in the fish and prevents them from spoiling. Fish eggs are dried and are eaten by dogs and people, and the fish heads make good soup and are good for trapping.
Storing and Eating the Fish

In the past, we used underground caches or pits to store dried fish, dried meat, and berries so that we could have food during the early months of the year when it was scarce. We used notched poles to support the walls of the pit, lined them with birch bark sheets, and then covered the hole with poles, birch, bark and heavy logs to keep the animals and the water out. Another way that we preserved the salmon was to soak the fish in a brine solution in wooden casks.

Now, we freeze the Chinook salmon whole, in chunks, or after a day or two of smoking. Once the temperature drops to 32 degrees Fahrenheit, the frozen fish are removed from the freezer and stored in the open. The salmon taken during the late fall and the early winter are often stacked in the open air like cordwood. Some people also store Chum and Coho salmon that are taken in the late fall in storage pits that are dug in the ground where there is permafrost.

Some use five gallon plastic buckets to preserve salmon bellies in a brine solution. We alternate the salmon with the rock salt and add a small amount of water to the top before closing the container. Before we eat the salmon in the winter, we soak it in several changes of fresh water to take out the salt taste.

We prepare salmon for eating in several different ways, including boiling the dried fish heads, frying the Chinook salmon eggs and hearts in Crisco, and making fish egg soup. We also peel the skin off the salmon, salt it, and cook in it in a pan over a fire until it is crunchy. People usually save their best food like Chinook salmon heads to eat during the Russian Christmas holiday.
Dried Chinook Salmon are good to take hunting and traveling because it is light and helps keep the hunger away.

There are several ways to store and prepare the other fish we eat. Almost all the parts of the Whitefish are eaten, including the meat, the livers, and the eggs. We dry, freeze, and salt the Whitefish. We also mash whitefish eggs and cranberries together to make Nemje, which is Indian Ice Cream.

Some people dry pike flat like it is a chinook salmon. They also freeze it, boil it, fry it and use it to make nemeje. We also preserve and prepare Arctic grayling like whitefish.

Our Grayling are “very fat” during the winter and some people like to cut them up once they catch them and fry them.