

ADF&G Division of Subsistence

**An Ethnographic Overview of Kuskokwim
River Chinook Salmon Subsistence Fishery**

Prepared for the January 15-16, 2015 Kuskokwim Subsistence Salmon Panel



Hiroko Ikuta, Ph.D.
Subsistence Resource Specialist**Jim Simon, Ph.D.**
AYK Regional Supervisor

Hi, my name is Jim Simon. I am the regional supervisor for the Division of Subsistence for the Arctic-Yukon-Kuskokwim regions. With me is Dr. Hiroko Ikuta, who is the lead Subsistence Resource Specialist for the Kuskokwim River. We would like to give a short presentation about the Kuskokwim River Chinook salmon subsistence fishery based on the results of our division's research during the past 5 years.

The Kuskokwim River supports the state's largest subsistence king salmon fishery. About half of all the subsistence king salmon harvested in Alaska are taken from the Kuskokwim River each year. Since 1988, ADF&G has conducted annual post-season household surveys to estimate the number of subsistence salmon harvested from the Kuskokwim River. Since 2008, these surveys have been administered by the Division of Commercial Fisheries, which has provided the opportunity for the Subsistence Division staff to conduct long overdue comprehensive subsistence research and focused studies in the Kuskokwim region.

Comprehensive Household Subsistence Surveys
- 24 Kuskokwim Area communities -

2010 (Donlin Phase 1): Kalskag, Upper Kalskag, Aniak, Chuathbaluk, Crooked Creek, Red Devil, Sleetmute, & Stony River.

2011 (Donlin Phase 2): Oscarville, Kwethluk, Akiak, Tuluksak, Georgetown, & Napaimute.

2012 (Donlin Phase 3): Napaskiak, Napakiak, McGrath, Takotna, & Nikolai.

2013 (Regional Hubs): Bethel

2014 (Donlin phase 4): Scammon Bay, Quinhagak, Eek, & Tuntutuliak (in prep.)

Kuskokwim Salmon Ethnography Project
- 6 Kuskokwim River communities -

2009: Tuntutuliak, Kwethluk, Kalskag, Sleetmute, & Nikolai

2012: Bethel Area

Kuskokwim Subsistence Salmon Panel, Bethel, 15Jan15 2

The Division of Subsistence has conducted various studies on subsistence salmon fishing in Kuskokwim communities. Between 2010 and 2014, we conducted comprehensive subsistence surveys in 23 Kuskokwim area communities, listed here, funded by Donlin Gold. In addition, in 2013, we conducted a comprehensive subsistence survey in Bethel with funds from the state legislature. Each of these 24 community research projects was conducted in partnership with tribal and local governments and community members. The purpose of this research was to document each community's harvest and use patterns of subsistence resources, harvest and use areas, and local traditional knowledge. Survey topics included harvest amounts, sharing patterns, observations of harvest trends, and local concerns and comments.

In 2009, we initiated an ethnographic research project to document customary and traditional use patterns of subsistence salmon fishing along the Kuskokwim drainage. An ethnography project goes beyond a formal survey to get more in-depth information from interviewing subject matter experts and observing and participating in subsistence activities. This project focused on 5 Kuskokwim River communities: Tuntutuliak, Kwethluk, Kalskag, Sleetmute and Nikolai. In addition, a follow-up study was conducted in the Bethel area in 2012, in response to the very low returns of king salmon, which resulted in subsistence fishing closures and restrictions. The results of this ethnographic research are published as Technical Paper 382, and we have a few bound copies of that report here, if you would like one.

The data summarized in this presentation represent some of the research results from these studies. In total, in the past 5 years, Division of Subsistence has conducted household surveys in 1,349 Kuskokwim households, visited more than 18 fish camps, and conducted ethnographic interviews with 194 Kuskokwim residents. Dozens of individuals contributed to the collection, analysis, and interpretation of the data reported here, and we refer interested individuals to the ADF&G website to access the technical reports detailing these research results.
<http://www.adfg.alaska.gov/sf/publications/>

Research Ethics

- Communities decide whether to participate in the research or not.
- Participation is voluntary.
- All individual and household information is confidential.
- Data are analyzed according to standard statewide Division of Subsistence procedures.
- All interviews are conducted only with the informed consent of participants.
- Communities have the opportunity to review data before finalization and publication.



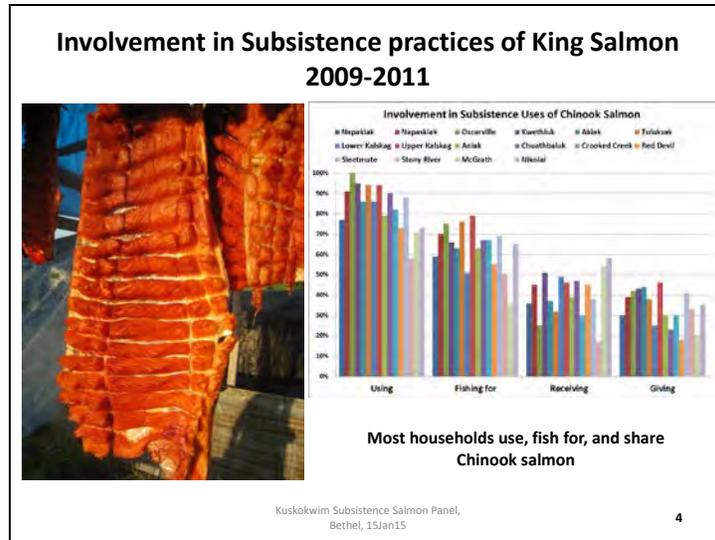
Photo courtesy of Jim Magdanz

Kuskokwim Subsistence Salmon Panel,
Bethel, 15Jan15

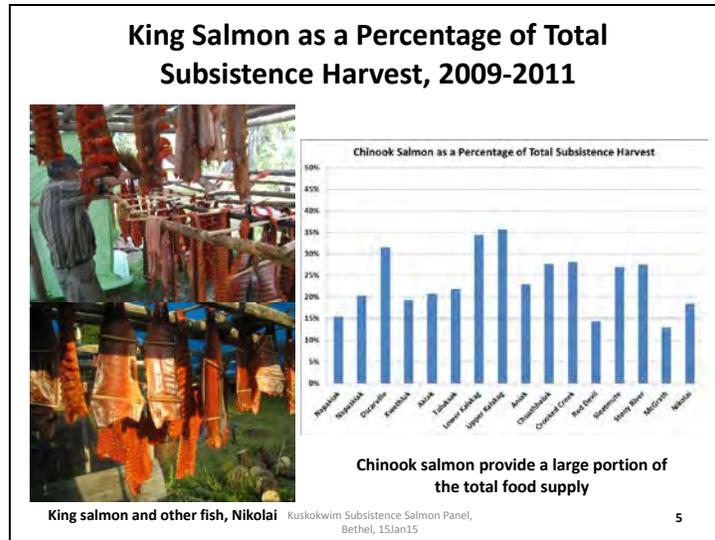
3

The division of subsistence maintains and adheres to strict research ethics in our protocols:

- We consult with proposed study communities to receive research approval prior to conducting any research.
- Participation is voluntary.
- All individual and household information is confidential.
- Data are analyzed according to standard statewide Division of Subsistence procedures.
- All interviews are conducted only with the informed consent of participants.
- Communities have the opportunity to review data before finalization and publication.

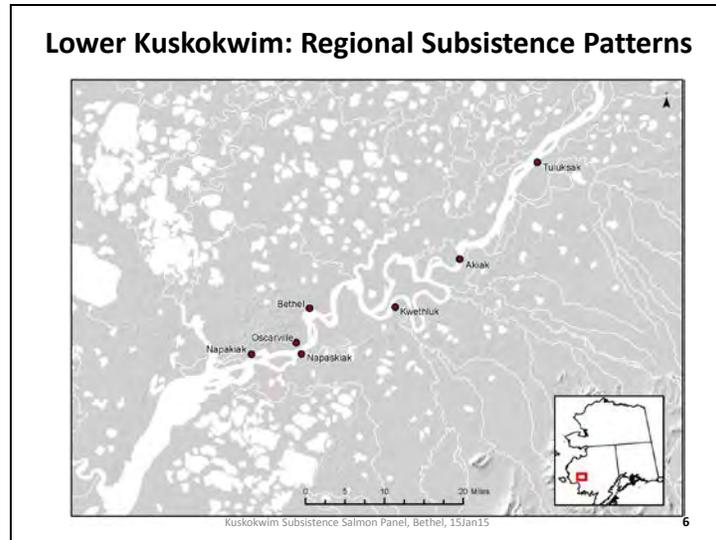


This slide shows how households in 16 Kuskokwim River communities reported their own involvement in some of the practices involved in the harvest and use of wild resources, including how resources are shared and distributed. This set of four column graphs, from left to right, represent the percentage of the community’s households that USE king salmon, FISH FOR king salmon, RECEIVE king salmon from others, and GIVE king salmon to others. From around 60% to 100% of households in these 16 communities used king salmon. Fewer households tend to actually fish for king salmon than use king salmon, about 35% to almost 80% of households. The data for households receiving and giving away king salmon demonstrate customary and traditional patterns of sharing king salmon with friends and family, and with those community members who are unable to fish for themselves.

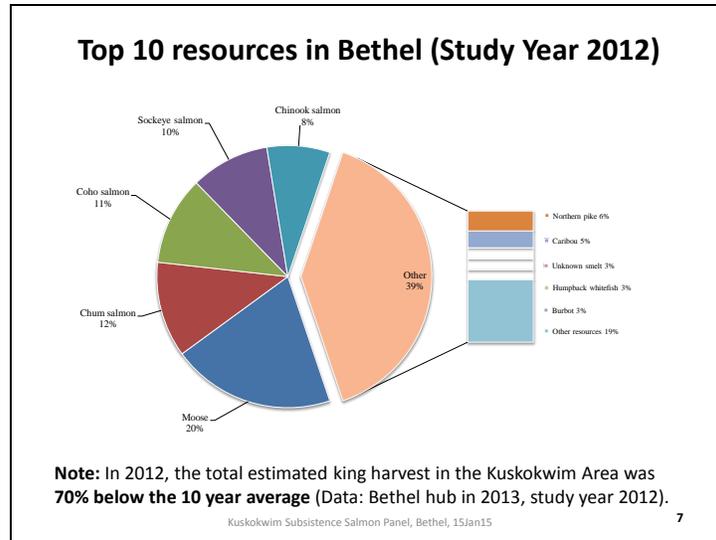


As this slide shows, king salmon provide a large portion of the total subsistence food supply in Kuskokwim River communities. King salmon make up between 13% and 36% of the total subsistence food harvests in the 16 Kuskokwim communities shown here, arranged from downstream at Napakiak on the left and going upstream to the right to Nikolai.

In the following slides, we will describe regional subsistence patterns in more detail for the Lower, Central, and Upper Kuskokwim River regions.

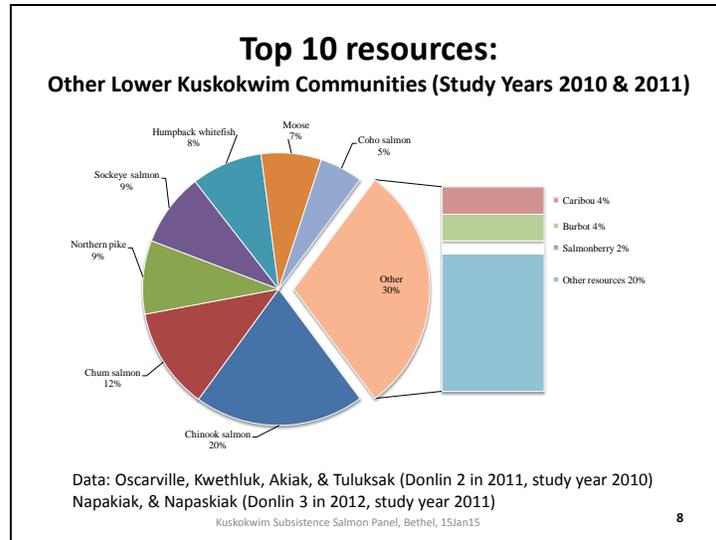


This map shows the Lower Kuskokwim communities where we conducted comprehensive subsistence surveys in the past 4 years. In 2011, we conducted comprehensive subsistence surveys in Oscarville, Kwethluk, Akiak, and Tuluksak. In 2012, we surveyed households in Napakiak and Napaskiak. In 2013, we conducted a comprehensive subsistence survey in 446 Bethel households, the largest survey effort in a single community in our division's history statewide.



This pie chart shows the harvest of the top 10 resources ranked by estimated edible pounds for Bethel in 2012. The top 5 resources harvested by edible weight were moose at 20%, chum salmon at 12%, coho salmon at 11%, sockeye salmon at 10%, and king salmon at 8% of the estimated total subsistence harvest by Bethel residents. It is important to keep in mind that king salmon harvest in Bethel was particularly low in 2012 due to the impact of declining king salmon abundance and subsistence fishing restrictions during the king salmon fishing season. In 2012, the total estimated king salmon harvest in the Kuskokwim Area was 70% below the 10-year average king salmon harvest for the region.

It is also important to note that a comprehensive subsistence survey presents harvest data for only a single year. Depending on various factors, such as weather, abundance of species, and regulatory restrictions, harvests of some species in the study year may be lower or higher than usual. However, when combined with other community studies, we gain a better understanding of customary and traditional harvest and use patterns throughout the Kuskokwim drainage.

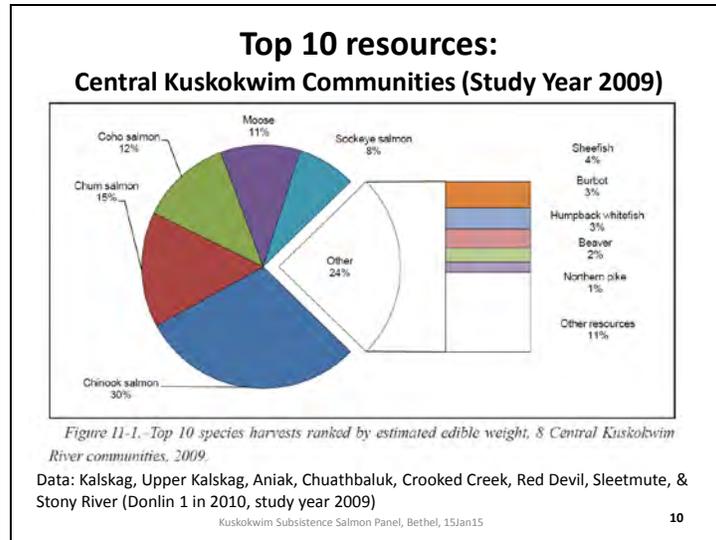


This pie chart shows the top 10 resources harvested by edible weight in other Lower Kuskokwim communities in 2010 and 2011. In these communities, the five most heavily harvested resources were king salmon at 20%, chum salmon at 12%, and northern pike, sockeye salmon, and humpback whitefish in relatively similar proportions, each from 8 to 9% of the total subsistence harvest. Like people in Bethel, people living in other Lower Kuskokwim communities rely on salmon and moose, yet they tend to harvest more non-salmon fish species, such as Northern pike and humpback whitefish, than people living in Bethel.

We feel that these data from other communities in this presentation are more representative of historical data than the 2012 Bethel data because of fewer restrictions to king salmon fishing in period 2009-2011.



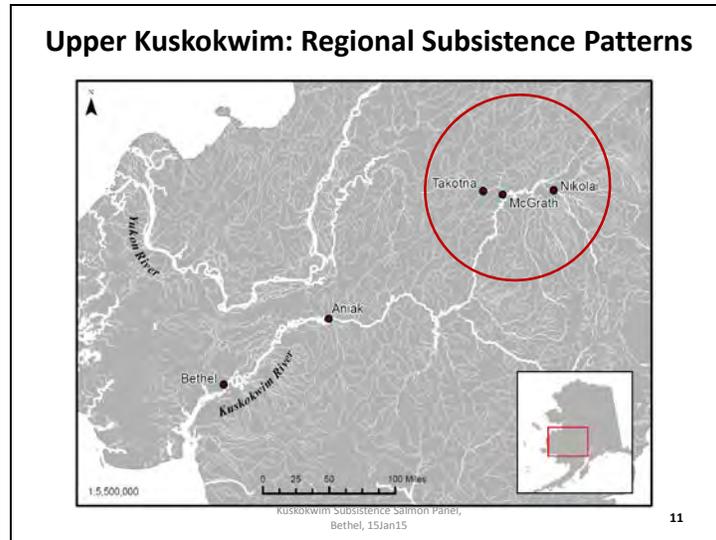
This map shows the 10 Central Kuskokwim communities in which we conducted comprehensive subsistence surveys in the past 5 years. In 2010, we conducted comprehensive household subsistence surveys in Lower Kalskag, Upper Kalskag, Aniak, Chuathbaluk, Crooked Creek, Red Devil, Sleetmute, and Stony River. In 2011, we surveyed households associated with the communities of Napaimute and Georgetown.



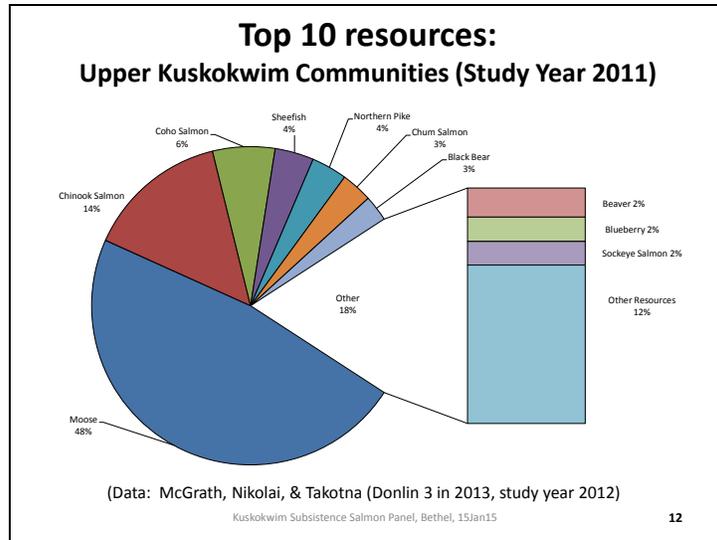
This pie chart shows the top 10 resources harvested by edible weight in the Central Kuskokwim River region in 2009. The 5 most heavily harvested resources were king salmon at 30% of the total subsistence harvest, chum salmon providing 15%, coho salmon at 12%, moose at 11%, and sockeye salmon at 8% of the total subsistence harvest.

These results do not include data from Napaimute and Georgetown. Many community and tribal members in these communities live in other parts of Alaska. Some community members harvested in Napaimute and Georgetown regions, but we do not include the data here due to statutory requirements associated with confidentiality.

Like people in Lower Kuskokwim communities, residents of Central Kuskokwim River communities heavily rely on salmon and moose. These data demonstrate that, proportionally, king salmon harvests make up a greater portion of the total annual subsistence harvest than in Lower Kuskokwim River communities, 30% compared to 20%.



This map shows the communities of the Upper Kuskokwim region. In 2012, we conducted comprehensive household subsistence surveys in McGrath, Takotna, and Nikolai.

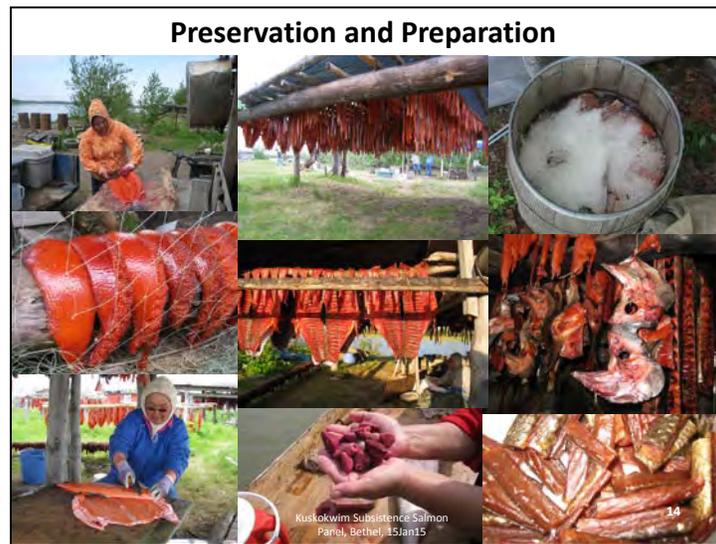


This pie chart shows the top 10 resources harvested by edible weight in Upper Kuskokwim communities in 2011. The top 5 resources mostly heavily harvested were moose at 45%, king salmon at 14%, coho salmon at 6%, and sheefish and northern pike both at 4% of the total subsistence harvest.

People in Upper Kuskokwim Communities are more dependent on moose than those in Lower and Central Kuskokwim communities. Yet, king salmon, ranked as the second most harvested resource, demonstrating its importance to the overall subsistence economy of the Upper Kuskokwim region.



- In the next several slides, we will discuss the results of our ethnographic study of subsistence salmon fishing along the Kuskokwim River, in the communities of Tuntutuliak, Kwethluk, Kalskag, Sleetmute, and Nikolai.
- Long-term residents have described changes in salmon fishing over their lifetimes, and fishing gear is one area in which many people have observed the most changes. Elders remember fishing during a time when gear was made by hand. Gear differed along the river according to locally available materials, river conditions, target species, and different traditions that people follow.
- Historically, people in lower river used set gillnets made of sinew, seal skin, or bark, fish traps, dip nets, and spears. People in middle river used fish wheels, drift gillnets made of willow bark, and spears. People in upriver communities used fish wheels, fences, and traps.
- Currently, the most common salmon fishing gear type is drift gillnets in the lower and middle river, set gillnets in all regions, and rod and reel in the middle and upriver areas. Such transitions in cultural practices involving salmon fishing gear occurred slowly. Elders recall the period of seal skin fishing nets overlapping with the use of twine nets, and then manufactured nets overlapping with handmade twine nets. Some people cut manufactured nets in half and shared costs with others because they couldn't afford a full-length net.
- Some fishers noted that regulations changing legal net specifications were a major hardship because people tend to use the same net for many years as part of the economy and efficiency of subsistence effort. Any regulations that drastically change gear are potentially a major problem for people's fishing opportunity. When the fish fence was banned in the 1960s, for example, according to local people in Nikolai, it took about 10 years for residents to transition to other forms of fishing for king salmon.
- Fishers also said that while contemporary technology has made fishing easier and more efficient, it has also made subsistence fishing more expensive. Cash income became important for participation in subsistence salmon fishing opportunities.



Kuskokwim subsistence users prepare and preserve salmon in many different ways, often using every possible part of the fish, including heads, hearts, and eggs. Preservation methods include freezing, salting, drying, smoking, and fermenting. Many preservation methods of the past continue to strongly influence how people along the river process and prepare their salmon today. However, some methods, like preserving salmon skins for boots and other clothing, are no longer practiced regularly. Subsistence salmon fishing, processing, and preparing king salmon, continue to be key elements of Kuskokwim River Yup'ik and Athabascan culture and identity and passing knowledge and experience from one generation to the next, especially at fish camp.

One reason for the extreme importance of king salmon to subsistence economies along the Kuskokwim River drainage is their early arrival. The early arrival of king salmon helps fill gaps in winter and spring food supplies and provide fresh food for immediate consumption. However, more importantly, the early arrival of king salmon is significant because traditional and preferred methods of preservation works best at this time of year, when king salmon can be more easily dried and preserved for winter use. Subsistence fishing at the end of the king salmon run, or for other species of salmon that arrive after king salmon, are more difficult to process and preserve because the weather later in the summer is wetter and prone to more insects, which makes it more difficult to preserve fish properly to keep them from spoiling.

Some people believe, up and down the river, that treatment of the salmon during preparation, preservation, and use relates directly to the future abundance of salmon and one's future success in harvest. For example, a major self-limiting factor affecting subsistence harvest levels along the Kuskokwim River relates to traditional concepts of conservation and the role of human behavior in ecosystem functions, such as the avoidance of waste by taking only what you need. Fishers told us, when you process fish, you are expected to treat the fish with respect, do not fight over fish, keep your fish camp clean, process the salmon in a timely manner, and do not waste them. If you do not do this, the salmon will not return.

Fishing at Fish Camp and in Town



At Fish Camp

- Time away from daily life
- Family Time
- Convenience of racks and smokehouse
- Tradition

In Town

- Convenient
- Include employed and elderly
- Convenience of racks and smokehouse
- Less affected by regulations and gas prices.



Kuskokwim Subsistence Salmon Panel, Bethel, 15Jan15 15

Going to fish camp is an important part of subsistence activities for some families, though other families prefer to fish in town. Subsistence fishing is related to social and kinship structure in many Kuskokwim communities. Fishing is a massive project that requires human resources, knowledge, skills, and capital. All generations including children and elders have roles to achieve the production. Tasks include maintaining gear, gathering and cutting wood, gutting and washing fish, and carrying fish and hanging them in smoke house. It requires boat, net, motor, money to buy gas and maintain gear, smokehouse, wood for smoking, racks, and cutting area.

Some people said that they prefer to fish at fish camp because they can be away from daily life in town and enjoy quality time as a family. Fish camp is a place where it is easier to make a good quality smoke fish. Fishers told us that fishing at fish camp is an important part of cultural and family traditions.

Other people prefer to fish from town because it is more convenient. If in town, people who are employed and elders who cannot easily travel can participate in fishing and processing. When fish are not abundant and there are more restrictive regulations, fishing in town is more efficient than going to fish camp.

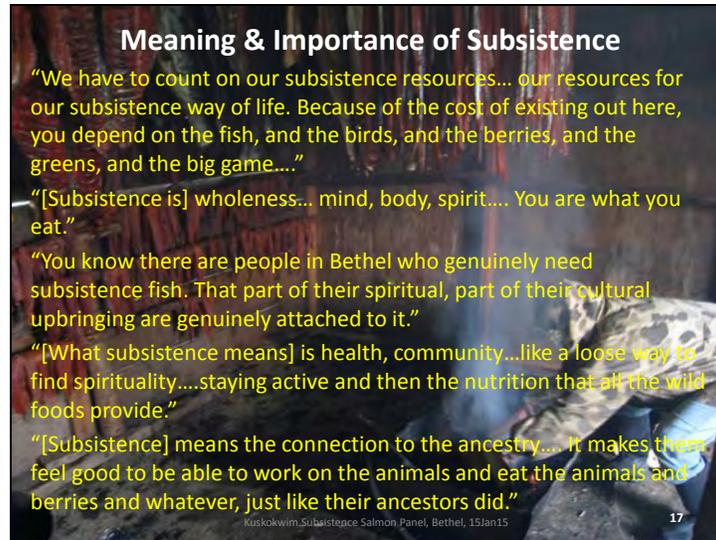
Importance of Subsistence Chinook Salmon Fishing on the Kuskokwim River

- Tradition
- Identity
- Well-being
- Survival
- Nutrition



Kuskokwim Subsistence Salmon Panel, Bethel, 15Jan15 16

The Kuskokwim residents who shared their knowledge with us communicated strongly that, for them, king salmon are not only food but king salmon are also part of their traditions, identities, physical and spiritual well-being, survival, and nutrition—all of which are intimately interconnected. Instead of going through each point list here, in the next slide, we would like to let some of these people speak for themselves, and share with you their own words about subsistence.



“We have to count on our subsistence resources...our resources for our subsistence way of life. Because of the cost of existing out here, you depend on the fish, and the birds, and the berries, and the greens, and the big game....”

“[Subsistence is] wholeness...mind, body, spirit.... You are what you eat.”

“You know there are people in Bethel who genuinely need subsistence fish. That part of their spiritual, part of their cultural upbringing are genuinely attached to it.”

“[What subsistence means] is health, community...like a loose way to find spirituality...staying active and then the nutrition that all the wild foods provide.”

“[Subsistence] means the connection to the ancestry.... It makes them feel good to be able to work on the animals and eat the animals and berries and whatever, just like their ancestors did.”



Many of the subsistence users we spoke to mentioned that subsistence fishing is an important time for families to work together. They feel pride in being able to provide fish for themselves and their families. It is a way to pass traditional knowledge, skills, and values on to younger generations. Children watch and help in every aspect of salmon fishing – checking set nets, drifting nets, cutting fish, and preserving fish. These are important skills for children to have, and teaching them those skills is an important investment in the future of Kuskokwim River communities.

Many elders expressed their concerns about the effect of the decline in time spent at fish camp to Alaska Native identity and cultural continuity due to such things as regulations, like fishing windows, poor king salmon returns, increased costs associated with fishing due to increases in fuel cost and usage related to fishing windows, and the need to stay close to town to work or care for family members. These thoughts and the other data summarized here are all important considerations when contemplating regulatory and management approaches to equitably distribute subsistence king salmon fishing opportunities during times when there are not enough king salmon for all subsistence uses.

Slide 19

