



Natural Indicators

Wind

- Determines which mouth salmon enter
 - If wind is mostly from the north, the salmon mostly come in the south mouth of the Yukon.
 - ...> A south wind blows fresh water away from shore, and salmon enter through the north mouth.
 - If wind is mostly from the south, kings and other salmon mostly enter north mouth.
 - ...> When a northwest wind blows, the fresh water is closer to the river, and the salmon come into the south mouth.
- Determining abundance
 - Constant northwest wind in the spring indicates there will be an abundance of salmon during summer.
 - Calm weather means fewer salmon.
 - ...> When it is calm and windless the salmon don't want to come in. They enter the river when it gets windy or with the tide.

Fish eggs

- If roe is smaller, that means they are spawning far up river.
- If they are spawning closer, their roe is big.

Other animals

- People observe land animals to predict seasonal changes and upcoming warm or cold weather. For instance, when winter will come late, animals such as ptarmigan change color late.

River ice

- More ice during breakup indicates an abundance of fish.

Birds

- Salmon arrive the way that migratory birds arrive.
 - When the birds come in late, kings will also come in late.
 - When the birds come early, kings will come early.

Foam on the water's surface (Qapnet)

- A lot of foam indicates there may be a lot of fish.

Recommendations

- ☞ Unite the people of the entire Yukon River. Elders have always taught 'Do Not Make Noise over Fish' or the importance of not arguing over fish.
- ☞ Clean up fish waste in river from canneries. End practice of disposing of fish waste into the lower river where salmon do not spawn.
 - Ban fish processors grinding unused king salmon parts and dumping them into the river.
- ☞ End (or reduce) bycatch of king salmon in the ocean.
- ☞ Reduce beaver populations to protect salmon passage.
- ☞ Monitor dangerous debris, i.e. Fukushima earthquake debris from Japan.
- ☞ Sonar:
 - Explain methods to fishermen so that they understand.
 - Fishermen need to be able to provide their detailed local knowledge to build confidence.



KING SALMON on the LOWER YUKON RIVER

Sponsored by Yukon River Drainage Fisheries Association (YRDLA)

Funded by the National Science Foundation, Division of Arctic Social Science

Introduction/Background

In February 2017, six Yup'ik Elders from Yukon River and coastal communities gathered in Anchorage to share their knowledge and experience regarding one of the most important resources in their region—king salmon. Participants were selected through nominations from the tribal councils of the lower Yukon and coastal areas and CEC cultural director Mark John. They included:

Francis Charlie (Acqaq), Scammon Bay
Nick Andrew, Sr. (Apirtaq), Marshall
Michael Hunt (Amiksuguin), Kotlik
Ray Waska (Iraluq), Emmonak
Paul Beans (Nalqilria), Mountain Village
Evan Polty (Utuan), Pilot Station

Our purpose was to document Yup'ik understandings of king salmon and to share that information with the Yukon River communities and with organizations and agencies involved in fisheries management. Our discussion was primarily in Yup'ik. Alice Rearden, who led our discussion, noted at the beginning that we were interested in understanding all about salmon, not just the decline of king salmon. Yet this **concern over the king decline dominated our discussion.**

Though living in different villages today, all of the Elders knew one another and shared a common background. All had been born and raised in small winter settlements, moving routinely with their families to seasonal camps to harvest the fish and food they needed to survive. They lived during a time of great change including the boarding school era and commercial fishing with canneries and salteries. They had much to share about their knowledge and observations of king salmon.

We hope that this project can communicate lessons learned about the history and current condition of king salmon on the lower Yukon River.



Yup'ik Understandings of King Salmon

☞ Every single creature has a spirit.

“We humans have a spirit. Just as we have a spirit, they do also. Every single creature... It is said that if we don't take care of their homes and areas where they return, they won't be enthusiastic about it.

—NICK ANDREW SR.

- ☞ All parts of the king salmon were used in the past.
- ☞ They only arrive once a year so it is important to be ready when they arrive.
- ☞ Fish avoid the nets of those who do not take good care of them.
- ☞ King salmon follow their own path to their spawning grounds.
- ☞ King salmon is a very important food.
- ☞ King salmon is valued as medicine.

“Native foods do not cause sickness. They do not contain anything harmful... One who eats our Native foods will add one more day to his life. Some of our foods are medicinal... We didn't have razors to scrape off mold, so we ate [dried fish] with mold. That was medicine. Nowadays our grandchildren throw them away, not knowing they have medicinal qualities.”

—NICK ANDREW SR.

- ☞ Welcome the king salmon and celebrate the first catch.
- ☞ Admonitions:
 - Never cook land and water animals together.
 - Pregnant women should not cut fish with blemishes.
 - Fish waste should not be thrown in the water (in the lower river where they do not spawn).
 - King salmon, silver [chum] salmon and sheefish were not allowed when one has a healing wound.



Kinds of King Salmon (Taryaqviit)

The Elders talked extensively about the different kinds of king salmon that they have observed in their parts of the river, discussing the different names and characteristics of each group of king salmon. Nick observed: “Our counterparts [fishery managers] who keep an eye on us, the ones who watch over these fish, they only call [king salmon] one thing.” Fishery managers refer to king salmon as Chinook salmon or *Oncorhynchus tshawytscha*. Our participants, however, have a more nuanced view of king salmon based on both run timing and their characteristics at specific locations along the river. Today’s managers have learned a great deal from the Elders about variations within the king salmon run and do pay attention to these observations, especially early in the season. The following list highlights these variations identified by the Elders. Readers should note that dialectical differences account for some minor variations in the names for salmon and that the same term may be used for different fish in different communities.

☞ **Aciirturtet** (from aciir-, “to go through the area under something”), aciartaat (lit., “ones below”)

- ‘Under the ice king salmon’
- They enter into rivers below the ice. They like to twist and turn hard. Those are very strong, the ones that are to go upriver. And their eggs are small. Since they won’t spawn here, the ones that swim [under the ice] will only spawn at the origin of the Yukon.

☞ **Tarsaqvagpiit** (lit., “large taryaqviit [king salmon]”)

- These ones are too rich to dry (in Scammon Bay but in Mountain Village they enjoy them)

☞ **Tungulrianeg nasqulget** (lit., “ones with black heads”)

- These ones are not as large as the earlier kings and are considered fighters
- These travel to Canada, but we don’t see them anymore

☞ **Allirkat** (called “white nose” in English because of their white fins)

- These ones are always big and most abundant
- The Elders were mixed on run order. Ray says black heads come after white noses, Nick says white noses come “hand in hand with the black heads”

☞ **Massret** (old salmon near spawning)

Lower Yukon River Area



Lower Yukon River Area with places identified by Elders during 2017 king salmon workshop.

Quiyana
THANK YOU!

...to the Elders who participated in the workshop,
sharing their knowledge and language.

...to the Lower Yukon Area communities;
Mark John, Alice Rearden, and Ann Riordan; and
the National Science Foundation for their support.



Concerns for Fisheries Management

☞ Yup'ik people recognize regular fluctuations between abundance and shortage in salmon cycles.

- Four-year cycles: our Elders used to say that every four years the subsistence fish everywhere in this land are very abundant. Then they gradually decline within four years after that.
- However, participants agreed that the recent declines of king salmon are more severe and long lasting than the regular fluctuations they observe.

☞ The following are top concerns:

- Bycatch of salmon in the Bering Sea
- Unprecedented decline in king salmon numbers
- Unprecedented king salmon shrinking size
- Fish waste in river from a century of canneries grinding and dumping unused king salmon parts. The odor stays on the river bottom and Elders believe fish avoid this.
- Beaver dams blocking fish passage
- Climate change and how it may be affecting salmon
 - Warmer temperature
 - Less snow / fresh water to clean out tributaries
 - Less reliable natural indicators
- Pilot Station sonar and its perceived inability to accurately count salmon

