A person with long dark hair, wearing a black t-shirt with white stripes on the sleeves, stands in a wooden boat on a river. They are holding two large salmon, one in each hand, high above their head. The river is calm, and the background shows a forested hillside under a blue sky with white clouds. The image is overlaid with a semi-transparent blue graphic of several salmon swimming in a circular pattern.

**THEY TOLD US THEY'D COME A TIME...  
CONSERVING FISH, PRESERVING  
TRADITION ON THE YUKON RIVER.**

# **A CATALOGUE OF ELDERS' WARNINGS**

**March 2024**

North Pacific Research Board - Final Report

NPRB Project No. 2005A/B

**Catherine Monerieff**

Yukon River Drainage Fisheries Association  
(907) 272-3141  
Catherine@yukonsalmon.org

**Katie Turner**

Tanana Chiefs Conference  
Emerging Leader

**Millena Jordan**

Tanana Chiefs Conference  
Emerging Leader

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## Abstract

For decades researchers have documented traditional ecological knowledge (TEK) from Yukon River Elders, describing conservation practices and revealing warnings of potential declines in salmon. TEK has become accepted as a best available science, research practice, and a way of knowing that parallels Western science. With Chinook salmon declines on the Yukon River today, the teachings and warnings of Yukon River Elders need renewed attention and effective application in fisheries management. Our team joined to review, catalog, and analyze the teaching of their Elders and discuss how to develop an effective application of TEK in Yukon River fishery management. This project met the NPRB mission by improving understanding of Yukon River salmon, seeking effective, sustainable salmon management, and incorporating perspectives from Yukon River residents.

The Yukon River Drainage Fisheries Association (YRDFA) partnered with Tanana Chiefs Conference's (TCC) Emerging Leaders Youth Council (EL) and examined the messages of Yukon River Elders about their concerns for salmon. Archival materials housed at University of Alaska Fairbanks (UAF) and other sources were reviewed and compared to interview materials across the region. UAF staff provided training on accessing the archives and conducting qualitative interviews.

Ethnographic interviews with contemporary Elders focused on salmon size, conservation practices, changes observed, and cultural implications. The team presented results to Elders gatherings, fishery meetings, and developed outreach products. Our target audiences were river stakeholders, researchers, managers, and policy makers. Outcomes include expanded capacity by Yukon River young adults and YRDFA and a process for cataloging, analyzing, and applying TEK to fisheries management.

## Key Words

Yukon River, Chinook salmon (*Oncorhynchus tshawytscha*), Chum salmon (*Oncorhynchus keta*), fisheries management, Indigenous Knowledge, subsistence, Traditional Ecological Knowledge, Yukon River, Archival Research, Oral History

## Citation

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# INTRODUCTION

*“To be heard, you must speak the language of the one you want to listen.”*

On communicating with insight from Braiding Sweetgrass. **Robin Wall Kimmerer 2015**

Traditional ecological knowledge (TEK) of the Yukon River has been documented for decades by many researchers, but is currently largely inaccessible to physical scientists, fishery managers, and policy decision-makers as it remains embedded in narrative reports, hours long audio and video recordings, and is not presented as concise summaries in graphics and tables. Elders have shared many important observations and warnings over the years, but we are not adequately addressing or listening to their concerns. This project was undertaken because we need to bring relevant warnings from Yukon River TEK forward and take appropriate action. We need to examine local concerns about changes in the environment and resources and apply Yukon River knowledge to today’s management of our fishery resources.

The Yukon River is the largest river in Alaska (Figure 1). Its watershed covers approximately 35 percent of the state and is the fifth largest drainage in North America. The Yukon River begins in British Columbia and runs 2,300 miles, through the Yukon Territory of Canada, across the state of Alaska to its mouth in the Bering Sea, draining approximately 330,000 square miles (Ransbury et al. 2022).



Figure 1. Map of the Yukon River watershed and locations of interview participants from this project.

The Yukon River supports all five species of Pacific salmon including Chinook salmon *Oncorhynchus tshawytscha*, chum salmon *O. keta*, coho salmon *O. kisutch*, pink salmon *O. gorbuscha*, and sockeye salmon *O. nerka* (Estensen et al. 2021; Ransbury et al. 2022). Chinook salmon have the longest spawning migration of any salmon and they are the species most targeted for subsistence by Yukon River fishers (Estensen et al. 2021; Ransbury et al. 2022).

The noticeable steep decline in Yukon River wild Chinook could be traced back to 1998 which led to restrictions with commercial fishing and then windowed subsistence fishing openings were implemented in 2001. Eventually in 2008 subsistence fishing began to be intensively micromanaged, heavily monitored and restricted in an effort

to meet escapement goals (Estensen et al. 2021; Ransbury et al. 2022). In 2012, more intensive restrictions were required of subsistence fishers in the efforts to meet U.S./ Canada border passage requirements and these included fishing closures around pulses, reduced fishing times, gear restrictions, and full Chinook fishing closures that stretched through most of the summer fishing season. The years between 2012 and 2020 included dramatic lows (2014 & 2015) and some appearance of rebounding (2016, 2017 & 2018) (Estensen et al. 2021). In 2019 subsistence harvests reached their highest level since 2007 with harvest numbers of 48,379 but in the following years Chinook returns crashed and led to severe harvest restrictions in 2021 and beyond (Ransbury et al 2022).

Alaska Native people have lived along the Yukon River for thousands of years (Zagoskin [1847] 1967) and have relied on its salmon resources as one of their main food sources. Two major Alaska Native groups live within the Yukon River drainage in Alaska: Yup'ik, who live along the Bering Sea coast and the lower Yukon River inland to Paimuit and the community of Holy Cross, and Athabascan Peoples, who occupy the remainder of the Alaska portion of the Yukon River drainage (Kaplan 2024; Krauss 1980).

The approximately two-decade long steep decline of Yukon River Chinook salmon has had significant social, cultural, and economic impacts to the people living in the Yukon River watershed. The value of salmon to the people of the Yukon River has been noted in research since Zagoskin first explored the Yukon River region in 1847 (Zagoskin 1967). Historical linkages between commercial and traditional (subsistence) fishing activities have changed and traditional (subsistence) fishing has diminished from a necessary cultural family activity that took place at fish camps for most of the entire fishing season to a few limited chances to fish near the village, dependent on whether the person was able to afford to take time off work and spend the money on all of the unavoidable costs associated in harvesting (i.e. the permits needed, gas for all transportation, a boat, and all the needed things for upkeep, etc) . These changes are only the surface of the significant social issues that have spanned across whole communities. As lifestyles are changing due to changes in salmon abundance, it is important to tap into observations developed through traditional practices before salmon decline even further and connections to the past vanish.

Beginning in the early 2000s, YRDFA began documenting Traditional Ecological Knowledge (TEK) of the Yukon River (Moncrieff and Klein 2003). This first TEK project recorded concerns about effects of fisheries management on the lives of subsistence fishermen, the sensitivities of the salmon they depend on, and the specific, localized observations held by knowledgeable Elders. In 2006-2008, YRDFA and ADF&G worked with Yukon River Elders from the lower and middle Yukon River to document their Natural Indicators which described how traditional peoples determined the arrival timing and abundance of Yukon River salmon prior to Western management. With our changing climate, we are unsure if these natural indicators or ways of predicting are still reliable. Results from this study showed Elders were concerned about the changing environment, increases in river sandbars, and that their natural indicators are becoming less predictable and reliable (Moncrieff et al 2009:61). In 2017, YRDFA worked with Calista Education and Culture to document Yup'ik Elders' knowledge of Chinook salmon (Fienup-Riordan and Moncrieff 2017). During this Yup'ik language workshop, Elders reported their strong concerns about some human activities such as salmon waste being dumped in the lower Yukon River for 100 years. They believed this practice negatively affected the return of salmon to the Yukon River. These are just a few examples of the warnings or predictions of Yukon River TEK holders that inspired this project.

Decades of researchers have worked with Alaska Native and Yukon River traditional knowledge holders to document their knowledge, practices and observations. The Alaska Department of Fish and Game Subsistence Division has an extensive collection of documented observations, concerns, and recommendations within their technical reports (for example Brown and Godduhn 2015; Trainor et al. 2021; Brown et al. 2017). The University of Alaska Fairbanks Arctic and Polar Regions Collections and Archives (APRCA) is a tremendous source of

materials – print, digital, film, and microfiche – holding recordings of early anthropological work through the contemporary anthropologists such as Richard Nelson (Nelson 1982; Nelson 1983), Yup'ik scholar Ann Fienup-Riordan (Fienup-Riordan 1986; Fienup-Riordan 1990a; 1990b) and many others.

### Use of TEK in Fisheries Management

The U.S. Fish and Wildlife Service (FWS) co-manages the Yukon River fishery with the Alaska Department of Fish and Game (ADF&G). Both agencies participate in the YR DFA Annual Pre-Season meeting which is an opportunity for them to share their Outlook and Management plan for the upcoming season with representatives from every Yukon River community in Alaska. This annual meeting is also an opportunity for the managing agencies to hear local knowledge, observations, and concerns. The FWS recently created a Tribal Liaison position which increased their ability to understand TEK and highlighted their openness to working with and understanding the TEK of the people of the Yukon River. The FWS engages with the Regional Advisory Councils which are made up of local people representing their areas. The ADF&G also has a system of advisory councils with local people voicing their concerns and weighing in on fishery management of the Yukon River. TEK is frequently shared by Council members and participants of these meetings. Additionally, fishery managers from both agencies regularly participate in the YR DFA In-season Salmon Management Teleconferences, which take place weekly throughout the summer season, where TEK is frequently shared.

This project was undertaken to provide an opportunity to review, catalog, and analyze the teachings and warnings of Elders with young adults from the Yukon River. Our goal was to review the knowledge already collected, consider contemporary questions, and interview today's Elders in partnership with Yukon River young adults and ultimately begin to develop an effective application of TEK in fisheries management and outreach. This project met the NPRB mission by improving understanding of Yukon River salmon, seeking effective, sustainable salmon management, and incorporating Indigenous perspectives of the Yukon River.

Our hypotheses and research questions:

- Yukon River Elders have strong concerns about what is happening with Yukon River salmon.
- Yukon River Elders are very concerned about the dumping of industrial cannery waste in the Yukon River.
- Yukon River Elders are concerned about gear selectivity and its impacts on Yukon River salmon.
- Yukon River TEK holders have shared their concerns with researchers over the past decades with the intent of keeping their observations and knowledge active and alive.
- How do we incorporate TEK into a western science model during a period of rapid change?
- How are people adapting to change? If natural indicators are not holding true, how are people dealing with this?

## **OBJECTIVES**

1) Access, catalog, and analyze recorded Traditional Knowledge and Elders warnings related to Yukon River fisheries. Warnings and observations from contemporary reports, oral histories, and archival materials will be reviewed and cataloged by topic, region, and timeframe in year one to identify key concerns that resonate in contemporary fishery management.

Objective 1 was accomplished through the work of our team at the University of Alaska Fairbanks Alaska and Polar Regions Collections and Archives (APRCA) at the Rasmuson Library and through digital research over the first two years of the project. Resources that resonated in contemporary fishery management on the Yukon or provided a window to understanding its history were reviewed, digested, discussed, and included in our list of archival sources (see Appendix A).

2) Partner with 6-10 young adult Emerging Leaders (EL) from the Yukon River to access the words of their Elders. Promote capacity building by supporting the Emerging Leaders as research partners. Train Emerging leader in information gathering, interview procedures, analysis, outreach, and use and application of research data. Consult with Emerging Leaders on all aspects of the research plan.

The PI worked with TCC Emerging Leaders (ELs) to develop the proposal and implement this project. This included three training events focused on archival research, information gathering, qualitative interview procedures, transcription skills, and analysis of the data gathered. In addition the team worked together and independently through regular meetings, ongoing support, development of outreach products, and presentations. We worked with a total of seven young adults and the team had the opportunity to be involved in all aspects of the project.

3) Conduct qualitative ethnographic interviews with 8-15 Yukon River Elders to answer questions raised by analysis of recorded Traditional Knowledge. Develop a research protocol to gather information about gaps of information identified by archival research. Emerging Leaders will conduct or participate in interviews with Elders from their communities in partnership with the YRDFA project investigator (PI) in year two.

Upon completion of the second training event when we finalized our interview protocol, our team began conducting semi-structured qualitative interviews with Yukon River Elders and fishers. The Emerging Leaders began with mini-interviews at meeting settings to develop their skills and familiarize themselves with the audio and video recording equipment. This was followed by interviews within their communities and travel to other communities to conduct interviews. In total they conducted 46 interviews with people from 14 different Yukon River communities.

4) Develop outreach products that effectively share results in year three with key target audiences including the fisheries science community, managers, and Yukon River communities/subsistence and commercial fishers. Consult with the project team to develop deliverables including presentations at professional meetings, printed materials, digital products, and reporting.

Our team developed a variety of outreach products that shared the results of our project. Our primary key target audiences were the Yukon River communities, and Yukon River fishery managers and researchers. Our secondary target audience was people who have an interest in salmon or the Yukon River. We gave presentations at the YRDFA Board meeting and Preseason Planning Meeting in 2021, 2022, and 2023 and at the Tanana Chiefs Conference Convention in 2022, 2023 and 2024. We provided updates twice a year on this project to the three Yukon River federal Regional Advisory Councils. We presented short videos at the TCC Convention, YRDFA Board meeting, Alaska Federation of Natives Elders and Youth Convention in 2023 and at the Alaska Marine Science Symposium in 2024. We shared information through articles in the YRDFA Newsletter the Fall 2020, Spring 2021, Fall 2021, Summer 2022, Spring 2023, Fall 2023, and Winter 2023-2024 editions. We created a poster and presented it in the Alaska Marine Science Symposium and the Alaska Forum on the Environment in 2024. We hosted an informational table at Salmonfest in Ninilchik and gave a short presentation on the stage. And we shared information through short videos and posts on social media such as YouTube, Facebook and Tiktok. We premiered our 30 minute final video at the TCC Convention in 2024.

## **METHODS**

This project was created because representatives from the Yukon River and Tanana Chiefs Conference (TCC) believed that the words of their Elders could provide insight or perspectives not yet fully realized or valued to their full potential. Specifically, they believed that the observations, concerns, and experiences of knowledgeable TEK holders from the Yukon River could provide information beneficial to fishery managers, scientists, communities, and policymakers. YRDFA was identified as an entity with the experience, resources, and interest in leading this project while working towards their mission of promoting and protecting all wild fisheries and traditional cultures within the Yukon River drainage. To accomplish this, YRDFA partnered with the Emerging Leader Youth Council, a new leadership training program of Tanana Chiefs Conference, because these young adults will one day be the primary leaders of their region and they had a strong interest in engaging with and documenting the words of the Yukon River Elders.

This project had a goal of improving understanding of Yukon River traditional knowledge as it relates to fisheries management by reviewing previously documented TEK and Elders warnings for concerns, messages, and recommendations that may bring new perspectives to contemporary fisheries management. Another goal of the project was to invest in the future of the Yukon River by engaging with the Emerging Leaders as research partners, working with the Project Investigator (PI) throughout each stage of the project, to undertake this work and train them in social science archival research and qualitative interviewing.

## **Capacity building**

Prior to the development of the proposal for this project, the YRDEFA PI met with the Emerging Leaders (ELs) to discuss and develop the project idea around their interest level and availability. There were multiple goals of working with the ELs which included bringing meaning to the project by connecting Elders and youth from the Yukon River through the examination of their TEK. Additionally, we were motivated by the opportunity to build capacity both of Yukon River young adults and their ability to conduct social science research, and of YRDEFA and expanding the organization's ability to work with youth from the region. Together we developed a plan to meet regularly, conduct training events, archival research and qualitative interviews, consult on the analysis, and disseminate the results, thus being directly engaged from start to finish. The ELs were key in identifying and understanding relevant messages, selecting interview participants, and analyzing results.

At the start of the project we had six ELs participating in the Year One training and four of them continued on the archival research. At the first training we had Devon Deaton, Calen Sunnyboy, Tristan Madros, Millena Jordan, and Katie Turner participating. As time moved on and these young adults had other obligations emerge, our team fluctuated, with some members dropping out of the project and a new member joining. In year two, as we were beginning our qualitative interviewing, our team was made up of Millena Jordan (of Rampart/Tanana), Katie Turner (originally from Holy Cross), and Natawnee Wiehl (of Tanana/Rampart). In year three, Natawnee became unavailable due to other obligations and our core EL team remained Millena Jordan and Katie Turner.

## **Archival research**

A review of existing archival material was conducted by our team in Year One, under the guidance of Yukon River anthropologist Catherine Moncrieff, and trainers from the University of Alaska Fairbanks. The Covid-19 pandemic was unexpected and our team discussed how to move forward in these unprecedented times. We decided that the project could begin if we held the archival research training in January of 2021, by Zoom instead of in person, as originally planned. Our team and our trainers were all able to log in to a Zoom meeting to review and learn best practices in accessing the archives at the University of Alaska Fairbanks through their Alaska and Polar Regions Collections (APRCA). Many of their items of interest were available digitally which allowed some of our team members to get started on Project Jukebox, digital recordings of interviews, and other resources. As the pandemic became less dangerous, our team met in person at the UAF archives and continued our research in the physical archives while others preferred to focus on the materials available electronically. Over the life of the project our team accessed more than 148 materials related to the Yukon River and other relevant topics. [see Appendix A for table of resources accessed]

## **Qualitative interviews**

Semi-structured interviews are a standard social science method for collecting qualitative data regarding a variety of topics. With this method, the interviewer guides each participant in a discussion, and the associations identified by the participant are allowed to guide the direction and scope of the interview. Open-ended questions are used to allow for the expansion of participants' observations and discussion (e.g., Huntington 1998).





Figure 2. Our team in Fairbanks received our equipment during our second training event. From left to right: Millena Jordan, Nataawnee Wiehl, Katie Turner, Catherine Moncrieff.

A training event on semi-structured ethnographic interviewing and the actual interviews were the focus of year two or 2022. This followed the archival research and provided an opportunity to ask questions about things learned by our team through the archival research. We were trained by the UAF library staff, Leslie McCarthy and Robyn Russell in March of 2022 to conduct and record our interviews in such a way that they would easily be accepted by the library archives for future storage and access if allowed by each participant. The PI guided the ELs to conduct their interviews which gathered important information and taught the next generation qualitative interview skills and methods. We followed the ethical guidelines outlined in the National Science Foundation's Guidelines for the conduct of research in the Arctic region. Our team spent time thinking about who they would like to interview and what questions they wanted to ask. We developed an interview protocol or list of questions that included background questions (Where are you from/ where were you born? Did you grow up fishing or learn as an adult? Who taught you and who did you fish with over your life? Where did you fish?); followed by salmon questions (What is your favorite kind of fish? What is your favorite way to eat salmon? What does salmon mean to you?)

How do you feel about these current runs? How do you feel about missing these salmon runs?). Finally we ended with questions about warnings and other ideas (Did your Elders give you any warnings about salmon or advice on how to behave around them? Can you describe? Do you have any warnings or advice for us about salmon?) (Do you have a specific memory of when the salmon runs were lower? How are you feeling about the salmon runs this summer? Can you explain? Have you noticed any behavior changes in your community since the salmon runs crashed/declined?)

To prepare our team for conducting qualitative interviews and as a second part of the qualitative interview training, we set up an interview room at the YRDFA Pre Season Planning meeting (an annual river-wide meeting to discuss the upcoming fishing season) in Anchorage in March of 2022 to conduct “mini-interviews” or practice interviews. There, we were very well received by the audience or participants because they were able to self-select or agree to an invitation to participate in a mini interview. This meeting was a unique opportunity because of the gathering of fishers from the entire length of the Yukon River and the timing of our project. Our team was able to conduct five mini-interviews during breaks at this important river wide meeting. The questions asked in the Mini-interviews included: Where are you from? What year were you born? What is your best fish story? What is the biggest fish you’ve ever caught? What is your favorite way to eat fish? What does salmon mean to you? What is your favorite kind of fish? It was an excellent opportunity to test our questions, improve interviewing skills, and test and practice with our equipment. This opportunity helped our team feel confident and prepared for the interviews they would be conducting independently later in the project.

Our team continued this mini-interview approach when we had the opportunity to attend the Denakkanaaga, the Athabascan Elders group gathering in June of 2022 in Fairbanks. We attended this event because we wanted to share our project with the Elders and get their feedback. They invited us to attend and conduct additional mini interviews at their meeting. We set up a table to answer questions about the project and were able to interview three additional Elders in the mini-interview format.

Next we considered who each team member wanted to interview and their access and availability. Each team member has a specific interest in their region and started to travel to their communities to conduct full interviews. Nataawnee Wiehl conducted an interview in Rampart in July 2022. Katie Turner traveled to her home community of Holy Cross and conducted six interviews in October of 2022. Millena Jordan conducted three interviews in Rampart in January of 2023.

Opportunities continued to arise that allowed our team to access knowledgeable Elders from a large part of the Yukon River. These opportunities were meetings in centrally based or hub communities. In January of 2023, the ELs came to Anchorage for a State of Alaska Board of Fish meeting and an associated training event. At this meeting, Katie Turner and Millena Jordan conducted 10 interviews with participants from Mountain Village, Fairbanks, Huslia, Hughes, Rampart, and Fort Yukon.

Our team wrapped up their interview stage with Millena’s travels to Tanana, Beaver, and Eagle Village where she conducted six interviews in Tanana, six interviews in Beaver and three interviews in Eagle Village (see Table 1).

Home Village	# of interviews	Interviewers	Dates
Mountain Village	2	Katie Turner	2023
Holy Cross	6	Katie Turner	2023
Nenana	2	Millena Jordan	2022
Hughes	2	Katie Turner, Millena Jordan	2022, 2023
Huslia	2	Katie Turner, Millena Jordan	2023
Minto	1	Millena Jordan	2022
Nenana	2	Millena Jordan	2022
Fairbanks	3	Millena Jordan	2022, 2023
Tanana	7	Millena Jordan	2022, 2023
Rampart	7	Millena Jordan, Nataawnee Wiehl	2023
Stevens Village	1	Millena Jordan	2023
Beaver	6	Millena Jordan	2023
Fort Yukon	1	Katie Turner	2023
Eagle Village	3	Millena Jordan	2023
Total	45		

Table 1. Interviews conducted during the Elders Warnings project.

The Emerging Leaders selected Elders from their communities whose voices have not been heard or who have more information to share. Some of their choices were related to Project Jukebox and other materials and their desire to reach out to those in their community who participated in those projects to learn from them what has changed since they made those recordings 20 or more years ago.

The Emerging Leaders created transcriptions or summaries of each interview with guidance from the PI. These recordings and transcriptions were shared with the project team and submitted to the APRCA for longevity. Semi-structured interviews produce qualitative data and our team did not attempt to apply statistical analyses, rather we identified general themes and patterns that emerged from the interviews. The research team analyzed the content of the interviews, including comparisons of different perspectives, patterned regularities, and key observations. This enabled the research team to draw connections between different kinds of information provided by individuals interviewed.

## Analysis

Analysis of our results took place at multiple stages. The first stage was at the conclusion of the archival research. The research team discussed our archival research results at our second training event and compared them regionally, through time, and by type of concern. The types of concerns we found included human activities and impacts, climate change and the changing reliability of the natural indicators. This analysis allowed the research team to develop questions for the semi-directed qualitative interviews. Through our archival research, we were seeking to answer the questions, “Do Elders have strong concerns about what is happening with Yukon River salmon? Are they concerned about gear selectivity or dumping of salmon waste? What concerns have they raised and have these concerns been addressed in management and scientific research?”

The second stage of analysis was during and after the conclusion of the ethnographic interviews. The new information gathered from the ethnographic interviews was added to what we learned and the analysis from the archival research. This included comparisons of different perspectives and key observations. This stage of analysis enabled the PI and research team to draw connections between the different kinds of observations and concerns provided by a variety of TEK holders from different regions or time frames. Specific topics or themes emerged such as concerns over dumping of fish waste in the river, use of different net sizes, climate change, bycatch in the Bering Sea, food security, concern over declining salmon abundance, connections to spirituality, or not following traditional practices and the preservation of that knowledge to respect wildlife. Other concerns largely discussed among interview participants included the ability to pass on traditional knowledge and cultural practices to future generations, as well as concerns regarding the health and wellness of their communities. We organized these concerns thematically and they inspired our next steps which were to develop the messages we planned to share as results. These included themes such as concerns over environmental changes, social dynamics, cultural and management practices. We reviewed these summary messages and discussed our targeted audiences such as Yukon River communities or organizations, educators or schools, scientific researchers or conferences, and fisheries managers. Then we turned to our final research questions which were – How do we incorporate TEK into a western science model during a period of rapid change? And, how are people adapting to these changes? And if natural indicators are not holding true, how are people dealing with this?



Figure 3. Our team at the BP Energy Center in Anchorage during our third training event. From left to right: Gabe Canfield, Catherine Moncrieff, Natawnee Wiehl and Millena Jordan  
Missing: Katie Turner

## Production of Deliverables/Outreach products

Our deliverables were outreach products that shared what we learned. In year two we started making video clips or short videos with the material we had collected through our review of the archival material and the interviews we conducted. We held a third training event in November of 2022 focused on submitting our interview recordings to the UAF archives and producing outreach products that shared our results. Native Time and UAF archivists joined our training event to provide important information. Emerging Leaders Millena Jordan, Katie Turner, and (former EL) Natawnee Wiehl attended this training at the BP Energy Center in Anchorage. Early career YR DFA staff member Gabe Canfield also attended one day of this training. (see Figure 3).

Millena was the first to produce a short video and it included her interviews and some archival footage that YR DFA had produced in 2001-2002. The YR DFA archival footage included Elders from the Emerging Leaders' communities who are no longer with us but are known by all in their area. Millena had her first video ready to share at the TCC convention in 2023. She then went on to share it at many venues including the YR DFA Board meeting in 2023, the Alaska Marine Science Symposium in 2024, and then it was posted to the YR DFA YouTube page. Katie was next to produce her first video and it included archival footage of her relatives from the Holy Cross area and others from St. Mary's as well as the footage she recorded during her interviews. Her video was shared at TCC convention in 2023 as well as AFN Elders and Youth workshop, and posted to YouTube.



Figure 4. Our team presented our poster at the Alaska Marine Science Symposium 2024 in Anchorage. From left to right: Serena Fitka, Catherine Moncrieff, Katie Turner, Millena Jordan.

We also produced print materials to share about our project in the early stages so that we could easily and quickly inform people about our project. Our Rack Card was a 8” x 4” card stock informational piece that shared our plans and offered ideas of how individuals could help us collect the information for the project (see Appendix E). We also wrote articles on a regular basis which were included in the YR DFA newsletter, keeping our Yukon River community informed of our progress. Finally, we produced a poster to be used in conferences in 2024 to share our preliminary results. Katie took the lead on this task and designed the layout and technical aspects of our poster. Together we developed the text for the poster. Our poster was presented at the Alaska Marine Science Symposium and the Alaska Forum on the Environment in 2024 (see Figure 4). We plan to also enter our poster at the American Fisheries Society Alaska Chapter meeting March 25-29, 2024.



Figure 4. Millena Jordan and Nataawnee Wiehl presenting at the YR DFA Preseason Meeting in Anchorage in March 2022.

Our team gave many presentations on this project. They began at the YR DFA Preseason Meeting of 2022. Our second training had just taken place two weeks before and our team came to the meeting and held their initial mini interviews. To explain our activities the Emerging Leaders, Millena and Nataawnee were invited to present a brief summary of our project to the full meeting. Throughout the life of the project the Emerging Leaders continued to stand up in front of many groups to provide information about what we were doing and what we were learning. These included the Athabaskan Elders association Denakkaanaga gathering each June 2021, 2022, 2023 which we used as an opportunity to not only share information about this project but to also gather their feedback. The Emerging Leaders also spoke at each TCC convention during the life of our project which included 2022, 2023, and 2024 and the YR DFA Board meeting and Preseason meetings of 2021, 2022, and 2023.

# RESULTS

## Archival Research Results

The initial task on this project was to research Elders' warnings from the archival records. We found that each Emerging Leader had a specific interest in history and knowledge from their part of the Yukon River. Our initial team included Emerging Leaders from Holy Cross, Kaltag and Nulato, and Tanana and Rampart and thus our archival records search focused on those areas of the river. We collected over 143 Yukon River references from the archives and these included paper documents and pictures from the collections, audio and oral history recordings, Project Jukebox, pictures and film archives, articles, and YouTube recordings.

One of our Emerging Leaders was from the Kaltag/Nulato area and he found specific materials from his area about Peter John, an important leader born in 1900, and early recorded information about Stick Dances, which are an important cultural activity from this part of the Yukon River. Another one of our Emerging Leaders from the Tanana / Rampart area found information about how historical mines and other influences affected the people and the Rampart area. At the time there was no means to regulate the 10,000 gold rush populace all trying to strike gold. She also learned that the area that is now Rampart is not where the original Native village was located. As she found in the archives, close clans from the area moved into the current location of Rampart after a majority of the gold miners left. After Alaska was purchased by the USA in 1867, there were drafts made to create a dam that would have been catastrophic to the entire area and cut off all flow of the Yukon River, effectively creating essentially a lake that would have engulfed the entirety of the Yukon Flats and the surrounding area. There was also a commercial cannery that employed some of the residents of Rampart.

Another Emerging Leader from the Holy Cross area, began by taking a deeper look into past records of salmon arrival time and abundance, and compared it to observations made in later years. This included the "Listen to Our Elders" project by the Yukon River Drainage Fisheries Association, which provided several TEK Elder interviews conducted in Alakanuk, St. Marys, Holy Cross and Nulato. These interviews offered vast observations, knowledge, and understanding of Chinook salmon. The interviews also added a depth of understanding of interview procedures and highlighted the significance of archived materials. Salmon runs, management strategies, fishing patterns, and projected run sizes were also of interest. Materials included Yukon Area Subsistence Personal Use & Commercial Salmon Fishers Outlook reports from different years, Subsistence Fishing Harvests ranging from the 1960s into the early 2000s, Alaska Fish Tales and Game Trails from 1977-1979 as well as later years. After gaining knowledge and background of salmon runs and numbers, focus shifted into finding more interviews from the archives, as well as subsistence related stories from along the Yukon River. The Holy Cross Emerging Leader was able to look through an impressive collection of photos from her area that otherwise would have gone unseen. Project Jukebox through the University of Alaska Fairbanks proved to be an important resource throughout the project ranging from Elder stories, warnings and concerns, natural indicators, and other important topics regarding fishing and natural resources. She was able to move forward in the project with not only a deeper understanding of the cultural ties to salmon, but also the severity of the salmon crisis Yukon River communities are facing. This sparked discussion over conservation practices and the desperate need for it.

The Project Investigator was interested in the early history of the Yukon River and reviewed the Charles C. Hughes Papers collection which included Zagoskin's travels and the smallpox epidemic which was wreaking havoc in 1838 in Nulato. She also reviewed the Charles Henry Gilbert Yukon Diaries in which he documented his travels along the Yukon River in 1920 to learn about the salmon disaster in 1919. He found that in 1919 the Chinook and chum salmon numbers were greatly decreased. Prior to 1919, Native fishers in the upper river (Eagle and Dawson) were able to stand on the riffles in the river and catch all the salmon they needed with dip nets but with the decline of salmon more efficient gear such as gillnets were required to harvest salmon. Gilbert traveled downriver to Fort Yukon but was unable to land due to the pandemic or flu quarantine. There were few dogs because they had been culled due to lack of salmon to feed them in 1919 (Gilbert 1920). Gilbert spoke to Mr. J. H. Adams, who had the mail contract for Tanana to Bettles, and Mr. Adams reported to Gilbert that he had to

reduce his dog team because the salmon were extraordinarily scarce in 1919. Gilbert also met with Father Julius Jette who reported that the Native people in his area were only able to harvest  $\frac{1}{4}$  of their usual salmon harvest. It was enlightening to conduct this archival research in 2020 during the Covid-19 pandemic and chum salmon crash, 100 years after the 1919 flu pandemic and salmon crash.

Jumping forward to the current century, more recent studies from 2002 and 2003, reported that *Ichthyophonus* was infecting up to 35% of the Chinook salmon (Kocan 2004) revealing the infection of Yukon River salmon in the early 20th century.

## **Qualitative Interviews Results**

Our team conducted 43 interviews with knowledgeable Elders and active fishers from the Yukon River (See Figure 1). It was a new approach for YRDFA to have young adults from the river conducting the interviews as opposed to an outsider coming in and learning brand new information. These young adults had a strong cultural background and mostly chose to interview people they knew or knew of through their upbringing. Oftentimes the interviews included a discussion of their relatives or how they were related, and the questions had to be altered to account for the fact that they were expected to have a certain level of base knowledge.

This project also provided the opportunity to meet with other people from along the Yukon River, discuss their struggles, and even acted as a tool to unite these communities through the decline in salmon. Interviewing participants from other areas provided the opportunity to make connections to the concerns in their own areas, and showcased the importance of salmon to the entirety of the Yukon River Drainage. Even so, they began in a position different from an outside interviewer and their interviewees expected them to have a certain base of knowledge.

Yet, even with this expected base knowledge, one of the take home messages that our young adults gathered was the expansive and deep understanding that Yukon River people have of the salmon and their habitat. Katie Turner expressed, when describing the interviews she conducted in her home community of Holy Cross, awe at how much detailed knowledge her Elders held about the salmon and their habitat in her part of the Yukon River. She explained that even though she knew they were very knowledgeable, she was surprised by the depth of their knowledge.

Another take home message was confusion or wonder at the lack of use of this knowledge in fisheries management. The young adults and the interviewees expressed frustration and confusion as to why this body of knowledge was not being used to protect or understand the salmon in the Yukon River. Knowing that this information, held by their interviewees, was developed and shared over generations of experiential learning and surviving off the land and its resources, it was unexplainable as to why their knowledge was considered less than the research and management approach based in western science.

Another result of the qualitative interviews was that the interviewees were witnessing drastic ecological impacts with the loss of salmon. This was apparent by the three years of chum salmon crash which coincided with the life of this project in addition to the ongoing Chinook salmon declines and was reflected in the interviews. Yukon River fishers were observing not only the loss of salmon but its effects on the entire ecosystem including the non-human animals that depend on salmon. An example was the lack of bears present in the salmon spawning streams. An important idea, noted by an interviewee, was the way in which salmon carry an abundance of nutrients that are released back into the Earth when they die, helping fertilize and nourish surrounding life. This interviewee noted that salmon play a vital role in forest ecology by helping with the fertilization of not only plants surrounding the water, but also the forest ecosystem as a whole.

The change in lifestyle caused by these salmon crashes was a key topic of discussion. The interviews revealed that the absence of harvesting and eating traditional foods, known for connecting communities, people, land, and animals, has halted the sharing of cultural values, practices, and knowledge. Without the ability to go to fish camp or to go fishing for salmon, Yukon River people are unable to teach their children about salmon fishing and their



cultural practices which include not only the act of fishing but the way they cut and preserve the fish. Additionally, there are strong cultural norms and rules surrounding how to distribute or share harvested salmon that Yukon River residents have been unable to practice due to the lack of salmon. As one participant described, *“Salmon means more than putting food on the table, it acts as medicine to the body and soul,”* (Ben Stevens, Stevens Village 2022).

Through our interviews we also learned that the factors negatively impacting salmon also affect the physical, social, economic, spiritual, and emotional well-being of Yukon River people. The lack of salmon fishing has taken away an activity that provided physical health through being outside and doing physical labor. Fishing is a social activity that communities gather around. Yukon River people used to gather at fish camp in family groups and stay there for the whole summer. The decline of salmon has caused increased regulations and reduced fishing time thus reduced the ability of Yukon River people to stay at fish camp. The economics of Yukon River salmon fishing has been impacted by the State’s closure of commercial fishing, which formerly provided a modest income generally used to support the high costs of subsistence fishing such as for fuel, boats, motors, and other expenses. The Yukon River people expressed the spiritual and emotional connection they have to salmon and eating salmon. The Elders especially don't feel well unless they are eating their food, salmon.

## DISCUSSION

Through this project our team had the opportunity to experience the wealth of knowledge that Yukon River inhabitants hold dear to them and this brought another layer into understanding human experiences. The Elders we interviewed tried to explain that, to them, salmon are not separate from the human experience and that human beings and salmon exist in the same circle of life. They believed that it is our job to co-exist in this world with the salmon and other nonhuman beings. It made our team ask, how are we doing this?

“Salmon take into account how they are being treated, and it is said that if you disrespect their spirit they won’t come back to you,” (Darrell Vent, Huslia 2023.) This concept has been one of the main focal points of the Elders Warnings project. Looking through archival materials and talking with the Elders of today has provided a deeper understanding to our team of why respecting the gift of salmon is so important. Digging deeper into past and present knowledge provided an opportunity to explore this worldview further, revealing aspects such as the symbiotic and spiritual relationship shared between animals and human beings. Throughout the project, the importance of maintaining a good relationship with the land and its animals has shown through, as well as the deep appreciation for it and what it has provided. It has become clear that this appreciation for the earth and its lands, waters, and animals is what kept these same things available for the people of the Yukon River. This deep appreciation is what allowed these communities to build upon their Traditional Ecological Knowledge and skills. The goal of this project was not only to spread this knowledge provided by Yukon River Elders, but to also make it so that regaining their lifestyle no longer seems beyond reach.

We found through this project that interviewees or Yukon River residents are witnessing drastic changes in salmon runs including size, population, disease, run timing and behavior. There are ecological impacts reportedly observed with the loss of salmon. This was expressed through the interviews, archival research, and the feedback from our public presentations. We found that Yukon River people are observing ecological impacts that alarm them. Some of these changes include the dramatic decline of both Chinook and chum salmon and the ripple effect of losing these keystone species. A dramatic impact discussed during the time period of this project (December 2020 to March 2024) was the absence of bears at local spawning streams, the complete closure of subsistence fishing due to three years of chum salmon crashes and fishery disaster declarations. Community members along the Yukon River noticed these changes in diet of animals who previously relied on salmon. According to Darrell Vent, “You have wolves, you have bears, you have all these animals up there at the headwaters, where the spawning grounds are. Now that there’s no salmon, we’re starting to notice that those animals are changing their diet,” he goes on to explain how “they’re starting to depend more on moose calves, and that’s really starting to affect our moose calf population.” A large takeaway from Elders and other interviewees was their knowledge about the way in which the entire ecosystem is dependent on salmon, not just people.

The way of life of Alaska Native peoples is rooted within the lands they inhabit. Eating traditional foods connects communities to the animals, the land, and most importantly to each other. The absence of fish camp has stopped the sharing of important childhood lessons that come with growing up living off of the land. Many cultural values and practices are passed down through fishing activity. The absence of harvesting and eating traditional foods known for connecting communities, people, land, and animals has halted the sharing of cultural values, practices, and knowledge. This idea was expressed throughout a number of interviews, one being Darrell Vent of Huslia. Vent stated,

*“There’s going to be no fishing activity, and they’re going to lose that culture. Once they lose that culture and if the fish ever come back, they wouldn’t have that experience of what to do with that fish. That would be a lost tradition.”*

This project was important to participants because they depend on the salmon to continue their way of life. They have been telling us that salmon is valuable to them as a food, as a means to share their culture, as an income, and as a way to maintain a healthy lifestyle. It has been a central part of their culture for thousands of years and they are observing changes and they want their knowledge shared and used. Elders and traditional knowledge holders were willing to participate in documentation of their knowledge by Yukon River young adults because they wanted this information heard, applied, and learned from rather than merely written into reports and left on shelves. This project provided the opportunity for Yukon River young adults to unbury, revisit, categorize, map, and connect with archival reports and contemporary Elders, keeping their knowledge alive and engaged in today’s issues.

Factors negatively impacting salmon also affect the physical, social, economic, spiritual, and emotional well-being of Yukon River people. Through this project we learned about the deep relationship between salmon and Yukon River community members and how the factors negatively affecting salmon populations such as climate change and management actions also affect the people who live alongside the salmon. One interview participant, Lorraine Mike from Mountain Village, spoke about “nuniguk feel” or missing the practice of fishing itself physically, culturally, emotionally, and spiritually. Interview participants reported feeling depressed due to their change in diet and lack of nutrients they derived from salmon oil. Many interview participants raised concerns about passing on traditional knowledge to future generations, and the health of Elders and other community members.

The traditional knowledge of Yukon River salmon peoples has been developed over a millennium of experimentation and close observations of the environment and the lessons learned have been shared throughout the generations. We are remiss if we do not listen to traditional knowledge and attempt to understand it in ways that benefit and improve fisheries management. Our understanding of the environment will benefit from different ways of knowing. This project sought an approach that improves shared understandings of salmon between scientists and subsistence fishers.

Our research provided answers to many of our hypotheses and research questions. We found that:

- Yukon River Elders have strong concerns about what is happening with Yukon River salmon. This statement proved to be an accurate assessment. Yukon River Elders do have strong concerns about what is happening with Yukon River salmon and this was demonstrated in the many interviews conducted.
- Yukon River Elders are very concerned about the dumping of cannery waste in the Yukon River.

Millena researched this question for the Rampart area and she had difficulty finding good information about a cannery in the Rampart area. We were not able to interview the specific Elders who had knowledge of and concern of lower Yukon River canneries. We were not able to gather specific information on this research question.

-Yukon River Elders are concerned about gear selectivity and its impacts on Yukon River salmon. Yes, we did hear from Elders both in the contemporary interviews and in the archival information that Elders are concerned about the gear changes and its impacts on Yukon River salmon. Some of these concerns are related to drop out when smaller mesh size nets are used. Other concerns relate to the burden on subsistence fishers to purchase new gear.

-Yukon River TEK holders have shared their concerns with researchers over the past decades with the intent of keeping their observations and knowledge active and alive. Yes, Yukon River TEK holders have in the past shared their concerns with researchers and continue to share their concerns in the hope of keeping their knowledge alive and putting it to work to continue to care for Yukon River salmon.

-How are people adapting to change? If natural indicators are not holding true, how are people dealing with this? Yukon River people are suffering, especially the Elders who say they need salmon to nourish their souls and their bellies. They continue to observe and learn from the environment around them trying to adapt to constantly changing times.

## **Application of TEK in Fisheries Management**

A goal of this project was to seek an effective application of TEK in fisheries management and to answer the question, How do we incorporate TEK into a western science model during a period of rapid change?. Over the past few decades, TEK has evolved as a “best available science” and more and more researchers, managers, and policy makers would like to include it in their decision making process but they are unsure how to use or incorporate it. This project developed a list of recommendations for fishery managers and researchers to consider.

- Create more effective opportunities for fishers to influence/participate in management decisions.
- There needs to be a greater understanding of the importance of salmon in the entire ecosystem. Overharvesting of one source of food can cause catastrophic crashes and tip the balance of the biome.
- Priority is needed to sustain the salmon and the people of the Yukon River. The people are suffering from the decline in salmon fishing,
- An intertwining of TEK and salmon research proved to be a powerful tool, and is essential for preservation.
- Efforts to draw parallels and common occurrences between TEK and Western Sciences would be highly beneficial to successful co-management and protection of one of the last wild salmon stocks in the world.

This project came at a time when many studies had been conducted with Yukon River knowledge holders over the last 50 years (for example Nelson 1982; 1983; Fienup-Riordan 1986; Herman-Mercer et al. 2011; Brown and Goddhun 2015; Brown et al. 2017; Moncrieff and Klein 2003; Moncrieff et al. 2009). Merely documenting TEK about salmon hasn't prevented the decline of the Yukon River salmon runs. This project was suggested because we need to do more than just document TEK and the social climate is right for a change in paradigm. Fishers are frustrated about the condition of their resources. Many local fishers feel that their voices are not making an impact in the management of their fishery and are looking for change. Creating effective opportunities for fishers to share their knowledge in a way that makes changes in fisheries management would be a way to appropriately use TEK in fisheries management. Creating a robust resource team made up of TEK experts to policy making agencies, similar to western science technical resource staff of the Alaska Department of Fish and Game or the Yukon River Panel Joint Technical Committee would increase the use of TEK in policy decisions. New organizations have emerged in the past two decades that represent Native knowledge are striving for change in fisheries management. Some examples included the Yukon River Intertribal Fish Commission and the University of

Alaska Fairbanks, Indigizing Salmon Management program. These organizations, as well as YRDFA, are striving to improve the understanding of the importance of salmon in the Yukon River cultures and ecosystem. There are limitations of our study and these include the fact that we were unable to review all of the existing references and archival materials that are related to the Yukon River. The members of our team had specific individual interests in their geographical area which resonated with them. These biases led our study to areas of focus which were meaningful to our team. Other limitations were based on our selection of interview participants. Some of our participants were attendees at fishery meetings and thus had a strong interest in their fishery and self-selected to participate. Others were sought out in the home communities of our team. We were not able to interview representatives from all parts of the Yukon River and certainly missed important individuals and pieces of information.

The partnership between YRDFA and the young adult Emerging Leaders from the Yukon River benefited our research because these young leaders shared a cultural background and understanding and were able to provide insight that researchers with a different cultural

background may not have been able to grasp. Their work on this project benefited them by providing a paid opportunity to read and digest the words of their Elders who are no longer with us, enriching their cultural experience and deepening their understanding of their Elders' words. This partnership was rich with insight as the Emerging Leaders learned, assisted, and guided the research beginning with the items they selected from the archives, to the analysis of the documented works, development of the interview questions, selection of the candidates for interviews, analysis of the interview results, selection of the messages shared, designing presentations, outreach, and final results.

This study expanded on the previously funded NPRB project number 1413, How People of the Yukon River Value Salmon, by bringing in youth from the Yukon River as research partners. The YRDFA PI shared previous studies with them and they combined this information with their cultural knowledge to set the direction for the project. Connecting Yukon River youth and Elders to study TEK of salmon could lead to further insight and revival of knowledge buried in the archives.

We suggest future studies of this nature, as we merely scratched the surface of Traditional Ecological Knowledge and inclusive management. The youth will be leading the future and we need to help equip them with a blend of Traditional and western knowledge in order to empower them to solve today's issues.

## CONCLUSIONS

Our conclusions are as follows:

- Yukon River people have a deep understanding of salmon and their habitat, however their knowledge is often underused in fisheries management
- Interviewees are witnessing drastic ecological impacts with the loss of salmon
- The absence of harvesting and eating traditional foods known for connecting communities, people, land, and animals has halted the sharing of cultural values, practices, and knowledge
- Factors negatively impacting salmon also affect the physical, social, economic, spiritual, and emotional well-being of Yukon River people
- The balance of all living things are being affected from the crash of Yukon River Salmon, not only the absence of this culturally significant resource, but the plants and wildlife that also rely on the salmon ecosystem for subsistence

## IMPLICATIONS FOR MANAGEMENT AND POLICY

This project addresses critical fishery management and information needs related to Yukon River salmon including Chinook salmon, which continue to face dangerously low populations. It also addresses the concerns of the Yukon River people and the goals of the North Pacific Fishery Management Council (Council) to incorporate traditional ecological knowledge (TEK) or traditional knowledge (TK) into their science, policy, and management for western Alaska fisheries. Increasing pressure to incorporate subsistence-based stakeholders and their concerns provides an opportunity to analyze documented TEK and to include TEK in the fishery management process. Results of this project are useful to the Council and other fishery researchers and management agencies as they attempt to give greater attention to other forms of knowledge and include more TEK and subsistence interests in the fishery management process. The results of this project are tools in which to interface TEK and western fisheries science, policy, management, and collaboration. It expanded capacity for understanding, evaluating, and integrating TEK and the social science of TEK into fisheries management in Alaska. Possible uses of the results of this project, include creating effective opportunities for fishers to influence fisheries management, provide a greater understanding of the importance of salmon in the ecosystem, and finding ways to intertwine TEK into salmon research, as these ideas have the potential to reduce the impact of management decisions on subsistence communities.

## OUTREACH

The following are the events and outreach activities where we shared information about our project or the results:

- YRDFA Board meeting 2021, 2022, 2023
- YRDFA Preseason Meeting 2021, 2022, 2023
- YRDFA Newsletters
  - Fall 2020 <https://yukonsalmon.org/yukon-fisheries-news-fall-2020/>
  - Spring 2021 <https://yukonsalmon.org/yukon-fisheries-news-spring-2021/>
  - Fall 2021 <https://yukonsalmon.org/yukon-fisheries-news-fall-2021/>
  - Summer 2022 <https://yukonsalmon.org/summer-2022-newsletter/>
  - Spring 2023 <https://yukonsalmon.org/spring-2023-newsletter/>
  - Fall 2023 <https://yukonsalmon.org/yukon-fisheries-news-fall-2023/>
  - Winter 2023-2024 <https://yukonsalmon.org/yukon-fisheries-news-winter-2023-2024/>
- TCC convention 2022, 2023, 2024
- Elders and Youth Convention workshop 2023
- Salmonfest, Ninichik 2023
- Alaska Marine Science Symposium - Poster
- Alaska Forum on the Environment - Poster
- American Fisheries Society Alaska Chapter (planned) - Poster
- YRDFA YouTube <https://www.youtube.com/watch?v=pXKld0OtM9M&t=7s>

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# APPENDICES

## Appendix A. Archive results

### Catalog of Elders Warnings – Archival sources that influenced our work:

#### Archives collection materials located at the University of Alaska Fairbanks Arctic and Polar Regions Collections and Archives:

- Chief Peter John 1900-1986
  - Photos, Born in 1900 in Rampart on the Yukon River. His mother died when he was 2 years old. A lot of people died that year due to the flu. In 1918 or 1919 his father died. Married his wife Elsie when she was 16 and he was 25.
- Hughes, Charles C. Papers (archives) Zagoskin's Travels
  - Zagoskin, L.A. Account of Pedestrian Journeys in the Russian possessions in America in the years 1842, 1843, 1844. Nulato P.39-40, 43, 50. Smallpox epidemic (p.42)
- Gilbert, Charles H. 1859-1928. Yukon Diaries.
- Northern Perspectives- Volume 20, No. 1, Summer 1992
- The Alaska Almanac, 1908

#### Oral History:

- Belle Deacon interviewed by Jim Kari, Wendy Arundale, and Chad Thompson on February 25, 1983 ORAL HISTORY 2002-10-01 PT. 1
- Tanana Yukon Historical Society Tapes. Mike Dalton reads from 1898-1906 court records on July 30-31, 1973 in Rampart, Alaska [sound recording].  
[https://anch.ent.sirsi.net/client/en\\_US/uaf/search/detailnonmodal/ent:\\$002f\\$002fSD\\_ILS\\$002f0\\$002fSD\\_ILS:3984771/ada?qu=Dalton%2C+Mike+%28Kathleen%29&d=ent%3A%2F%2FSD\\_ILS%2F0%2FSD\\_ILS%3A3984771%7EILS%7E5&lm=UAF-ORAL&rt=false%7C%7C%7CAUTHOR%7C%7C%7CAuthor](https://anch.ent.sirsi.net/client/en_US/uaf/search/detailnonmodal/ent:$002f$002fSD_ILS$002f0$002fSD_ILS:3984771/ada?qu=Dalton%2C+Mike+%28Kathleen%29&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A3984771%7EILS%7E5&lm=UAF-ORAL&rt=false%7C%7C%7CAUTHOR%7C%7C%7CAuthor)
  - Mike Dalton talks about selected court cases from the court dockets in Rampart.
- Moncrieff, C. and J. Klein. 2003. Traditional Ecological Knowledge of Salmon Along the Yukon River. Yukon River Drainage Fisheries Association.
  - video recorded interviews in 2001 with knowledgeable fishers and Elders in Alakanuk, St. Marys, Holy Cross and Nulato

#### Project Jukebox

- Raven's Story
  - Alton Brown, Ruby use of willow bark to make a fishnet
  - Benedict Jones, Koyukuk 2002 differences in chum salmon fishing
  - Catherine Attla, Huslia 1995 nets across whole slough, king locations
  - Steven Attla Sr., Huslia 1995 fishing beliefs
  - Henry Beatus, Hughes 1997 prey populations
  - Pauline Peter, Nulato 1998
    - statement about mankind and economic motivations, cycle of life
  - Eliza Jones 2002 fish camp
  - Sidney Huntington 1996
    - traditional lifestyle, wildfires, circle of life, king salmon along the Yukon River was not a customary and traditional food. We might catch 6-8. Not that many. Now we have gear that can harvest king salmon. The amount has more than doubled. Summer Chum, Fall

- John Honea
- AK Stakeholders & Climate Change
  - Caleb Pungowiyi, St Lawrence Island changes in animal populations and the environment
  - Charlie Campbell 2009 environmental ethics
  - Tom Hyslop 2009
  - James Roberts 2009
  - Paul Starr 2009
  - Charlie Wright 2009
  - Stan Zuray 2009
- Observing Change in Alaska's National Parks
  - Letty Hughes
  - Bea Lingle 2018 climate/ Skagway fishing and changes
- Climate Change
  - Orville Huntington 2003
- Mike Dalton reads from 1898-1906 court records
- Fairbanks Native Association
  - Poldine Carlo 1991 differences between village and city lifestyle
  - Sally Hudson 1991
  - Hannah Solomon 1991
- Fishing and Natural Resources
  - Turner many interviews about subsistence related stories
- Don't Forget the Past
  - Burke talked about photos and subsistence
- Fort Yukon Elders
  - Thomas cultural
- Tanana Tribal Council
  - Alfred Starr dipnets at Rapids, Kantishna, 1936 flooding
  - Effie Kokrine 1987 dog mushing, Chinook
  - Marian Edwin 1982 Grant Creek roadhouse, old miners, dog drivers of US mail, dad from Holy Cross, mother from Kokrines, grandmother Lily Paul from Kallands, caught king and coho from Yukon, grayling from Grant Creek
- Luke Demientieff:
  - "In the spring you potluck for good fishing and in the fall for good hunting and trapping"
  - "The animals are changing" -can be regulated, even sportsman
  - "I think, looking at the situation, the money with Fish and Game is #1, but subsistence and the people that really need that are #2"
  - Managed more to meet needs
- Holy Cross Wellness Camp
  - Nature is a healer
    - Traditional values that they provided for us is being passed down to younger people
- Ruby Culture Camp
  - Pat Frank- Holy Cross
    - "There were so many fish especially summer chum when you're rowing you would hit their back and almost slip because of the amount of dog fish"
- Other Project Jukebox recordings

- Alice Demientieff
- Luke Demientieff
- Mary Demientieff
- Betty Johnson
- Frank Turner
- Harry Turner
- Gerald Walker
- Maurice Newman
- Pollock Simon
- John McDermott

## Digital Materials:

### YouTube

- AK History Nuggets - Bristol Bay Salmon Fleet <https://www.youtube.com/watch?v=r9ufYpZJtzY> salmon fleet
- AK History Nuggets - Salmon Fishing <https://www.youtube.com/watch?v=-VHaoHZU2FY> Commercial fishing
- Commercial Salmon Trap Operations <https://www.youtube.com/watch?v=N2G6DuVhBSk>
- Commercial Salmon Trap <https://www.youtube.com/watch?v=KSQ48QksAw8>
- Ted Stevens talking about fisheries <https://www.youtube.com/watch?v=Zw66aDdFaLM>
- Commercial Fishing <https://www.youtube.com/watch?v=9MFv7jCKTsM>
- Conical Fish Trap <https://www.youtube.com/watch?v=PqgT3svSz-k> Native fish trap
- Tanana Fish Camp <https://www.youtube.com/watch?v=9B2ENGMFCvg>
- Commercial Salmon Trap Construction <https://www.youtube.com/watch?v=9E-VRPMG8mU>
- Salmon Cannery <https://www.youtube.com/watch?v=sB7j42MJJaWY>
- Loading Processed Salmon onto a ship <https://www.youtube.com/watch?v=d9ka2Wzy3gg> Amount of commercial salmon
- Seine Boat Operations [https://www.youtube.com/watch?v=baqfCw5f\\_ho](https://www.youtube.com/watch?v=baqfCw5f_ho)
- Once Our Way <https://www.youtube.com/watch?v=8ZmobTalnNI> 1970s Tununak AK Southwest subsistence fishing
- Salmon Saga <https://www.youtube.com/watch?v=NEyo6T6YAc4>
- Galena Fish Net <https://www.youtube.com/watch?v=N0TNaENbckA> 1983 Galena Fish net 10:22-13:35
- Moose meat <https://www.youtube.com/watch?v=fdJPfT6CHzY> Peter John 10:05-10:59 Carlos Frank 11:00-11:12
- The Salmon Saga <https://www.youtube.com/watch?v=NEyo6T6YAc4> Salmon 8:45-10:21 Fishing and how it affects natives in highly populated areas with sports fisherman 10:22-13:35
- Carlos Frank <https://www.youtube.com/watch?v=N0TNaENbckA> Carlos Frank 11:00-11:12 Galena fish net 1983

### Articles:

- North Pacific Fisheries Management Council <https://www.npfmc.org/fisheries-issues/bycatch/>
- Tanana Chiefs Conference Article Fish Farm vs Hatchery <https://www.tananachiefs.org/the-differences-between-fish-farms-hatcheries/>
- There is a Crisis on the Yukon River <https://www.washingtonpost.com/climate-environment/2023/12/03/yukon-river-salmon-climate-change/#>
- What Animals Prey Upon Salmon? <https://ciaanet.org/what-animals-prey-upon-salmon/> Animals that rely

on Salmon for food.

- The Toll of Human Activity on Wildlife: How Many Animals Killed Each Year – The Barbaric Truth!  
<https://worldanimalfoundation.org/advocate/how-many-animals-killed-each-year/>
- Yukon (Pilot) River [https://www.adfg.alaska.gov/index.cfm?adfg=sonar.site\\_info&site=12](https://www.adfg.alaska.gov/index.cfm?adfg=sonar.site_info&site=12) ADF&G Pilot Station counting Station
- Bycatch <https://www.npfmc.org/fisheries-issues/bycatch/> North Pacific Fisheries Management Council
- Salmon Bycatch Frequently Asked Questions <https://www.npfmc.org/fisheries-issues/bycatch/> North Pacific Fisheries Management Council
- ADF&G Chinook Salmon <https://www.adfg.alaska.gov/index.cfm?adfg=chinook.main>
- Sockeye Salmon <https://www.fisheries.noaa.gov/species/sockeye-salmon> NOAA
- Lower Yukon River Salmon Test and Commercial Fisheries, 1981  
<https://www.arlis.org/docs/vol1/ADFG/TDR/TDR89.pdf>
- The Subsistence Salmon Fishery of the Lower Yukon River <https://www.arlis.org/docs/vol1/11063645.pdf>
- Fall Season Cooperative Salmon Drift Gillnet Test Fishing in The Lower Yukon River, 2013  
<https://www.adfg.alaska.gov/FedAidPDFs/FDS15-24.pdf>
- Yukon River Salmon 2019 Season Summary and 2020 Season Outlook  
<https://www.adfg.alaska.gov/FedAidPDFs/RIR.3A.2021.01.pdf>
- Subsistence Harvests in 8 Communities in the Kuskokwim River Drainage and Lower Yukon River, 2011  
<https://www.arlis.org/docs/vol1/ADFG/TP/TP396.pdf>
- What's Behind Chinook and Chum Salmon Declines in Alaska? <https://www.fisheries.noaa.gov/feature-story/whats-behind-chinook-and-chum-salmon-declines-alaska>
- Resource Management Efforts to Address Bycatch <https://www.npfmc.org/fisheries-issues/bycatch/salmon-bycatch/>
- A Soul Wound: A First Nation Built its Culture Around Salmon. Now They Have to Fly it in Frozen  
<https://www.theguardian.com/environment/2022/dec/05/canada-first-nations-yukon-river-chinook-salmon>

#### Alaska Film Archives:

- **Alaska Dept of Environmental Conservation.**  
<https://vilda.alaska.edu/digital/collection/cdmg41/id/568/rec/286> Elsie Alexie and Mrs. George Green by the screens drying salmon Eek Fish camp 1956.
- **Alaska Department of Fish and Game Historical Photograph Collection 1950-1991.** ARLIS-ADFG-HPC-b5-f17-14. <https://vilda.alaska.edu/digital/collection/cdmg16/id/401/rec/60> fish samples on a paper that describes the type of fish, where it was found, length and size. ARLIS-ADFG-HPC-b5-f26-05  
<https://vilda.alaska.edu/digital/collection/cdmg16/id/411/rec/62> Processing at Naknek, view of crates of salmon on a dock. 1959 or later.  
<https://vilda.alaska.edu/digital/collection/cdmg16/id/50/rec/180> planting salmon fry in Whipple Creek, Ketchikan 1995  
<https://vilda.alaska.edu/digital/collection/cdmg16/id/112/rec/229> Beluga stomach contents showing seaward with 2,798 migrating red salmon. Kvichak River, AK 1955  
<https://vilda.alaska.edu/digital/collection/cdmg16/id/137/rec/247> King salmon smolt release 1986. JUneau.  
<https://vilda.alaska.edu/digital/collection/cdmg16/id/148/rec/256> dipnetting for sockeye salmon smolt. 1959 and later.  
<https://vilda.alaska.edu/digital/collection/cdmg16/id/219/rec/308> measuring chum salmon

- **Alaska Purchase Centennial Collection. 1764-1967.**  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/22352/rec/81> label on salmon can with picture of Native family. Klawock, AK.  
<https://vilda.alaska.edu/digital/collection/cdmg12/id/1/rec/156> Heading salmon in a slime line. Emmonak. 1980s.
- **Alaska Museum at Rasmuson Center. Ickes Collection**  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4361/rec/250> Vat of Salmon, Metlakatla, AK. 1938.
- **Alaska Museum at Rasmuson Center. Redington Family Collection. amrc-b2006-023-4449**  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/9250/rec/63> person processing a salmon at a table in Emmonak? 1980s.
- **Arthur and Rosa Purcell Papers 1956-1977**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/11201/rec/194> salmon drying on beach on tree branches Tanana, AK 1958-1960.
- **Barb and Marie Logan slides. Circa 1945-1962. UAA-HMC-1071.**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/8141/rec/75> Men sanding on fish trap (weir) King Salmon, AK 1962.
- **Betzi and Lyman Woodman Papers 1898-1999. UAA-HMC-0353.**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/14440/rec/35> Hoonah, AK 1967. Young girl holding a hook with king salmon hanging from it.
- **Bill Bacon Photographic Files 1945-2004 UAA-HMC-0991**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/22807/rec/30> woman cleaning salmon Kiana, AK 1981
- **Boucher Collection at Alaska Film Archives AAF-7580**  
<https://vilda.alaska.edu/digital/collection/cdmg11/id/3870/rec/4> photos with salmon drying on the Yukon River 1896-1913
- **Case and Draper. Photographs 1898-1920. ASL-PCA-39**  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/9794/rec/32> Men haul in salmon from nets. Southeast Alaska.  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/9794/rec/122> Men haul in salmon in nets. Funter Bay, AK 1896-1913.
- **Crary-Henderson Collection <https://vilda.alaska.edu/digital/collection/cdmg2/id/1733/rec/292>** Unloading salmon at cannery at Eyak, AK 1986-1913  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/1353/rec/293> Men with king salmon on pole Nushagak, AK
- **Emard Cannery Employee Photograph Album. 1945. UAA-HMC-0916.**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/11912/rec/57> two cannery workers packing cans of salmon into a round container, 1945. <https://vilda.alaska.edu/digital/collection/cdmg13/id/11914/rec/58> workers in cannery washing salmon. 1945.
- **Evelyn Butler and George Dale. Photographs 1934-1982.**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/12879/rec/296> Bow and Arrow, Chalkyitsik, AK 1942
- **Drane Family Collection <https://vilda.alaska.edu/digital/collection/cdmg11/id/6799/rec/132>** large King salmon with 2 boys holding it up. 1913-1939
- **Dr. Ernest A. Cook Photographic Collection. UAF-2003-109-19**  
<https://vilda.alaska.edu/digital/collection/cdmg11/id/1666/rec/47> Woman holds a Yukon River king salmon. 1913-1939.

- **D.S. Clark Photograph album** <https://vilda.alaska.edu/digital/collection/cdmg13/id/280> Beaver, AK salmon drying
- **Eby, Shelland, and Stark Tourist Papers 1939-1940**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/12111/rec/295>  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/12133/rec/314> salmon can label
- Ernie Carter Photographs <https://vilda.alaska.edu/digital/collection/cdmg11/id/15958/rec/302> drying salmon 1950
- **Edwin G. Glenn Papers 1889-1917** <https://vilda.alaska.edu/digital/collection/cdmg13/id/3621/rec/273> man in front of tent with salmon 1898.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/3623/rec/274> hanging salmon 1898 Southcentral, AK
- **Ercelle Davidson Films and Photographs 1952-1962**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/8511/rec/183> Cordova Salmon Spawning. 1955
- **Falcon Joslin Papers** <https://vilda.alaska.edu/digital/collection/cdmg11/id/36514/rec/75> Glacier on Salmon River. Southeast Alaska. 1898-1928.
- **Fisheries and Wildlife Research in Alaska, 1920-1980s.**  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/19296/rec/220>  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/19320/rec/233> many different salmon products showing names of brands. Juneau, AK.
- **Fran Rose Collection** <https://vilda.alaska.edu/digital/collection/cdmg2/id/70/rec/189> Cache with salmon hanging to dry, Fort Yukon Alaska.
- **Frances J. Juber slides** <https://vilda.alaska.edu/digital/collection/cdmg13/id/21669/rec/269> catch of salmon in Valdez, 1987.
- **Fred E. Hovey Photograph Collection**  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/17370/rec/215> stained view of men gaffing salmon. Klondike River Valley. 1896-1913.
- **Fhoki Kayamori. Photographs. 1912-1941.** ASL-PCA-55. Big Catch Yakutat  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/25545/rec/33> Scow full of salmon. 1926.  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/16836/rec/40> Loading salmon at Situk Landing, Yakutat, AK. 1913-1939.  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/17194/rec/61> One car of coho salmon with 7,000 sockeye 1913-1939  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/25515/rec/114> Big load salmon, Yakutat, AK  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/25566/rec/127> humpback salmon Itatio River, AK 1921.  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/25467/rec/235> Loading fish at Yakutat, AK
- **Helen Stevens 1897-1957.** <https://vilda.alaska.edu/digital/collection/cdmg13/id/22380/rec/1> Drying salmon on Kenai Lake
- **Lawrence Eastman Photographs 1949-1951**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/6655/rec/236> salmon run Kodiak
- <https://vilda.alaska.edu/digital/collection/cdmg13/id/6714/rec/287> Salmon run off Monashka Bay, Kodiak. 1949-1951
- **Harold McCracken Collection.** <https://vilda.alaska.edu/digital/collection/cdmg11/id/156/rec/262> Teller, AK Inupiaq woman is preparing salmon for drying. 1913-1939.
- **Howard J Cooper Collection.** 1927 film showing men catching fish from a pier in Ketchikan, AK  
<https://vilda.alaska.edu/digital/collection/cdmg12/id/1/rec/156>

- **Kodiak Historical Society.** KHS-P-368-1-e. <https://vilda.alaska.edu/digital/collection/cdmg23/id/26/rec/39> salmon drying racks covered with salmon. Kodiak. 1913-1939.  
<https://vilda.alaska.edu/digital/collection/cdmg23/id/195/rec/290> fishermen pulling in salmon, Kodiak 1913-1939  
<https://vilda.alaska.edu/digital/collection/cdmg23/id/599/rec/305> man holding salmon
- **Lower Kuskokwim School District at Alaska Film Archives** AAF-11578  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/22797/rec/29> 1981 Woman cleaning salmon
- **Machetanz Collection at Alaska Film Archives** AAF-936  
<https://vilda.alaska.edu/digital/collection/cdmg41/id/784/rec/6> 1979 ADFG staff holding a king salmon on the King Salmon River, showing large size.
- **McGlashan and Monsen Family photographs circa 1880-1974.**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/20158/rec/118> Red salmon Naknek. Five buys holding up salmon. 1942?
- **Milotte Collection at Alaska Film Archives** AF-1295  
<https://vilda.alaska.edu/digital/collection/cdmg11/id/16994/rec/24> 1901 map showing locations of Alaska salmon canneries and salteries and the principal salmon streams  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/23044/rec/19> 1996 Iliamna, AK filleting salmon.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/1923/rec/20> salmon drying racks  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/11220/rec/22> .  
<https://vilda.alaska.edu/digital/collection/cdmg23/id/475/rec/23> sorting salmon and snow crab, Kodiak 1959 or later
- **Miriam Bell Papers 1969-1991.** <https://vilda.alaska.edu/digital/collection/cdmg13/id/12027/rec/101> image of cooked salmon in a pot. Galena, AK 1971-1972.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/12039/rec/103> dog salmon ready on cutting table. Nenana, AK 1971-1972.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/12068/rec/272> king salmon in a tub on a boat, Galena 1972
- **National Archives Collection at Alaska Film Archives** AAF-892  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/18714/rec/38> 1900s Includes canneries and salteries operated in 1897, those “in reserve” and those abandoned, dismantled or burned.
- **National Geographic Society Katmai expedition photographs 1913-1919.** UAA-HMC-0186.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/1509/rec/43> Native Woman Dressing Salmon at Naknek. 1919. <https://vilda.alaska.edu/digital/collection/cdmg13/id/1510/rec/44>  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/1535/rec/49> Salmon drying on rack at Naknek 1919.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/1545/rec/54> Spearing our supper at foot of Salmon Falls in Katmai area 1919.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/1401/rec/130> JD Sayre and his salmon catch. Katmai.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/1536/rec/155> Woman dressing salmon. Naknek, AK 1919.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/1332/rec/281> salmon speared with Native spear, Katmai 1918  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/998/rec/311> Kodiak, Native method of drying salmon  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/1332/rec/281> salmon speared with Native spear

- **Oliver Collection at Alaska Film Archives AAF-18**  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/9877/rec/37> Fish and Game tagging salmon 1965  
Susitna River.
- **Robert Fortune Papers 1957-1999.** <https://vilda.alaska.edu/digital/collection/cdmg13/id/2917/rec/315>  
1963. Kokhanok drying rack full of salmon
- **Ruth A. M. Schmidt Papers 1912-2014.**  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/17809/rec/255> pink salmon fry at Kasilof Hatchery  
1975.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/14396/rec/288> unloading fish from King salmon  
1960  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/17495/rec/304> salmon spawning lake Iliamna 1968  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/17901/rec/317> salmon rearing pens 1973 Halibut  
Cove, AK
- **Susan Winton Photographs 1989-2000** <https://vilda.alaska.edu/digital/collection/cdmg12/id/1/rec/156>  
Salmon jumping falls 1995.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/12778/rec/228> salmon spawning 1992  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/12822/rec/259> salmon dead in water 1992.  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/12879/rec/296> salmon, dead 1996
- **Thayer Family Papers.** UAF-2010-25-116. Fish Trap at Kalgin Island.  
<https://vilda.alaska.edu/digital/collection/cdmg11/id/18443/rec/55> loading salmon caught in nets onto  
barge.
- **University of Alaska Fairbanks Collection AAF-661**  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4349/rec/26> ;  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4343/rec/25> Alaska Canneries 1938 Metlakatla  
salmon packing machine. 1938 Metlakatla Salmon Canning company.
- **Ward T. Bower Photographs.** UAF-1985-81-7  
<https://vilda.alaska.edu/digital/collection/cdmg11/id/43847/rec/70> Chignik, AK 40,000 red salmon.  
<https://vilda.alaska.edu/digital/collection/cdmg11/id/43847/rec/191> Chignik, AK fishing boat with two  
large containers of fish.
- **Wien Collection.** AMRC-b85-27-1000 <https://vilda.alaska.edu/digital/collection/cdmg2/id/4287/rec/67>  
1954 red salmon cannery. Bristol Bay, AK.  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4287/rec/187> 1954 Red salmon cannery Bristol Bay,  
AK  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/3526/rec/73> view of drying salmon at Fort Yukon, AK  
1960s.  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/3535/rec/77> salmon drying at Fort Yukon, 1960s.  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4366/rec/254> Wards Cove Packing Co, Naknek  
cannery  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4376/rec/263> view of salmon on cannery conveyor  
belt, Naknek AK 1954  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4377/rec/264> men working boat full of red salmon,  
Naknek, AK 1954  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4378/rec/265> red salmon cannery, Naknek 1954  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4379/rec/266> view of cans at cannery 1954  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4380/rec/267> Naknek Cannery 1954  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4381/rec/268> dressing kongs at Naknek cannery 1954



<https://vilda.alaska.edu/digital/collection/cdmg2/id/4384/rec/271> red salmon sliming table Naknek 1954  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4398/rec/276> washing red salmon at cannery naknek  
<https://vilda.alaska.edu/digital/collection/cdmg2/id/4403/rec/280> fish on ice in bins, Naknek

- **Williams Collection at Alaska Film Archives** AAF-197  
<https://vilda.alaska.edu/digital/collection/cdmg13/id/1511/rec/17> 1919 Naknek, Alaska drying salmon.
- **William R. Norton.** Photographs, ca. 1890-1920. ASL-PCA-226.  
<https://vilda.alaska.edu/digital/collection/cdmg21/id/7337/rec/64> crew members on a boat lashed to a barge laden with salmon. Southeast Alaska.
- **Ward Wells Collection.** <https://vilda.alaska.edu/digital/collection/cdmg2/id/4407/rec/282> Col Muktuk holding a salmon. 1951

#### **Article and Reports:**

Alaska Fish Tales and Game Trails. 1977-1979. UAF.

-researcher was impressed that they talked about conservation at this time but still went forward with so much commercial fishing.

Andersen, David and Cheryl Scott. 2010. An update on the use of Subsistence-caught fish to feed Sled Dogs in the Yukon River Drainage.

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-the relative food security in some of these communities is unprecedented. Many older people, who have seen freedom from hunger emerge within their lifetimes, remain convinced that this period will not last. They are convinced that things will change once in their lifetimes or that of their children's. They want to pass knowledge of the land and wild resources on to the younger generation for when disruptions take place. Increased concern about conflicts over allocation of salmon.

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--interviews with fishers in Alakanuk, St. Marys, Holy Cross and Nulato about their traditional knowledge of Chinook salmon of the Yukon River. Observations, knowledge and understanding of king salmon. Salmon arrival timing and abundance. Elders in St Marys say, "they come in abundance before they disappear." "When animals or fish are too highly talked about or limited by man, they are lost to humans."

Moncrieff, C. 2017. How People of the Yukon River Value Salmon: A Case Study in the Lower, Middle, and Upper Portions of the Yukon River. Yukon River Drainage Fisheries Association.

- Case study in Russian Mission, Nenana and Fort Yukon describing how people value salmon, why and ways it is important to them. Primarily as a food source but also representing their culture, heritage, teaching tools.

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- Whitenose, Blueback and Blackhead Chinook Salmon. project attempted to ID separate stocks to provide a management tool and to learn how fishers characterize phenotypes of Chinook and learn through TEK specific info about run quality, run timing, spawning, meat quality and local uses.

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What's Behind Chinook and Chum Salmon Declines in Alaska? NOAA Fisheries- Alaska Fisheries Science Center

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- weak salmon runs and restricted fisheries have stressed the villages of the Yukon River. 5 case studies in lower, middle and upper river.

Yukon River Panel & YRDFA. 2005. Yukon River Salmon Agreement.

- describes Yukon River Salmon Agreement between USA and Canada, describing harvest sharing, research and habitat protection

## Appendix B. Consent form - YRDFA

### PARTICIPANT CONSENT FORM

## **They Told Us There'd Come a Time.... Conserving Fish, Preserving Tradition on the Yukon River A Catalog of Elders Warnings.**

**Funded by the North Pacific Research Board  
Project carried out by the Yukon River Drainage Fisheries Association and  
the Tanana Chiefs Conference Emerging Leaders**

Contact: Catherine Moncrieff  
PO Box 2898  
Palmer, AK 99645  
Telephone: 1-877-999-8566 ext 3.  
E-mail: Catherine@yukonsalmon.org  
Millena Jordan  
907-687-3635

I, \_\_\_\_\_, understand that the purpose of this research project is to learn about and record warnings from Elders related to fish in the Yukon River drainage and that it is funded by the North Pacific Research Board.

I am willing to take part in this project and I understand that I can end my participation in this project at any time during or after the interview.

I understand that I will have the opportunity to review the preliminary findings and that I will be able to correct or edit the preliminary findings to ensure that they are accurate and not harmful to me or my community.

I give permission to Catherine Moncrieff, YRDFA, and the TCC Emerging Leaders to use my name and/or photo and to record this interview through digital recording, photograph, and/or video. (yes \_\_\_ no \_\_\_) I give permission to archive my interview at the University of Alaska Fairbanks Alaska and Polar Regions Collections & Archives (yes \_\_\_ no \_\_\_) I also understand I can participate anonymously.

I understand that I will receive an honorarium for my time.

Interviewee: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

Phone number: \_\_\_\_\_ Bank Account # \_\_\_\_\_  
Bank Routing # \_\_\_\_\_

Interviewer: \_\_\_\_\_

This consent form was translated. Translator \_\_\_\_\_

## Appendix C. Interview questions - Mini interviews

### 2022 Preseason Meeting, Mini Interviews

**Informed Consent:** YRDFA and the TCC Emerging Leaders are conducting Mini Interviews to gather information about Yukon River fishers’ experiences. This project is funded by the North Pacific Research Board as part of a project called *“Elders Warnings”*. Your participation is voluntary. We will use this information to better understand Yukon River fisher’s experiences over your lifetime. We will share the results with our funders, fishery managers, and archives so that others can benefit from understanding your experiences. The following are some of the questions we may ask. Please sign below to participate.

Potential Questions:

- Background – Where are you from? What year were you born?
- What is your best fish story?
- What is the biggest fish you’ve ever caught?
- What is your favorite way to eat fish?
- What does salmon mean to you?
- What is your favorite kind of fish?

Time slot	Name	Phone	Signature/Consent
8:00am			
8:15am			
1 <sup>st</sup> break			
12:00pm			
12:15pm			
12:30pm			
12:45pm			
afternoon break			
5:00pm			
5:15pm			
5:30pm			
5:45pm			

## Appendix D. Interview questions - full interview

### They Told Us There'd Come a Time.... Conserving Fish, Preserving Tradition on the Yukon River A Catalog of Elders Warnings.

Funded by the North Pacific Research Board  
Project carried out by the Yukon River Drainage Fisheries Association and  
the Tanana Chiefs Conference Emerging Leaders

#### Interview Protocol/Questions

· Background – Goal of this project is to learn from Elders about how we should be taking care of salmon, what we should be doing differently and what we should change.

**-For the record, can you please introduce yourself, Native name, where you grew up, and your early memories of fishing, etc.**

- Where are you from and when were you born?
- Did you grow up fishing or learn as an adult?
- Who taught you and who did you fish with over your life?
- Where did you fish?

· Salmon

**-Talk about what salmon means to you?**

- What is your favorite kind of fish?
- What is your favorite way to eat salmon?
- What does salmon mean to you?
- How do you feel about these current runs?
- How do you feel about missing these salmon runs?

· Warnings

- Did your Elders give you any warnings about salmon or advice on how to behave around them? Can you describe them?
- Do you have any warnings or advice for us about salmon?

· Other Ideas:

- Do you have a specific memory of when the salmon runs were lower?
- How are you feeling about the salmon runs this summer? Can you explain.
- Have you noticed any behavior changes in your community since the salmon runs crashed/declined?

#### **Millena's Interview Questions**

Goal of this project is to learn from everyone about how we should be taking care of salmon, what we should be doing differently and what we could change.

Getting to know you:

When and where were you born?

Where did you grow up?  
What did your land look like growing up?  
What does the land look like now?  
Have you noticed any difference in your surroundings since then and now?  
What is your favorite memory from when you were a kid?  
What was the biggest fish you ever caught and when was that?  
What was your family dynamic like?  
What was something your elders warned you about?  
Did they give you any warnings about salmon or any advice on how to behave around them?  
What would you warn your youth now or have any advice about salmon?  
What are your seasonal activities like?  
What was it like growing up on the river seasonally gathering your food?  
Did you grow up fishing? Spend time at fish camp?  
What are all the species of fish you have in your area? What does that look like now compared to when you were growing up?  
Can you tell me how you process your fish?  
Where did you fish?  
Who taught you to fish?  
Who did you teach in turn?  
When was the first time you dealt with a fish?  
How was fish traditionally used? (bones, skins, fins?)  
What was “traditional” food for you?  
What would you consider “gold”?  
What does salmon mean to you?

Favorite things:

Favorite fish

Favorite way to eat the fish

Favorite game

Favorite flora

Getting to know your local cycles:

When was the last flood? How did it affect you?

When was the last fire? How did it affect you?

How would you say natural disasters benefit the area?

How would you say its detrimental to the area?

What does a lower supply of salmon mean? For everything and how do you feel about it?

What are possible reasons for detrimental salmon count falls? What dangers or threats do they face?

What are possible reasons for remaining staggering counts?



In your opinion what do you feel would be a good compromise to better the salmon count?  
Could you tell me some natural indicators that clue you in to a change of seasons or next fauna expectation? (for example cotton in summer)  
What local game are you aware of in the area?  
Local food chain? Who's on top? Bottom? Most valued?  
Where does fish land on that chain? Animals dependent on fish?  
How do you process your seasonal hauls? (Fish, Moose, everything you make out of what you collect?)  
Can you give me an estimation on how many fish you and your family would need to survive when you were younger?  
Can you give me an estimation on how many fish you and your family would need to survive now?  
How many fish were you catching during our last fishing season?

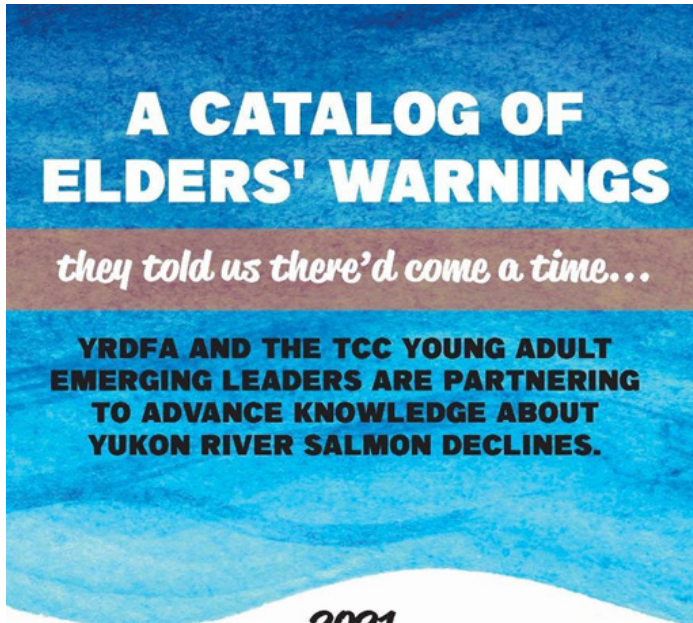
Getting to know your values:

How has the lack of fish affected you?  
How do you think the lack of fish will affect your future generations?  
Opinions on salmon bycatch? TCC salmon drive?  
Do you remember canneries along the Yukon?  
How do you feel the fish hatcheries across Alaska affect us?

(hypotheticals, more sensitive)

How would a (major) change in the ecosystem alter our reality?  
If you could change one piece of history, what would you choose?  
How do you think your ancestors felt about and dealt with their imminent dangers? (in our lifetime is climate change)  
What is a good way to preserve our traditional practices and knowledge for the future?  
Any fish stories?

## Appendix E. Outreach products - Rack Card



**A CATALOG OF  
ELDERS' WARNINGS**

*they told us there'd come a time...*

**YR DFA AND THE TCC YOUNG ADULT  
EMERGING LEADERS ARE PARTNERING  
TO ADVANCE KNOWLEDGE ABOUT  
YUKON RIVER SALMON DECLINES.**

**2021**

### **RESEARCH DOCUMENTED GUIDANCE FROM YUKON RIVER ELDERS**

archival review of interviews and research  
analysis of this collection  
strategy for gaining new insight

**2022**

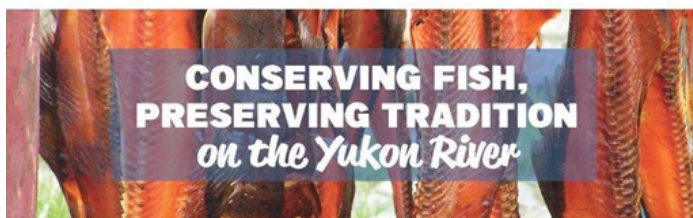
### **RECORD NEW INTERVIEWS WITH YUKON RIVER ELDERS**

apply research to build on to the  
documented knowledge and fill gaps

**2023**

### **SHARE RESULTS WITH THE YUKON RIVER COMMUNITY**

final catalog shown through  
presentations, articles and media



**CONSERVING FISH,  
PRESERVING TRADITION**  
*on the Yukon River*



## **HOW YOU CAN HELP**

### *Share advice or suggestions*

- **DOCUMENTED OR COMMON KNOWLEDGE ON SALMON DECLINES**
- **BEHAVIORAL PRACTICES FOR FISHING**
- **NAMES OF OTHERS DOING SIMILAR WORK**
- **RELEVANT TOPICS, THEMES AND LOCATIONS**

### *Recommend Elders to be interviewed*

- **THE TCC YOUNG ADULT EMERGING LEADERS WILL BE CONDUCTING INTERVIEWS THROUGHOUT THE NEXT YEAR**

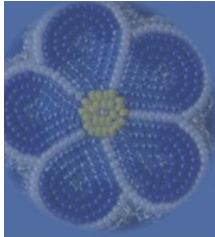


YUKON RIVER DRAINAGE FISHERIES ASSOCIATION



**This project is funded by  
the North Pacific Research Board.**  
**For more information, contact:**  
**Catherine Moncrieff**  
**907-382-8990**  
**1-877-999-8566 ext 3**  
**catherine@yukonsalmon.org**

# Appendix F. Outreach Products - Poster



## A Catalog of Elders Warnings

*They Told Us There'd Come a Time... Conserving Fish, Preserving Tradition on the Yukon*

Katie Turner, Catherine Moncrieff, Millena Jordan, Nataawnee Wiehl



*"We are river people, we live and die on the river,"*

Denakkanaaga Elder, on what it means to be an Alaskan Native living off the land

*"Salmon means more than putting food on the table, it acts as a medicine to the body and soul." -Ben Stevens*

### 1 Background

For decades, researchers have documented traditional ecological knowledge (TEK) from Yukon River Elders, describing conservation practices and revealing warnings of potential declines in salmon. TEK is a best available science, research practice, and a way of knowing that parallels Western science. Yukon River Chinook salmon declines necessitate us to examine all knowledge. In this project we review, catalog, and analyze warnings of Elders and begin to develop an effective application of TEK in fisheries management and outreach.

### 2 Objectives

- Capacity building research partnership with Yukon River young adult leaders
  - Interview procedures, data analysis, outreach methods
- Access, catalog, and analyze recorded Traditional Knowledge and Elders warnings related to Yukon River fisheries.
- Qualitative ethnographic interviews addressing gaps identified in archival research
- Develop outreach products sharing results with key audiences



Project funded by the North Pacific Research Board- Project #2005A/B.

We greatly appreciate the many participants from Yukon River communities

### 3 Methods

- Archival research
- Qualitative ethnographic interviews
- Audio and video recording of interviews
- Analysis of content
  - Comparisons of perspectives and observations
- Research partnership with Yukon River young adult leaders



L to R: Millena Jordan, Katie Turner, Nataawnee Wiehl, Catherine Moncrieff

3 Yukon River young adults expanded their skills in archival work, conducting professional ethnographic interviews, using audio and video recording equipment and creating videos

### 4 Results

- 46 ethnographic interviews with knowledgeable TEK holders from 13 communities
- Over 76 Yukon River references reviewed from archives and oral history
- Production of 2 short videos highlighting interview results
- Training/capacity building events on Archival research, Qualitative interviewing, and Outreach production (Video, Print, Podcasting)
- YRDFA expanded capacity to work with Yukon River young adults and TEK

### 5 Conclusions

- Yukon River people have a deep understanding of salmon and their habitat, however their knowledge is often underused in fisheries management
- Interviewees are witnessing drastic ecological impacts with the loss of salmon
- The absence of harvesting and eating traditional foods known for connecting communities, people, land, and animals has halted the sharing of cultural values, practices, and knowledge
- Factors negatively impacting salmon also affect the physical, social, economic, spiritual, and emotional well-being of Yukon River people

Figure 1- Interview Locations (Yukon River Watershed)



### 6 Fisheries Management Applications

- Need to create effective opportunities for fishers to influence/participate in management decisions
- Greater understanding is needed to the importance of salmon in the entire ecosystem
- Overdependence on one source of food can cause catastrophic crashes
- Yukon River culture is suffering from the decline in salmon fishing, balance is needed to sustain the salmon and the people
- Intertwining of TEK and Wildlife Ecology research can be powerful and is essential for preservation



### 7 Outreach

Team attended and presented at the following events and meetings:

- Denakkanaaga 2021, 2022, 2023
- Tanana Chiefs Conference Annual Convention
- YRDFA Annual Board and Pre-Season Meetings 2021, 2022, 2023
- Salmonfest, Ninikchik 2023- Table and on stage presentation
- Elders and Youth 2023 - hosted workshop on project
- Alaska Marine Science Symposium 2024

### 8 Contact

For more information about this project, contact Catherine Moncrieff at 907-382-8990, 1-877-999-8566 ext 3, or [catherine@yukonsalmon.org](mailto:catherine@yukonsalmon.org)



Scan this code to check out our Elders Warnings videos on YouTube!