

# Nourishing Our Future:

*Building on Kluane First Nations  
Community Food Security Strategy &  
Youth Engagement in Traditions Related  
to Fisheries and Fish Health in Kluane  
Lake*



Produced by Kluane First Nation in Burwash Landing,  
Yukon Territory in collaboration with the Arctic Institute of  
Community-Based Research, Whitehorse, Yukon Territory

**March 2016**

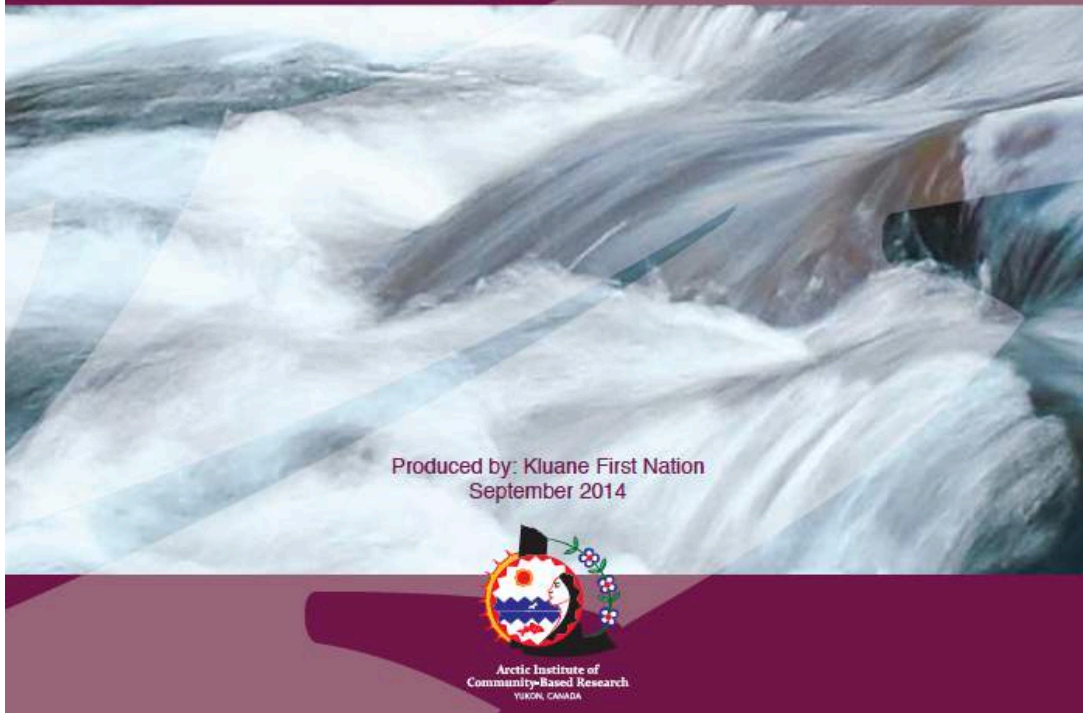






## *NOURISHING OUR FUTURE:*

*An Adaptive Food Security Strategy to Ensure the Cultural and Physical Well-Being of the Kluane First Nation Against the Impacts of Climate Change in the Yukon*



## **Nourishing Our Future Project: Phase 2 Kluane First Nation**

*This project arises out of the recommendation 1 from the Nourishing Our Future Food Security Strategy (report pictured above):*

*1. Climate Change: Protecting Our Homelands:*

*Continue monitoring key areas showing signs of climate change in the KFN territory, as well as the effects on traditional food resources in these areas.*

# ACKNOWLEDGEMENTS

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Northern Affairs Canada

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### ***SOME DEFINITIONS...***

***Food Security*** – When all people at all times have access to enough food that is affordable, nutritious, safe, and culturally appropriate (1).

***Food Sovereignty*** – is the “Right of peoples, communities and [nations] to define their own agricultural, labour, fishing, food and land policies, which are ecologically, socially, spiritually, economically and culturally appropriate to their unique circumstances” (2).

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***Contaminants*** are any physical, chemical, biological or radiological substance or matter in water, air and on the land. Contaminants can enter into the animals and plants and can affect the humans who consume them. Some **contaminants** may be safe to consume if in very small amounts and others can be harmful. Contaminant levels in fish depend on species, size, age, and location (3-5).

Common contaminants such as mercury and organochlorine pesticides come from human activities such as industrial and agricultural practices as well as chemicals that get washed down into streams from the air with the rain. Contaminants in the North can come from human impacts nearby or from far away as China. There are also natural sources of contaminants from things like forest fires (3-5).

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***Parasite*** – A parasite is a plant or animal that lives on or within another living organism, referred to as ‘host’, usually at the hosts’ expense (3).



## OUR PEOPLE

*“Well, I think for me, when I think about Kluane people, I think of very strong — but very gentle people. You know, we’re people that have been allowed to live in an incredibly beautiful place and we get to share that with each other every day. But we also get to live a life that’s really rich in a modern way as well and that’s a really important part, I think, of our existence — is that we learn to walk that fine line between these two different worlds that we’ve — we’ve basically accepted as our own.*”



*So, I hope — you know, my dream for our people is that we are able to continue into an unknown and uncertain future — very strong in who we are; very connected to this land and connected to each other; because really at the end of the day, you know, when things happen, when things don’t go our way, we will still have each other and we will always have this land so that we learn how to use it and to be — to be part of it.”*

- Diyet van Lieshout

## THE PROJECT

This project came out of questions raised by community members following KFN'S food security strategy project in 2014-2015. The overall goal of this project was to promote the importance of consuming traditional foods and to understand levels of contaminants in Kluane Lake fish. Part of this research project included conducting interviews with Kluane First Nation (KFN) citizens and traditional knowledge experts in the community about observations regarding changes in the quality, quantity and health of fish from Kluane Lake as well as concerns about contaminants in traditional foods.



### MIXED METHODS...

This project is a unique mix of scientific, community-based and Indigenous traditional knowledge approaches. It explores issues that are most important to us and allows us to come up with our own solutions to secure our future health and wellbeing.

The project assessed the nutrient values (omega-3 fatty acids, selenium and zinc) as well as contaminant levels (mercury, organochlorine pesticides and trace metals) in Lake Trout and Lake Whitefish in Kluane Lake. The study provides a better understanding of perceptions about nutrients and contaminants levels in the lake and in our traditional food sources.





# **KLUANE LAKE FISH ARE SAFE TO EAT!**



## **SUMMARY**

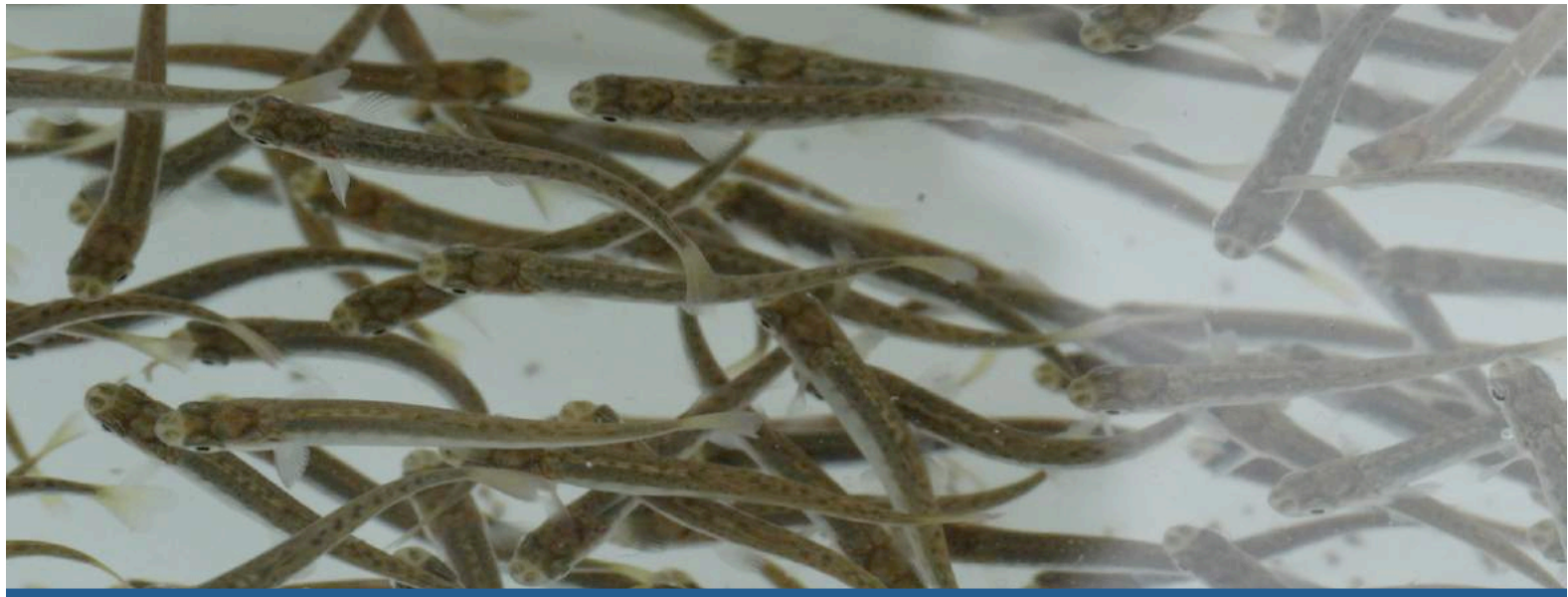
The samples that youth, community members and researchers at the University of Waterloo collected and analyzed showed that yes, ***Kluane Lake trout and whitefish are healthy and safe to eat!*** Compared to other lakes in Yukon, Northwest Territories and Nunavut, concentrations of contaminants in Kluane Lake fish are very low and their nutritional value is high.

***This is awesome news!***

## Recommendations and Actions

The following list of recommendations and actions came out of the work that was done as part of this project and is included here as a summary (*more detailed list can be found on page 44 of this report*).

- **Continue eating traditional foods** – It is important that KFN people continue consuming the fish from our lakes because it is healthy and is an important part of our diet.
- **Keep traditional practices and culture alive** – We also need to keep our traditional practices and culture/harvest camps going, including through the winter months.
- **Self-Government** – Continue to incorporate our culture and traditions into our self-governing system.
- **Start young** – We need to start teaching our kids when they are young; we need to teach our kids in the home and at school about our traditional culture, skills, knowledge, values, and practices.
- **Encourage the practice of sharing** – Sharing is our traditional way. Even with fewer resources and food species to go around, we must find creative ways, informed by our values, to share with each other; this means sharing knowledge, skills, food and time with each other.
- **Follow our food security strategy** – We developed our own food security strategy based on our own needs, concerns and strengths and therefore we must ensure that the recommendations are carried through.
- **Celebrate our culture and honour our strengths** – There are a lot of things to celebrate in our community, the low diabetes, the rich culture, the beautiful lands that we get to call home; while we look at and are concerned with the challenges that we face with climate change, we must also honour the strength that is within all of us and our ability to overcome these challenges.



## THE PROJECT OBJECTIVES

- Engage youth in local fishing practices and discussion to ensure long-term capacity for stewardship of local fishery resources
- To assess levels of contaminant concentrations and nutrients in commonly consumed fish in Kluane Lake
- To understand local observations of changes in quality, quantity and fish health
- To ensure traditional knowledge of fishing locations, seasons, methods, and preparation be passed from Elders to youth
- To enable understanding from Elders, youth and community members regarding where contaminants in fish come from, how they can build up in fish and what the benefits and potential risks of eating fish are
- To discuss potential climate change impacts affecting access to local traditional foods
- To build capacity of local KFN students and community members in Western science research practices, such as analysis of fish age and growth, including firsthand lab analysis experiences
- To promote consumption of locally harvested traditional foods, including fish



## THE PARTNERS

This project is a partnership between the Kluane First Nation government, the Arctic Institute of Community-Based Research and the University of Waterloo with funding from the Dän Keyi Renewable Resources Council, Indigenous and Northern Affairs Canada's Northern Contaminants program and the Yukon Fish & Wildlife Enhancement Trust. The Chief and Executive Council, the Elder's Council and all the partners were kept informed about the project throughout, offered their guidance as well as verified the results.

## THE PROJECT TEAM

### **The project team included the following people:**

- Dr. Heidi Swanson, University of Waterloo (primary researcher - *contaminants sampling*)
- Norma Kassi, Arctic Institute of Community-Based Research (AICBR) (lead community-based researcher – *community engagement*)
- Nelson Zabel, University of Waterloo (graduate student research assistant)
- Brenda Carson (local project coordinator)
- Ashley Alberto, Kluane First Nation (masters student researcher)
- Tookie Mercredi (photographer/videographer/editor)
- Jared Dulac, Kluane First Nation (youth researcher and photo/video editor)
- Nadaya Johnson, Kluane First Nation (youth researcher and photographer/videographer trainee)
- Lenita Alatini, Kluane First Nation (youth researcher)
- Skyler Van Lieshout, Kluane First Nation (youth researcher)
- Monica Johnson, Kluane First Nation (youth researcher)
- Molly Pratt, AICBR (qualitative data analysis and report writing)
- Kate Ballegooyen, Grace Southwick and Chaofeng Zang, Kluane First Nation; Pauly Root, Dän Keyi Renewable Resources Council (DKRRC); and Katelyn Friendship and Jody Butler Walker, AICBR (project management)

## THE RESEARCH

*The following list of the activities were conducted between  
May 2015 – March 2016:*



### Fish Sampling

Alongside KFN fishers and scientists from the University of Waterloo, the youth researchers learned how to harvest fish respectfully (including setting, checking and taking fish out of gill nets and preparing fish for health analysis as well as for community consumption).

In July and August 2015 during the annual Harvest Camp, Nelson Zabel, Heidi Swanson, their field assistants, and KFN citizens, sampled fish in Kluane Lake.

In total, 255 samples were collected from 7 species of fish: 122 Lake Trout, 76 Lake Whitefish, 31 Round Whitefish, 15 Longnose Sucker, 6 Arctic Grayling, 3 Northern Pike, and 2 Slimy Sculpin samples.







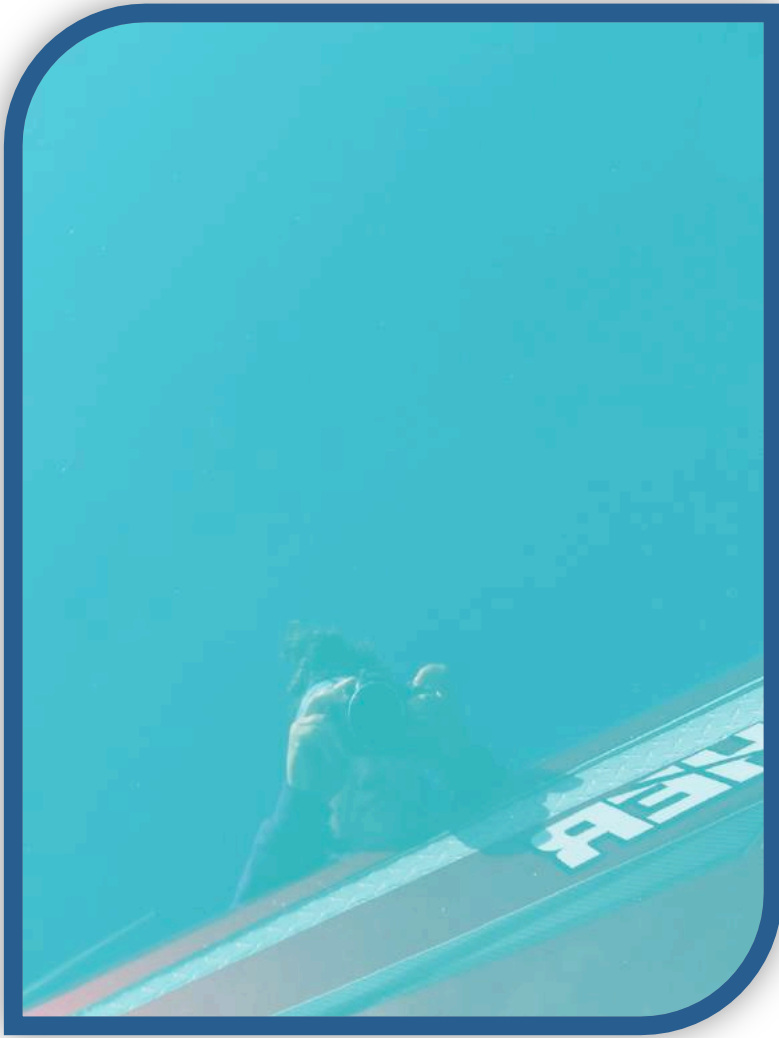
Gill nets were used to catch most fish; however, samples were also collected during the Kluane Lake Fishing Derby, using a rod & reel.



All fish were processed for sampling and some were filleted for Elders and community lunches.







## Photography

Throughout the summer, the youth were each given a camera after receiving some “*Capturing Good Shots Training*” from Tookie Mercredi. The youth collected many photos of all the events and activities throughout the project.

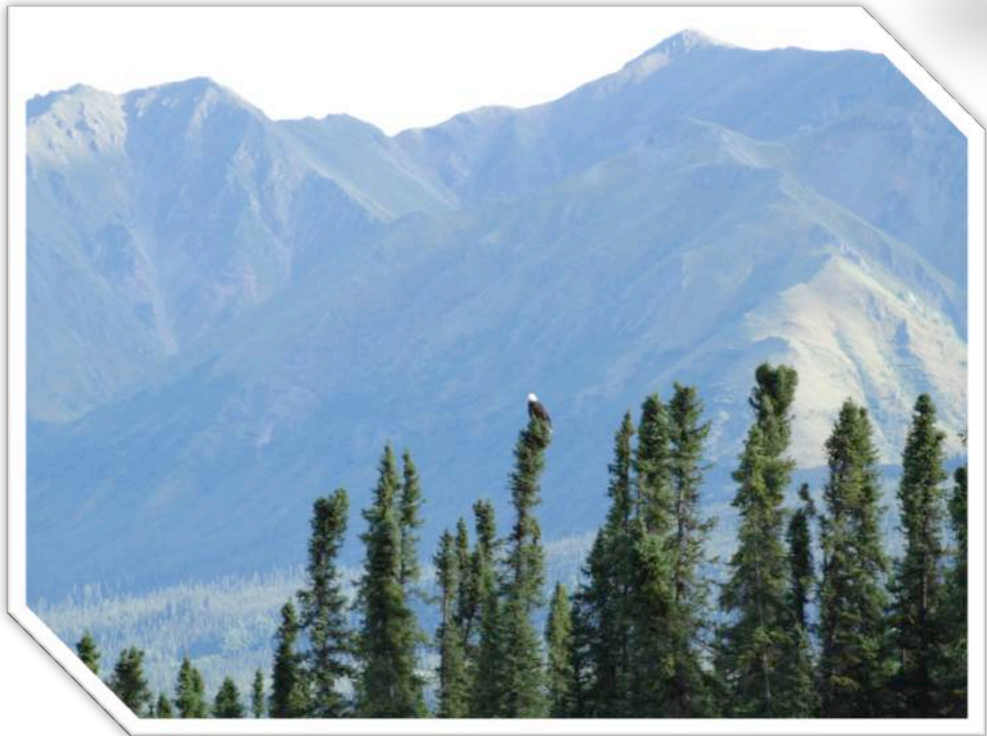
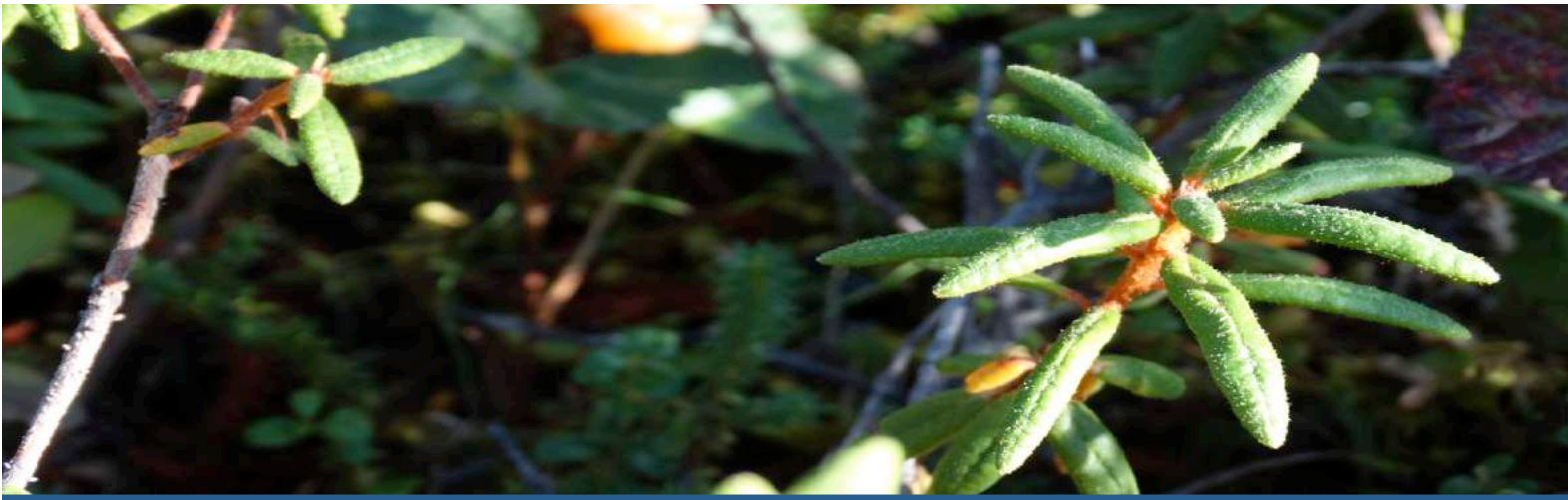
In February, professional photographer Mark Kelly led a Photovoice project at Kluane Lake School with the students. Five students aged 5-8 years old, two teachers and the principal participated. The students were asked to photograph things that can be eaten from the land and components of a healthy lifestyle. A slideshow of the images was prepared and shared at a community event in April 2016 and many are included in this report.



# Photovoice







**PHOTOVOICE**  
**TOPICS:**

*Components of a  
healthy lifestyle*

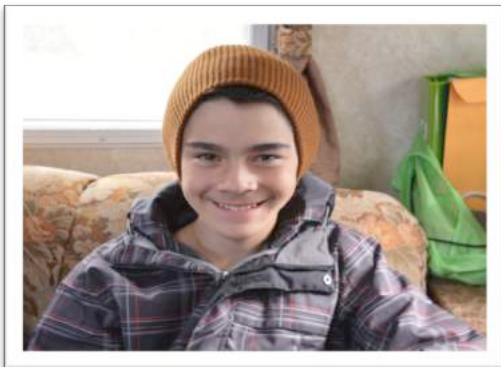
*Things that can be  
eaten from the land*



## Youth Training

Youth were trained on a variety of subjects including:

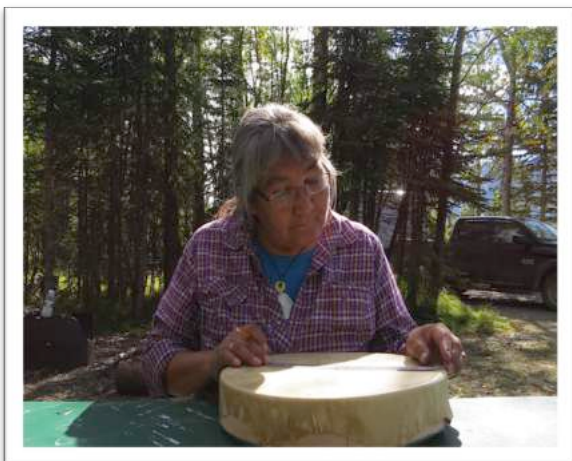
- **climate change**, from an international to local perspective, including its effects on our homelands, our people and our food species, particularly salmon, lake fish, caribou, moose, and plants;
- **understanding of long-range contaminants** including persistent organic pollutants, mercury and others; including their pathways to the Arctic, bioaccumulation and potential effects on animal and fish species;
- **conducting community-based research**, based on the 4 R's: *respect, reconciliation, reciprocity* and *relevance*;
- **following traditional First Nation protocols** such as: how to approach an Elder or community member about the project; self-introduction in a First Nations way; clear communications (keeping it simple and using the community way of communication); ask and approach using respect, patience and quietness; and gift giving;
- **basic communication skills** to "seek and understand"; how to listen and read body language; appropriate questioning using the 5 W's & H (*who, what, where, why, when* and *how*); paraphrasing; empathize and record; and
- **respectful personal conduct** within our community, including no substance use during the project.





## Harvest Camp

Every August, the KFN government organizes a cultural camp in a traditional area where families and others, including non-community members, are welcomed. The camp is a time to focus on harvesting and preparing local food species for the coming winter months, to collect plants for medicines and to reconnect with our culture. Recently, due to species decline of salmon and berries, we have chosen to bring in salmon and fruit from British Columbia so that we can keep the traditional practice going of drying, canning and preserving good food. We also dry and preserve meat, and make sausages from either bison or moose.



Families do many Southern Tutchone & Tlingit cultural activities together at Harvest Camp, such as beading, carving, teaching by living, sharing, and educating our youth. Everyone on the project team contributed to the activities at Harvest Camp, such as fish cutting, drying and jarring, dry-meat making, sausage making, etc. Harvest Camp is a time when families and others can be together and have fun, visiting and telling stories. It is an unforgettable experience for our youth.







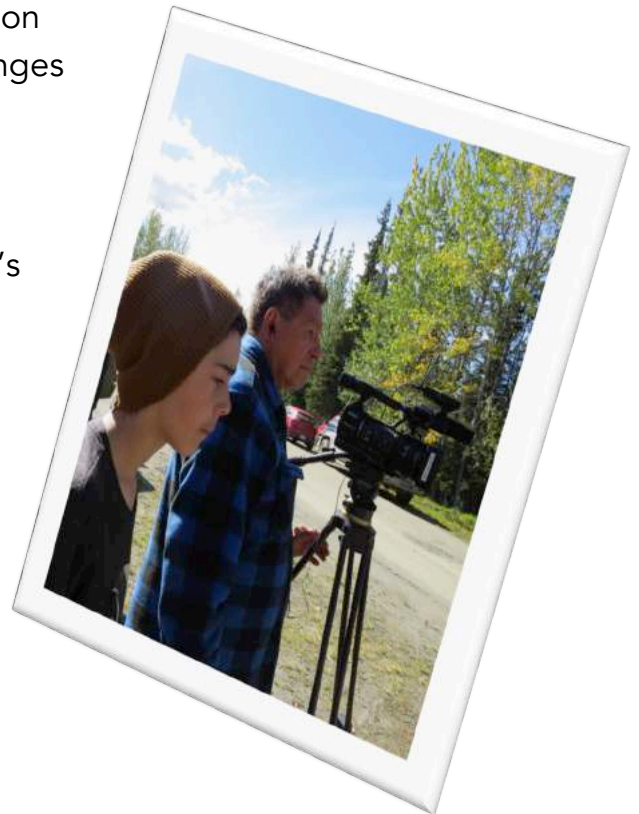


## Interviews

Nine interviews were completed at Harvest Camp. The youth researchers conducted the interviews alongside Norma Kassi, lead community-based research from AICBR. The people interviewed were chosen because of their knowledge and expertise of Kluane Lake fish and fisheries. The questions they were asked focused on local fisheries knowledge and perceptions of changes in health, attributes and quality of fish.

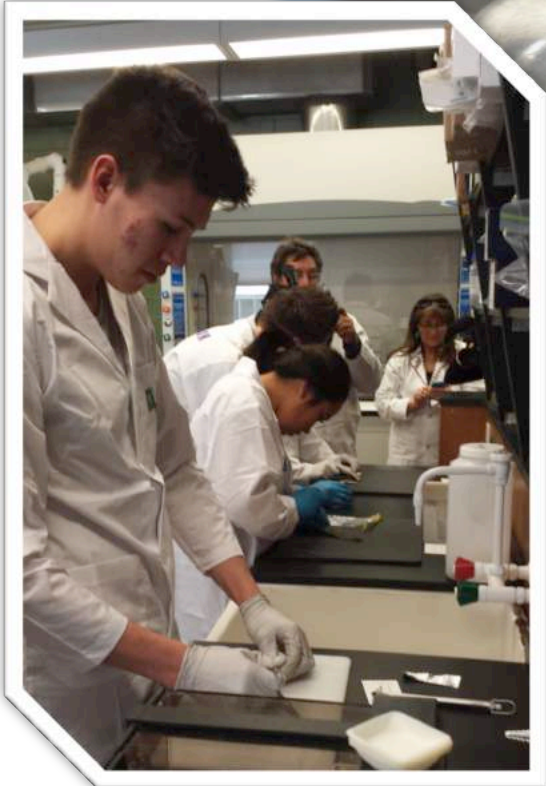
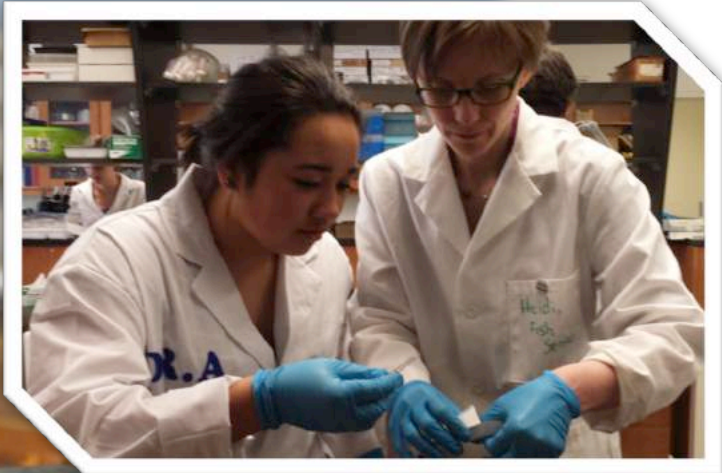
## Film-Making

All activities during the project contribute to KFN's film "**Remembering Our Past, Nourishing Our Future**"; the film tells a story about how climate change and the history of food insecurity has affected Kluane First Nations people and the land we call home. It discusses some of the activities that keep our culture and traditional values, practices and knowledge alive; ultimately, it is a story of resilience of our people in the wake of a changing world.



# Fish Testing

From March 28<sup>th</sup> to April 1<sup>st</sup>, three youth researchers had the opportunity to go to the University of Waterloo and University of Western to experience firsthand how to do contaminant and nutrient analysis in a research lab. They were able to analyze fish from their own lake. This was an invaluable experience for the youth and researchers alike.





## INTERVIEW DISCUSSIONS

The purpose of the interviews was to gain a better understanding about the following topics:

- Local and traditional knowledge about the health of Kluane Lake and its fish
- Changes in Kluane Lake and its fish
- Perceptions of contaminants in traditional foods
- The importance of traditional foods for subsistence



Before starting each interview, Norma provided the following background information so that those people interviewed understood what to expect.

*“Last year we did a food security strategy with KFN and some people noted that there were a lot of changes in the fish; they said, “we want to know what’s in our fish in the lake.” They wanted to know whether the fish were safe to eat. So, KFN partnered with the Arctic Institute of Community-Based Research and University of Waterloo. We put in proposals and we got some money to check the fish in Kluane Lake. We are going to check for contaminant levels such as mercury and pollutants that come from all over — from around the world. From the Kluane First Nations’ people, we want to know what kind of changes you see in the fish, changes in texture, the taste, and anything else like that.”*

The list of questions asked in these interviews can be found in **Appendix 3**.

## WHAT DID PEOPLE SAY?

Youth interviewed Elders and local fishers about traditional and local knowledge related to changes in fish quality, quantity, size, health, and perceptions of contaminants in traditional foods. The following is what people had to say.



## **IMPORTANCE OF FISH**

FISH ARE VERY IMPORTANT FOR KLUANE FIRST NATIONS PEOPLE. FISHING IS A TRADITIONAL PRACTICE AND OUR PEOPLE HAVE RELIED ON FISH AS A MAIN SOURCE OF PROTEIN FOR GENERATIONS. IT IS HEALTHY FOR OUR BODY, BRAIN AND SOUL AND PROTECTS AGAINST DIABETES, AMONG OTHER CHRONIC DISEASES (4). TODAY, THE PRACTICE OF FISHING IS STILL VERY MUCH ALIVE AND FISH REMAINS AN IMPORTANT PART OF OUR DIETS.

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Many of our people's favourite fish to eat are trout, whitefish and grayling. Most people prefer fish that is firm and some people's preferences have changed over time due to changing taste and texture of certain fish.

*"We need to do whatever we can so that we can live for the rest of our lives and our grandchildren's lives on that lake and make it sustainable for us. It's very important. It's the largest lake in the Yukon; we have to protect it."*

*"That's how come there's so — such low diabetes here — is because of people eating so much fish. It deters diabetes. Fish really helps."*



## CHANGES IN THE FISH

MANY PEOPLE HAVE NOTICED CHANGES IN THE FISH. WHERE PEOPLE ARE FISHING THESE DAYS AND THE TYPES OF FISH AVAILABLE ARE ALSO DIFFERENT THAN THEY WERE IN THE PAST. MANY OF THESE DIFFERENCES ARE RELATED TO CLIMATE CHANGE AND PEOPLE ARE GETTING MORE AND MORE CONCERNED WITH CONTAMINATION AND POLLUTION OF KLUANE LAKE AND ITS FISH.



### ***Climate Change***

Many Kluane First Nation people are concerned about the changing climate as well as health and attributes of fish. The major concerns surrounding climate change are species decline, food security issues, warmer water temperatures, higher water levels, and changing weather patterns. Some of the most common changes that have been noticed as well as some proposed solutions are included below.

#### **CONCERNS...**

- **Water is murkier** – Because of melting glaciers bringing in more silt to streams, rivers and lakes, the water is murkier, thus making it harder for fish to spawn. Fish seem to be spawning in different areas than they used to.
- **Water is warmer** – Fish are used to cold water and warm water is suspected to be causing texture, colour and taste changes in our fish.
- **The lake is freezing later and thawing earlier** making it difficult and unsafe to get to fishing spots that were once accessible.



*“Well, it’s really noticeable in the last 10 years — more so than I’ve ever noticed. With the warm winters we’re having, rain at Christmas, not enough snow — things like that. It’s totally different. You just don’t know what to expect anymore. Sometimes you can’t make it out across the lake at all because the ice just hasn’t frozen — or it’s not thick enough, I should say — to safely travel it and it’s coming off earlier. Yeah, big changes. Big, big changes.”*

*“Yeah, it’s the silt as well. It’s melting the glacier and probably plugging up a lot of their [fish] spawning beds. All the warm weather is melting the glaciers that much faster. It’s going to happen eventually anyways, but it’s probably a lot sooner than what it has been. Like, the lake used to be on the other side of the highway at the Slims Bridge and then 30 years it’s already past the highway and started covering that island that’s there. It’s a lot of silt. And it’s right past that little island that’s 120 feet deep. So that much silt comes in to fill that in.”*

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**CLIMATE CHANGE IMPACTS ON KFN TERRITORY IN THE NEWS:**

RECENT UPDATES COMING OUT OF KLUANE LAKE RESEARCH STATION SAY THAT SLIMS RIVER IS NEARLY DRIED UP. MUCH OF WHAT REMAINS IN THE SLIMS VALLEY HAS TURNED TO DUST AS THE KASKAWULSH GLACIER RECEEDS AND MELT WATER DIVERTS AWAY FROM THE SLIMS RIVER. (6)



## **SOLUTIONS...**

We need to continue to educate about the importance of preserving the environment and protecting our fisheries as well as pass down the traditional knowledge from our Elders to our youth. Education is important. We also need to preserve our culture and keep our traditional practices of fishing and going out on the land. The connection to the land is not only important for environmental protection but for spiritual, mental, emotional and physical health and wellness. We need to follow our food security strategies and continue to monitor fish populations and fish health in the wake of climate change.



*"I just want us to respect — you know, I want everybody to learn to respect the land, you know. Don't leave your garbage; don't dig up the earth, for stuff that's not yours because it's killing the people up here and our animals. And when the animals go, our people going to go with it."*

## ***Contaminants and Pollution***

Contamination and pollution of the waterways is a concern for some but is not something that everyone knows a lot about. One of the purposes of this project was to test for pollutants and contamination in our fish and the water from Kluane Lake; youth also received some teaching in the aspects related to contamination and pollution and why it is a concern in the North. We are lucky that the results from our testing show that **contamination in Kluane Lake fish is low**. The more we understand about contamination and pollution, the more we may know the effects these factors may have on our fish and on our health.



### **CONCERNS...**

Contamination and pollution can affect all living things. The main sources of contaminants and pollution that we know about in our community are believed to be from **boat traffic, highway construction, and from oil and gas projects** both locally and in the South. Everything is connected. The air we breathe gets carried here from other places. What goes on in other parts of the world, the air pollution especially, can collect in the North.

***"I know [contaminants and pollution are] killing the environment and in the end, it's going to kill us because we need the environment; we need every little bumblebee to survive and we don't have no more bumblebees."***



Despite the big concerns to do with contamination and pollution, there are ways that we can adapt. We have the knowledge and can come up with our own solutions to the problems that affect us.

## **SOLUTIONS...**

The ways we can adapt to these concerns are by reconnecting to the land, monitoring fish health and studying contaminants. We need to protect the environment so that we can preserve our culture, wellbeing and the health of future generations.

*“I think this is the initial study that you guys are doing to find out how contaminated it is or if it is contaminated and after that, if we continue to monitor it and make sure that it’s healthy and if it’s not, then we need to do whatever we can to fix that so that we can live for the rest of our lives and our grandchildren’s lives on that lake and make it sustainable for us. It’s very important. It’s the largest lake in the Yukon; we have to protect it.”*



## ***Access to fishing spots***

With the changing climate and lifestyle factors, access to the traditional fishing spots we used to go to has changed quite a bit. Our ways to travel have changed, there is more use of technology and with the changing temperatures, fish are changing their spawning behaviours; changing ice quality also makes it unsafe to get to common fishing areas that we used to access.

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## **HOW DID WE ACCESS FISH IN THE PAST AND WHAT ARE WE DOING NOW?**

### **THEN...**

In the past, we used to rely heavily on dog sleds to travel across the lake and bring back our large catch.

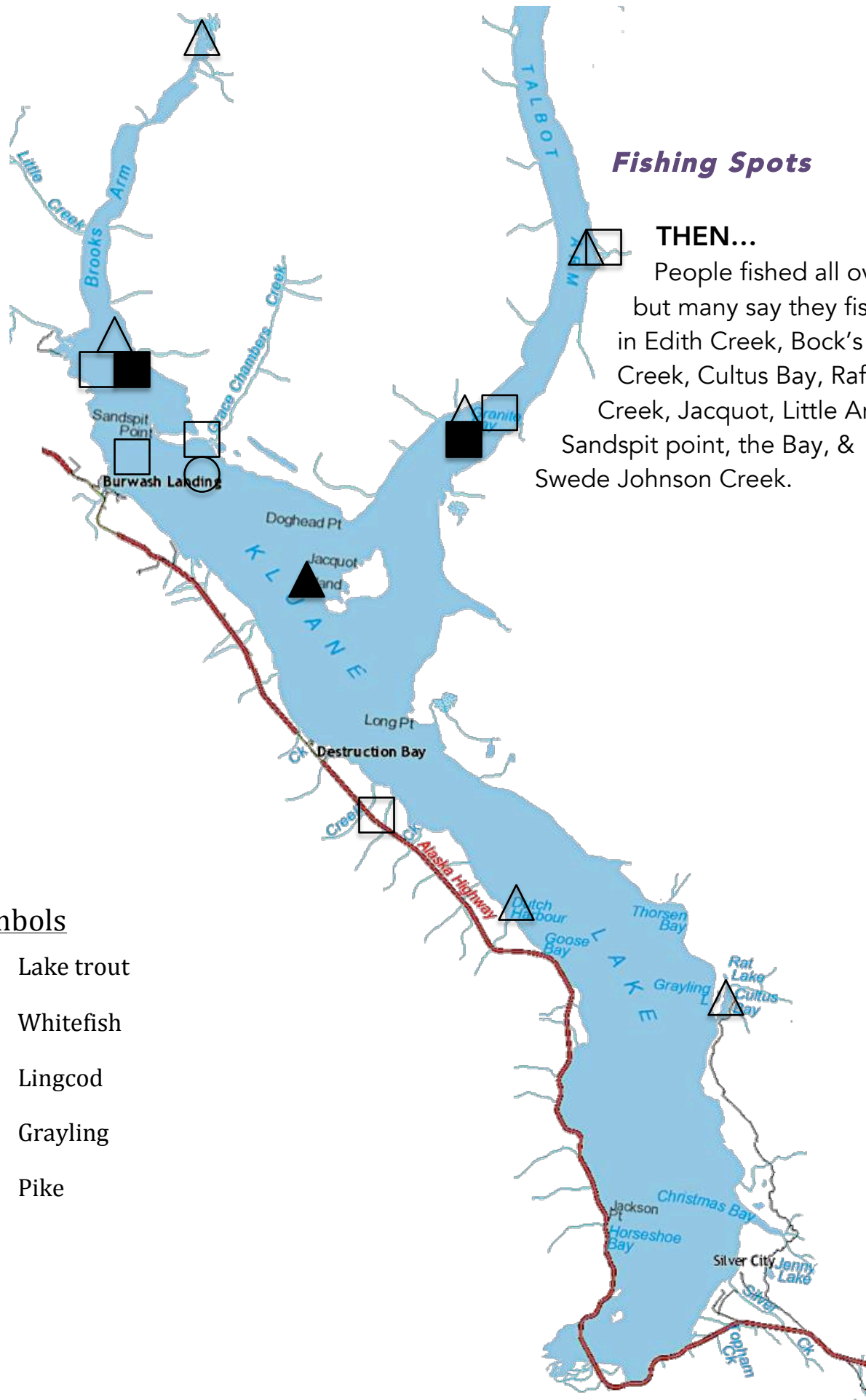
*“Back then, they were —when we used to go across the lake in dog teams...it’s usually it’s frozen by — in the middle of November...Well, there was no skidoos or — you know, it was all dog team bound...”*

### **NOW...**

Now people have more access to new technology (such as fish finders) and rely more on skidoos and motorized boats to access fishing spots. In this way it makes it easier to access fish. In other ways however, there are many spots that we used to fish that are no longer safely accessible due to changing environment and thin ice.

*“Technology really helps a lot nowadays.”*





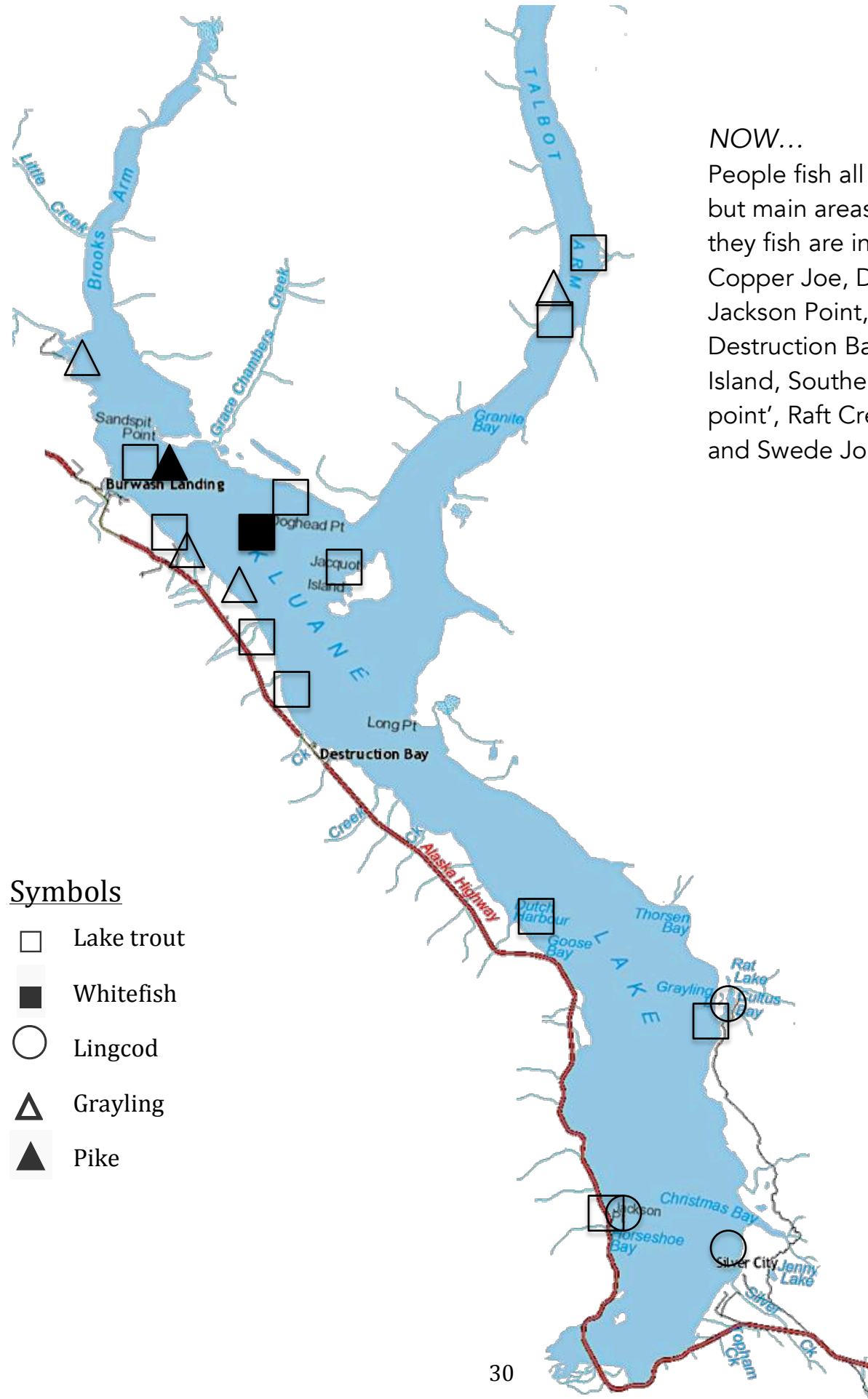
### Fishing Spots

#### THEN...

People fished all over but many say they fished in Edith Creek, Bock's Creek, Cultus Bay, Raft Creek, Jacquot, Little Arm, Sandspit point, the Bay, & Swede Johnson Creek.

### Symbols

- Lake trout
- Whitefish
- Lingcod
- △ Grayling
- ▲ Pike



Symbols

- Lake trout
- Whitefish
- Lingcod
- △ Grayling
- ▲ Pike

NOW...  
 People fish all over the lake, but main areas people say they fish are in Edith Creek, Copper Joe, Dutch Harbour, Jackson Point, between Destruction Bay and the Island, Southend, up to 'the point', Raft Creek, Jacquot, and Swede Johnson Creek.



### ***Fish Quality***

Many Kluane First Nations people have noticed changes in colour, health, size, taste, and texture of fish over the recent years. Below are some of the main changes that our people have described.

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## **WHAT ARE SOME OF THE WAYS FISH QUALITY HAS CHANGED SINCE THE PAST?**

**Dull colour** – In the past, fish meat used to be bright in colour but now many people notice that the meat is dull coloured. Trout, for example used to be bright pink but now it is beige.

*“And the colors are so beige. They lost so much color...”*

**More parasites** – There are more parasites in the fish than there used to be and trout and whitefish seem to be the most affected.

*“Like, I love my fish. I lived off of fish most of my life — and moose meat. And for me to go to the store and buy fish has made me cry. But ever since I opened that one stomach of that fish was just crawling — I’m not kidding you. I was so freaked out.”*

**Smaller size** – The fish seem smaller, less developed and leaner than they once were; because they have less fat, you have to be careful not to overcook them.



*“Even on the salmon in the Yukon River, I notice each year that the salmon are getting smaller. They don’t seem like they’re fully developed and when they’re small like that, holy, just throw them back in because you know, they just seem like they just went out and got a year old and come back, eh, and they don’t come back. We don’t get those big ones we used to get, like 15 years ago. Holy, they were huge!”*

Less taste – Fish tastes different than it once did; because the fish are not as oily as they once were, they taste drier and less ‘fishy’. Many of our people have noticed that the fish, especially whitefish, has lost much of its good flavour.

*“It’s dry. Like, it’s flaky. It’s not like...it kind of tastes like fish but not really; that’s what we miss. And I notice, like, that real strong fish taste you always find in whitefish and trout and lingcod and suckers. You don’t get that real strong fish taste anymore. I notice that.”*

Softer texture – Many people have noticed a change in the flesh of the fish, finding that it is too soft where it used to be much firmer in the past; some believe this is from warming water temperatures.

-----**PARASITES IN FISH ARE STILL SAFE TO EAT**-----

DR. HEIDI SWANSON, SCIENTIST FROM THE UNIVERSITY OF WATERLOO SAYS “PARASITES ARE A NATURAL AND IMPORTANT PART OF THE LAKE ECOSYSTEM, EVEN THOUGH AS HUMANS WE OFTEN DON’T WANT TO SEE THEM IN OUR FISH. IN SOME SYSTEMS, THE NUMBER OF DIFFERENT PARASITES TELLS US HOW HEALTHY THE ECOSYSTEM IS - THE MORE PARASITES THE BETTER. IN KLUANE LAKE TROUT AND WHITEFISH WE FOUND A PARTICULAR PARASITE THAT IS COMMON IN NORTHERN LAKES AND HAS BEEN IDENTIFIED IN THE LAKE IN PREVIOUS YEARS BY YUKON ENVIRONMENT AND BY LOCAL FISHERS. FISH GET THE PARASITE BY EATING TINY RED ANIMALS CALLED COPEPODS. IN 2015, THERE WERE A LOT OF COPEPODS IN THE LAKE. LIKE ANY OTHER ANIMAL, PARASITES GO THROUGH BOOM AND BUST CYCLES. THEY ARE **NOT HARMFUL** TO HUMANS OR DOGS, **SO THE FISH CAN BE EATEN SAFELY WHEN COOKED**. COOKING THE FISH KILLS THE LARVAE OF THE PARASITE.”



### ***Amount of fish***

Fish availability was one of the biggest changes that our people have noticed over time. We used to be able to catch a lot more fish than we do now. The following section describes the fish populations in the past and present.



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## **ARE THERE LESS FISH NOW THAN THERE WERE IN THE PAST?**

### **THEN...**

In the past people used to catch a lot more fish. Many remember having so much fish that there would be big piles of fish for each family.

*“Because a long time ago, when the whitefish ran in November — We used to set the net way across the lake and you used to get, like 300s in one pull. We used to have piles like this on that lake...And just leave it there and then whenever you needed fish, you go over and get it. Bring back a whole sled load for dog feed. ”*

### **NOW...**

Fishing populations have declined and in areas where certain fish were plentiful, there are fewer now.

*“Today we set net, it’d be lucky we get 10, 12 fish. And depending where you set it too, like we used — we always used to set on Cultus Bay where you used to always get lots and lots of fish and now we set there, we get maybe 40 fish if we’re lucky; and that’s leaving the net out all night. ”*





## ***Fish Type***

The following is a list of the types of fish caught in the past and if/how the specific fish populations have changed in the present. In many cases, the difference in the amount of fish caught between past and present wasn't very much but it was most noticeable in trout and whitefish.

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### **HOW HAVE THE DIFFERENT TYPES OF FISH CHANGED SINCE THE PAST?**

- ↓ **Whitefish** – There seems to be less whitefish now than there used to be in the past.
- ↓ **Trout** – People notice less trout now than there used to be.
- + **Pike** – Pike still seem to be plentiful.
- ↓ **Lingcod** – Some say there are less lingcod now as well.
- ↓ **Inconnu** – There also may be less inconnu now than there used to be in the past.
- ↑ **Grayling** – Some think that there are more grayling being caught now in the lake than there was before.





## TRADITIONAL FISHERIES PRACTICES

THIS SECTION CONTAINS INFORMATION ON HOW PEOPLE USED TO FISH, COMMON METHODS OF PREPARING AND PRESERVING FISH, THE TRADITIONAL PRACTICE OF SHARING, AND WHO FISHES. IT ALSO INCLUDES HOW THESE PRACTICES MAY HAVE CHANGED FROM THE PAST TO THE PRESENT.

### ***Fishing Practices***

The ways our people fish now have changed slightly and there are more diverse ways of fishing now than were used in the past. However, the tradition and will to fish is still a strong part of our culture. A big change is that people may fish for different reasons now. In the past, we relied heavily on fish as a main source of protein in our diets but now fishing for sport has become more popular and many outside visitors come to Kluane Lake to fish. The fishing derby is a popular annual event for our people. For some among us, fish still make up an important part of our diet but a lot of us don't fish as much as our ancestors did because lifestyles have changed and we have **less time to fish**, there are **fewer fish in the lake**, many **dislike the new taste and texture of the fish**, are **worried about parasites**, or now **rely more on store-bought protein**.

The following list shows the different ways in which people fished in the past and how they fish now.

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*"Because times have changed, you know. At that time there was no hamburger... And you had to either eat moose meat or fish or, you know, like gophers or rabbits. So, you know, that time, we'd have to go out in the wintertime and set fish net underneath the ice and we would get the fish and bring them in and save them in the cache for the dogs and to eat."*



## HOW HAVE FISHING PRACTICES CHANGED OVER TIME?

### THEN...

- **Ice fishing** – We used to fish all winter long when the ice was thick around November.
- **Net fishing** – Our people used to cross the lake and set nets mostly. Sometimes we had troubles pulling our nets out of the water because they were so full of fish. We net fished a lot in the late spring and winter.

### NOW...

- **Ice fishing** – Our people still fish throughout the winter (*cast and net*) but have to wait for adequate freeze up, which happens much later than it used to (sometimes not until January).
- **Net fishing** – Fishing by net is the most popular among fishers in Kluane (summer and winter).
- **Casting** – Casting is one of the other most popular ways to fish in Kluane; some cast offshore, others cast over a boat in the summer and under the ice in the winter.
- **Trolling** – trolling is also a common way we fish now.



### ***When to Fish?***

People of Kluane still fish year-round and the types of fish caught at the different times of year have not changed much; the main changes are in timing, winter and spring fishing are most affected because of changing ice patterns. In mid-November, we used to catch a lot more whitefish when they were spawning across the lake, but now, because the ice sets in much later, the whitefish are no longer there at that time. The following list describes the time of year and the types of fish most commonly caught in the past and present.



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### **WHICH FISH ARE/WERE CAUGHT DURING THE DIFFERENT SEASONS?**

#### ***THEN...***

- Spring – grayling and pike
- Summer - trout
- Fall - trout
- Winter – trout, pike, whitefish, and lingcod

#### ***NOW...***

- Spring – trout and grayling
- Summer – trout
- Fall - trout
- Winter – trout, pike, whitefish, and lingcod







## ***Fish Preparation and Preservation***

Fish preparation and preservation methods have changed slightly since the past due to changing attributes of the fish, declining fish availability and changing preferences. The following list describes the common methods of preparing and preserving fish for our people.

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### **HOW DO WE LIKE TO EAT AND PRESERVE OUR FISH?**

#### ***HOW DO WE LIKE TO EAT OUR FISH?***

- **Boiled/Fried** – Boiling and frying are the most common ways we cook our fish; these days, fish cooks faster than it used to because it is less oily. Be careful when you're cooking because if left too long it will become dry and flaky.
- **Raw** – People used to eat raw fish eggs as a delicacy; now, we have to be careful because of parasites and need to cook the fish well. It is still safe to eat fish with parasites; it doesn't harm us, we just can't eat it raw.

*“Well, probably when I was a kid, we always catch thousands of fish a year. Every family who had dog teams would catch piles of fish and you know, we used to bring them back in sleighs with dog team and pile them in a cache — big piles, like you know, four or five feet high — and then our grandma just chip them out of there and cook them up for the dogs and then whatever — for us to eat — you know, boil fish and fried fish — whatever, eh?”*

## **HOW DO WE PRESERVE OUR FISH?**

- **Drying** – A common way we used to dry fish is through smoking; many people still use this method today.
- **Canning/Jarring** – We used to can and jar our fish to preserve it for long winter months. Some people still do this today; we need to pass this knowledge on to our young to keep the practice alive. Kids need to learn to fend for themselves so they can pass on the knowledge to their kids.
- **Cache** – Our people used to have large caches to store fish; sometimes there were so many fish that our caches would be piled high and stocked full throughout the winter.
- **Freezing** – We still freeze our fish throughout the winter; unfortunately now, due to leaner and mushier fish texture, you have to be careful to freeze properly to avoid freezer burn.

*“Back then, we were able to, like, you know, nothing got freezer-burnt back then. Everything stayed. You threw it in the cache and no matter, three months later; you pull it out still frozen. Never had that freezer burn. It was just like taking fresh fish out and frying it — be months later...”*



## **Sharing**

Sharing is a traditional practice among Kluane people. Due to declining fish populations and changing lifestyles the practice of sharing has changed. As we face the challenges of climate change and an uncertain future we must continue to revive the practice of sharing so that we can continue to look after each other and our future generations as well as preserve our culture. This winter for example, we organized ice fishing out on the lake and the fish was shared with the whole community.

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### **HOW DID WE SHARE IN THE PAST AND WHAT ARE WAYS WE SHARE NOW?**

*The sharing — is important for us... They're not exactly traditional lives anymore but this gives us an opportunity to share some of those things and to pass some skills along because, you know, not very many young people know how to can fish, for example, or what kind of wood to use to smoke fish or how to make dry meat. All these little things that we take for granted because our grandmas would do them for us — you need to learn how to do so that you — when you're a grandma, you can actually do that for your own grandkids. "*

#### **THEN...**

In the past, nobody would go hungry in our community; we looked after each other, especially the Elders, single mothers and children. The fish were plentiful then. We could even share our catch with the dogs and much of the fish went towards community feasts. Elders would pass down knowledge to the young. Everyone was out learning and thriving on the land.

#### **NOW...**

Now, with less fish and fishers, there is less to share, but the practice is still considered important. If we have extra fish, we usually share with our families, Elders and anyone who wants fish. We also do community feasts, mostly during the holidays (7). We have many cultural camps to get youth on the land and to share traditional wisdom and land foods; local outfitters and harvesting families also share what they hunt, catch or gather with others (7).





Sharing is about more than just sharing of food, it is about the sharing of our traditional knowledge and culture; all things related to hunting, fishing, berry picking, and gathering are important ways we share. Passing down this traditional knowledge is vital as it is how we teach our future generations to survive (7). A lot of sharing goes on at Harvest Camp, Cultus Camp and Muskrat Camp. Sharing brings us together as a community. It strengthens our bonds and our connections to each other and to the land. A community food sharing component of this project expands on food sharing topics and is reported elsewhere. This was an initiative by the KFN government along with the Arctic Institute of Community-Based Research and a graduate student from the University of Ottawa.

***"I think a big part of our culture is to share...That's always the way it's been and I think to make it — to make things like this exclusive would defeat the purpose of our traditions. And it makes the experience richer, I think, you know, when you could share all of these things with each other."***

***"If you were a single mother, or an Elder that had nobody to provide for you, then you got more."***



### ***Who fishes?***

As mentioned, fishing is a traditional practice of our people. Things are changing and while not everyone can get out on the land now to fish, we know it is an important part of our health and wellbeing and so we are doing lots to try and preserve it. We need to teach our young to fish so that they can fend for themselves in the future.

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## **WHO DID THE FISHING THEN AND WHO FISHES NOW?**

### ***THEN...***

In the past, much of the community used to be involved in fishing, whether it was setting the nets or keeping the fires burning at camp. Kids learned from their grandparents and skills were passed on.

*“My Aunt Grace, my mom and them would all go across the lake. The women would stay across the lake, make their fire in the cabin over there, cook and run the fishnet in the morning. They’d stay there all day; we’d go to school as soon as we came back, we were across the lake, already loading and bringing it back with the men — us younger kids.”*

### ***NOW...***

Now, people have less time to fish than they used to and lifestyles and priorities are changing. It is less common to see young kids and youth involved in fishing than in the past but some families are trying hard to pass on the practice and often take their kids out on the lake. Initiatives like Harvest Camp, Cultus Camp and Muskrat Camp bring youth to the land to learn traditional knowledge around hunting and other food harvesting and preparation practices (6).



## FISH TESTING RESULTS

### ***KLUANE LAKE FISH ARE SAFE TO EAT!***

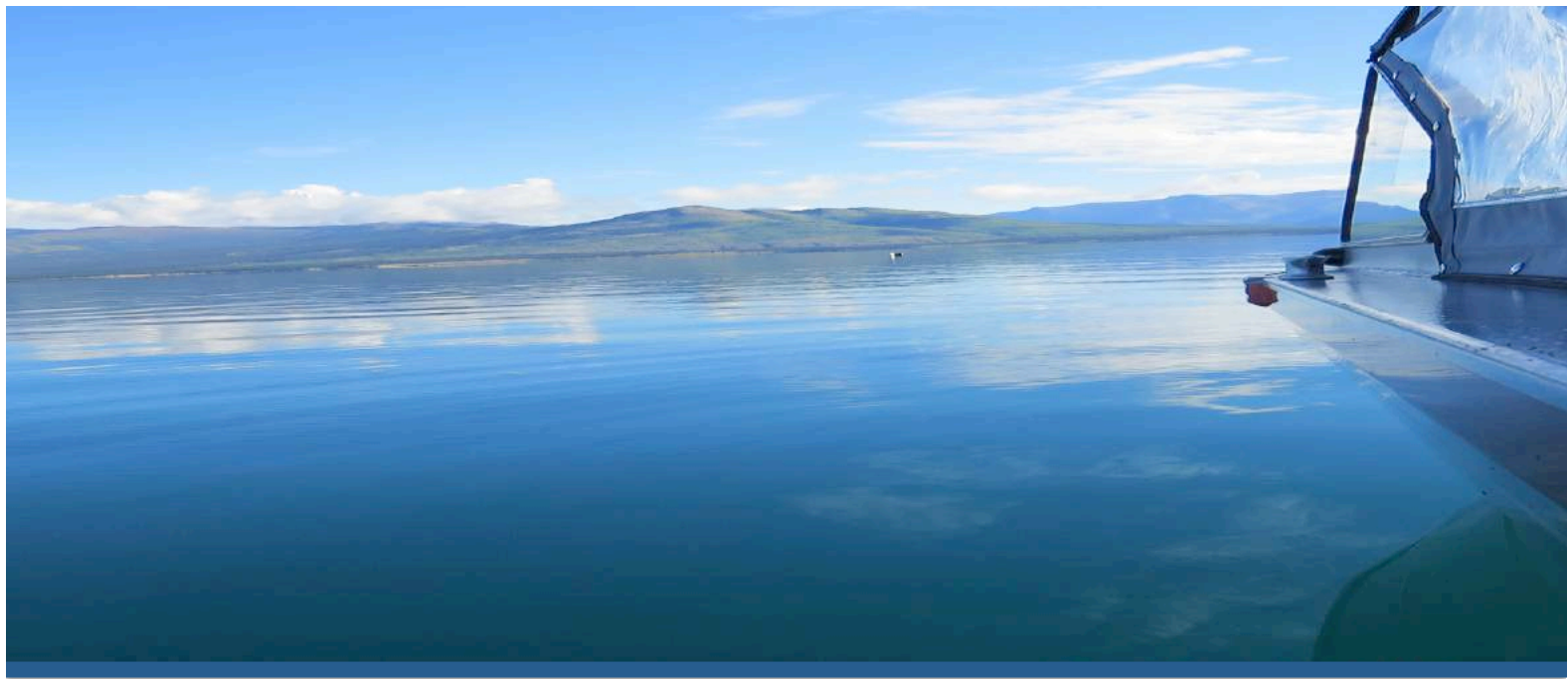
Lake Trout and Lake Whitefish were the two fish sampled for mercury and nutrient analysis. Mercury is a common contaminant that can be found in fish. What the scientists from University of Waterloo, along with the KFN youth researchers found was that trout and whitefish both have mercury concentrations lower than the subsistence guideline (0.2 ppm wet weight). This means that even if people are eating fish everyday at subsistence levels, the fish is still **safe to eat**. Concentrations of contaminants in Kluane fish are very low and their nutritional value is high. This research provides reassurances that our fish is healthy, good and safe for us to continue eating in our traditional ways.





## CONCLUSION

For many years, Kluane First Nation people have not been able to harvest any salmon from our waters; and other fish species have been declining, particularly trout and whitefish. Our people's practices and lifestyles are changing and fish behaviours and attributes are too. Many of us have noticed a change in texture, colour and taste of the fish we used to love and are worried about how climate change, contamination and pollution are affecting the land, water and health of plants, animals and humans. From this study, we were able to answer questions raised by community members and show positive results that our fish is healthy and safe to eat. **This positive news brings us, especially our young people, a renewed understanding and reinforcement of the importance of protection and long-term stewardship of the local fishery.** The samples that were collected now form an excellent foundational database on Kluane Lake fish, including historical information, health, changes in lake chemistry, contaminant and nutrient levels, and more. We must continue to monitor and research these things and try to limit the impacts of climate change so that we can ensure that fish remain healthy to eat for our future generations.



## RECOMMENDATIONS AND ACTIONS

The following list of recommendations and actions came out of the work that was done as part of this project.

- **Continue eating traditional foods** – It is important that KFN people continue consuming the fish from our lakes because it is healthy and forms an important part of our diet. The levels of contaminants in our lake are very low compared to other Northern lakes and based on the National guidelines, the fish from Kluane Lake is considered safe for us to consume, even for subsistence living.
- **Keep traditional practices and culture alive** – We also need to keep our traditional practices and culture/harvest camps going, especially through the winter months. These are what keep us strong, connected and able to survive on this land we love for generations to come.
- **Self-Government** – We need to continue to incorporate our culture and traditions into our self-governing system.





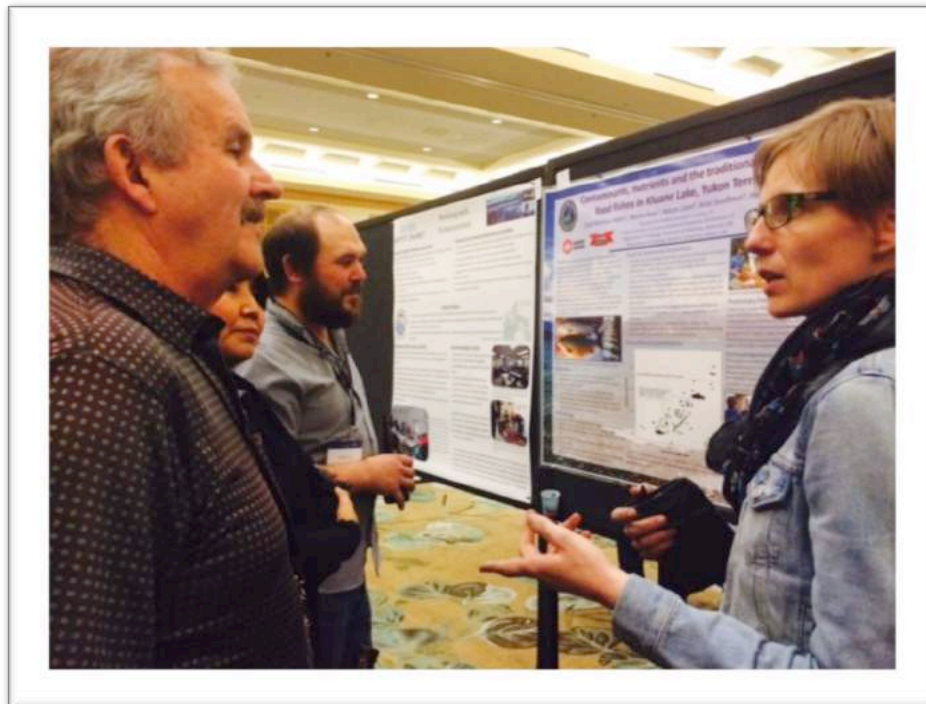
- **Start young** – We need to start young; we need to teach our kids in the home and at school about traditional culture, skills, knowledge, values, and practices. When kids grow up strong in their traditions they are better able to withstand challenges in life and are more resilient.
- **Encourage practice of sharing** – As we do at our community feasts, within our families and at harvest and culture camps, we must continue strengthening the culture of sharing. This is our traditional way. Even with fewer resources and food species to go around, we must find creative ways, informed by our values, to share with each other. We need to share knowledge, skills, food and time with each other in order to stay strong and rooted to the Kluane way.
- **Follow our food security strategy** – Food security is becoming an increasingly concerning issue, we developed our own food security strategy based on our own needs, concerns and strengths and therefore we must ensure that the recommendations are carried through. We need to keep the momentum going.
- **Celebrate our culture and honour our strengths** – There are a lot of things to celebrate in our community, the low diabetes rates, the rich culture, the beautiful lands that we get to call home; while we look at and are concerned with the challenges that we face with climate change, we must also honour the strength that is within all of us and our ability to overcome these challenges.



# APPENDICES

## Appendix 1. Materials and Communications Produced

- Poster presentations at KFN General Assembly and the Northern Contaminants Program Results Workshop
- Verbal report and poster session at the April 21<sup>st</sup> meeting in Burwash
- Radio interviews with Leonard Linklater (CBC Midday Cafe)
- Newspaper article of project and results on mercury
- Reports: midterm and final reports (including final contaminants results and final activity report for Yukon Fish & Wildlife Enhancement Trust)
- Handouts at poster sessions
- Film ("**Remembering Our Past, Nourishing Our Future**") and Photovoice project with Kluane Lake School



## Appendix 2. Timeline of Events

Month	Activity
May – June 2015	Recruitment of Local Coordinator
May – June 2015 (and throughout)	Meetings with Chief and Council and one-on-one communication with community members
June – July 2015	Recruitment and hiring of youth, Elder and fisher participants
July – Aug 2015	Harvest Camp – Collection of Lake Trout and Lake Whitefish, Western science sampling of fish, traditional preparation of fish for eating as part of educating all youth at Harvest camp and/or Cultus camp
July – Aug 2015	Collection of fish samples from Fishing Derby
Aug 3 – 10, 2015	TK Interviews (at Harvest Camp) and capturing events through photos
Aug 3 – 10, 2015	Knowledge sharing and capacity building related to how contaminants get into northern lakes and the risks and benefits of eating fish, as well as potential impacts from climate change on local food sources
Aug 2015 – Apr 2016	Youth preparation of projects and reporting to community; finalization of TK interview results and report write-ups
Feb 2016	Photovoice with Kluane Lake School and Mark Kelly
March & June 2016	Final reporting
March 2016	Net fishing under the ice
March 27 – 31, 2016	Youth at University of Waterloo and Western University perform fish sampling
April 21, 2016	Youth media training, youth interview on Midday Cafe with Leonard Linklater, and results presentation of mercury findings at DKRRC Open House
June 26, 2016	Annual General Assembly meeting presentation

## Appendix 3. Interview Questions

1. Within the past 20 years has there been changes in the number of fish caught from KL? How many fish do you remember catching back then compared to now?
2. Are there fish you used to catch that you don't anymore? Fish that used to be rare that you're catching more now?
3. What time of the year do you normally fish for the different species (trout, lingcod, grayling, & whitefish)?
4. Where are the best places in the lake to fish for trout, lingcod, whitefish & grayling?
5. Where are the best places in the lake to fish for trout, lingcod, whitefish & grayling? (map)
6. What is the best fish to eat from KL? What's your/your family's favourite fish?
7. How many people in your family/ that you fish for? How important are Kluane Lake fish to you and your family?
8. When you catch fish, what do you do with them? Do you keep them for your family? Share them with community (i.e. people in need/single mothers)? Give any to Elders?
9. Have you noticed any changes in colour of the skin or meat? Texture? Taste? Size?
10. Have you noticed any other change with the fish?
11. How do you think Climate Change is affecting the fish
12. What do you know about contaminants from pollution in the environment?



# Appendix 4. Map of Yukon River Watershed & Kluane Lake Region



Photo credit. Samara Van Lieshout

## Appendix 5. Bibliography

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