

# **Aklavik Inuvialuit Knowledge on Fishing for Dolly Varden from the Big Fish River**

Aklavik Hunters and Trappers Committee (AHTC), Ellen V. Lea, Peter Archie, Robert Archie, Dennis Arey, Joe Arey, Nellie Arey, Kiyo Campbell, Stephanie Charlie, Frank Dillon, Colin P. Gallagher, Annie B. Gordon, Annie C. Gordon, Danny C. Gordon, Danny Gordon Jr., Michelle Gruben, Megan Lennie, Kathleen G.A. Matari, Sam McLeod, Johnnie Storr, and William Storr



**Canada-Inuvialuit  
Fisheries Joint Management Committee  
Technical Report Series**

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## TABLE OF CONTENTS

ABSTRACT .....	1
INTRODUCTION .....	2
BACKGROUND .....	3
METHODS .....	6
INTERVIEW RESPONSES .....	7
Big Fish River Fish Hole.....	8
Mouth of Big Fish River.....	25
Other Locations along the Big Fish River .....	31
Other Char harvesting locations .....	32
SUMMARY .....	36
REFERENCES .....	39
KNOWLEDGE ACCESS, OWNERSHIP and CONTROL.....	41
ACKNOWLEDGEMENTS AND CONTRIBUTIONS.....	41
APPENDIX A: INTERVIEW FORM .....	42
APPENDIX B: PHOTOS FROM KNOWLEDGE VERIFICATION WORKSHOP, AKLAVIK HAMLET CHAMBERS, MARCH 3, 2023 .....	47

## **ABSTRACT**

Dolly Varden from the Big Fish River are an important subsistence and cultural species to Inuvialuit in the community of Aklavik, Inuvialuit Settlement Region, Northwest Territories. Fish from this population are harvested in subsistence fisheries from Yukon coastal waters, in the western Mackenzie River Delta near the mouth of the Big Fish River, and upriver at the spawning and overwintering grounds locally known as the 'fish holes'. Dolly Varden are governed through an adaptive co-management approach under the Dolly Varden Integrated Fisheries Management Plan. Management decisions are informed by Indigenous Knowledge and scientific research accomplished by co-management partners. Although recent harvest of the Big Fish River Dolly Varden population has been relatively low and carefully managed, co-management partners observed a decline in abundance in 2019 and 2020, prompting a request from the Aklavik Hunters and Trappers Committee to document Inuvialuit Knowledge of Dolly Varden from the Big Fish River and its important fishing areas. A total of fifteen interviews were conducted, verified, and summarized in this report. Knowledge Holders described Dolly Varden harvesting, population, and habitat at the fish holes, the mouth of the Big Fish River, and other fishing areas over time, as well as underscored the importance of this resource historically, at present day, and for future generations. Knowledge Holders described many environmental changes historically and recently, which have not only affected the Dolly Varden population, but some of which have negatively affected the accessibility and catchability of the species. Given the rate of environmental change being observed, and the importance of this species, continued collaborative research, monitoring, and documentation of Inuvialuit Knowledge of Dolly Varden from the Big Fish River and other river systems in the area remain an ongoing priority.

## INTRODUCTION

Dolly Varden (*Salvelinus malma*), locally known as char or iqalukpik (Inuvialuktun), from the Big Fish River are an importance subsistence and cultural resource for the community of Aklavik in the Inuvialuit Settlement Region (ISR) of the Northwest Territories. While Dolly Varden has multiple life history forms found in the western Arctic (Sawatzky and Reist 2014), subsistence harvesting primarily targets anadromous (sea run) char as they undertake their seasonal migrations along the coast for summer feeding and return up river in late-summer to their spawning and overwintering grounds. Harvest of the Big Fish River Dolly Varden population has occurred through coastal mixed-stock fisheries along the Yukon coast, in the west channels of the Mackenzie River Delta near the mouth of the Big Fish River, and further upriver at the spawning and overwintering grounds in Little Fish Creek, known locally as the 'fish holes' (Figure 1; Byers 1993, Papik *et al.* 2003, Byers *et al.* 2009, Byers *et al.* 2019, Lea *et al.* 2021).

Dolly Varden in the ISR are managed through an adaptive co-management approach, pursuant to the Inuvialuit Final Agreement (IFA; Indian and Northern Affairs Canada 2005), following the Integrated Fisheries Management Plan (IFMP; DFO 2010, DFO *et al.* 2019), and governed by the West Side Working Group (WSWG), which focuses on populations originating from the ISR (Ayles *et al.* 2007, Ayles *et al.* 2018, Lea *et al.* 2021). The WSWG is informed by Inuvialuit Knowledge and local observations shared by harvesters and other community members along with scientific knowledge gained from collaborative research and monitoring programs achieved through partnerships among the Aklavik Hunters and Trappers Committee (AHTC), Fisheries Joint Management Committee (FJMC) and the Department of Fisheries and Oceans (DFO), and based on priorities identified by the WSWG and community members.

Dolly Varden have been an important traditional food and cultural resource for Inuvialuit for generations, however given observations of population declines in the 1970s and 1980s, the Big Fish River and all of its tributaries were closed to all fishing in the *Northwest Territories Fishery Regulations* in 1987. Dolly Varden from the Big Fish River continued to be harvested in relatively low numbers from the summer coastal mixed-stock fishery (e.g., estimate of <50 fish annually 2011–2014; Lea *et al.* 2021). Based on annual mark-recapture sampling at the fish holes during fall, the population between 2009 and 2014 was relatively stable though at a lower abundance than historical numbers and even showed growth in 2015–2017 (Gallagher *et al.* 2011, DFO 2013, Gallagher *et al.* 2013, DFO unpublished). While harvest of char from the Big Fish River has been minimal since the closure, long-term observations of declines are likely due in part to habitat changes within the river, including earthquake activity (Sandstrom and Harwood 2002).

In response to ongoing requests for a small cultural harvest of Big Fish River Dolly Varden from inland waters from the community of Aklavik, regulatory changes were made beginning in 2012 to allow for fishing at the mouth during summer, and an Aboriginal Communal Fishing Licence (ACFL) was issued to the AHTC each fall starting in 2014 for harvest at the fish holes (Lea *et al.* 2021). Total harvest of Dolly Varden from the Big Fish River has continued to be monitored and managed, through harvest records, biological sampling, and genetic mixed-stock analyses, with levels remaining highly conservative (Lea *et al.* 2021, DFO unpublished).

Despite careful management and monitoring and positive signs in population indicators, co-management partners observed a significant decline in the Big Fish River Dolly Varden population in 2019 and 2020. Although char fishing was more challenging on the coast and in the Delta in 2020, Inuvialuit observations of fewer char at the fish holes first during the fall harvest in October 2019, and subsequently in September 2020 during the fall tagging program, raised major community concerns that the Big Fish River population had declined. Consequently, the AHTC identified the need for the documentation of additional Inuvialuit Knowledge to better understand historical and recent trends with the fishery and char population, environmental changes which could be driving these changes, and highlight the importance of these fishing areas to the community. In response, co-management partners worked collaboratively to conduct interviews documenting Inuvialuit Knowledge and local observations on Dolly Varden from the Big Fish River and other nearby areas which are presented here.

## BACKGROUND

There are many sources of information and programs which have informed Aklavik's collective knowledge of Dolly Varden and their habitats in the area and the contents of this report. While individuals have acquired their knowledge from various sources including through shared oral history and time spent out on the land (e.g., harvesting, travelling, etc.), there have also been opportunities to participate in collaborative programs and activities that warranted some additional description to enable the reader to better understand interview responses. Not only have these collaborative programs involved Inuvialuit community members, but Inuvialuit Knowledge has informed program design (e.g., approach, location, timing). The purpose of this section is not to provide a full description of programs since many details are available in other reports (e.g., see Gallagher *et al.* 2013, 2018, and Lea *et al.* 2020, 2021), but to highlight how several Inuvialuit community members have been involved and in many cases have led the work. Through their involvement, Knowledge Holders have made various, and in some cases, long-term observations on Dolly Varden and their habitats which have contributed to the collective knowledge held within the community. Additionally, these programs have collected a variety of scientific data which have been used to inform the WSWG on Dolly Varden management and monitoring. Knowledge Holders have also reported on these results, either because they were involved in data collection and/or the results have been reported back to them by DFO or other community members; consequently, these different sources of knowledge may be inextricably linked in responses provided by those interviewed.

**Coastal harvest monitoring programs:** Centered around the summer subsistence harvest of Dolly Varden at coastal locations along the Yukon North Slope, DFO (Science, Stock Assessment) has partnered with the AHTC and Qikiqtaruk (Herschel Island) Territorial Parks Rangers to maintain catch records, record biological data, and collect samples from Dolly Varden harvested during summer near Tapqaq (Shingle Point) and Qikiqtaruk, respectively. Other coastal harvesting locations have been included on an opportunistic basis (e.g., catch records and genetic samples at Qarrialuk (Ptarmigan Bay)). This work has informed our understanding of stock contributions to the coastal harvest through a genetic mixed-stock fishery analysis. Several Inuvialuit community members have been hired by these programs, building leadership and

capacity within the community and providing them with comprehensive and long-term observations of Dolly Varden harvested in the coastal fishery.

**Tagging program:** This long-term mark-recapture project by DFO (Science, Stock Assessment) has involved several Inuvialuit community members travelling with DFO personnel by helicopter to the fish holes each fall during spawning as part of a long-term program to collect biological information and estimate population abundance. Each September, crews have captured, measured, and tagged Dolly Varden as part of a mark-recapture study to generate annual population abundance estimates and collect biological data on the stock. Although tagging projects have occurred periodically in past decades, the current comprehensive program has occurred annually at the Big Fish River (since 2009), Babbage River (since 2010), Firth River and Joe Creek (since 2014) and Fish Creek (Komakuk) (since 2016). Frank Dillon has worked on the fall tagging program nearly every year at the Big Fish River fish holes since 2009 (along with other river systems and therefore is well-positioned to report on population changes observed over time.

**Big Fish River Harvest Monitoring at the Mouth of the Big Fish River:** A local Inuvialuit fisheries monitor was hired through the AHTC to maintain catch records, record biological data, and collect samples from Dolly Varden harvested at the mouth of the Big Fish River in 2012 and 2013. Since 2014, harvesters fishing at the mouth of the Big Fish River during summer have been asked to record and report their harvest to the AHTC upon returning to town.

**Big Fish River Harvest Monitoring at the Fish Holes:** During fall 2014, 2015, 2016, 2018, and 2019, a community sampling crew (comprised of Inuvialuit harvesters, youth, and Elders) was hired by the AHTC to travel to the Big Fish River fish holes (by snowmobile or helicopter) and sample Dolly Varden in partnership with DFO and the FJMC from a community harvest under the AHTC's ACFL. In fall 2020, 2021, and 2022 an ACFL was issued to the AHTC but no Dolly Varden were harvested during that time. The harvests took place in late-October or early-November, typically several weeks after the fall tagging program.

**Habitat surveys by helicopter:** Questions were raised by community members in fall 2020 as to whether there were potentially some habitat changes in the river (e.g., slumps which had caused barriers to their upstream migration) following observations of population declines (particularly very few char present at the fish holes in September 2020). On October 31, 2020, four AHTC representatives (Johnnie Storr, Danny C. Gordon, Robert Archie and Frank Dillon) flew the entirety of the Big Fish River migration route by helicopter, starting from the waterfalls on Little Fish Creek and down to the mouth. While they did not identify any major habitat concerns during this flight, they did take note of two slumps close to the river which warranted future monitoring (at N 68.619103° W 136.153810° and N 68.450116° W 136.180941°). A follow-up flight with a video recording was also completed in September 2022 by the tagging crew (DFO and Inuvialuit personnel).

**DIDSON (sonar camera):** A DIDSON multi-beam sonar was deployed on Dolly Varden migratory routes at Big Fish River, Babbage River, Joe Creek, and Firth River in 2010 with the objective to enumerate the upstream movements of Dolly Varden during summer and early-fall. Several Inuvialuit community members were hired to set-up and maintain the operations of the camera throughout their deployment.



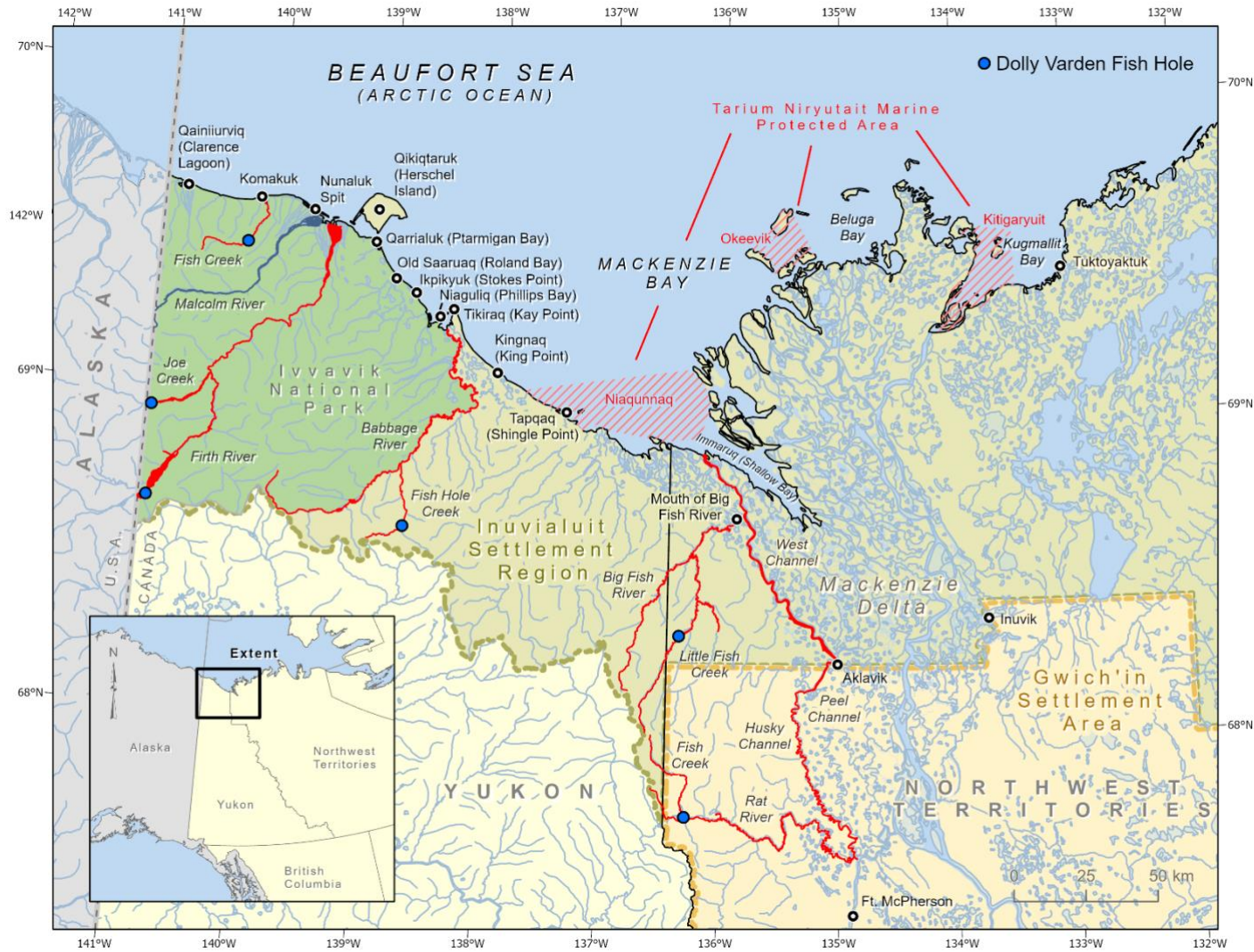


Figure 1. Coastal and inland Dolly Varden harvesting locations and important habitats (rivers highlighted in red; fish holes highlighted with blue points).

**Temperature loggers:** HOBO temperature loggers have been deployed in the substrate of Little Fish Creek (and others) and downloaded periodically to be better able to monitor water temperatures seasonally and over time. The AHTC has hired Inuvialuit personnel to work with DFO for their deployment and data retrieval, travelling up to the fish holes by helicopter or snowmobile.

**Rat River Dolly Varden programs:** Harvest monitoring, stock assessment, and harvest survey programs have also been conducted for the Rat River Dolly Varden population, though the programs hire Gwich'in personnel given that the work occurs within the Gwich'in Settlement Area, with the exception of the Inuvialuit community harvest surveys out of Aklavik since fishing for this stock occurs along Peel and Husky Channels of the Mackenzie Delta and the lower Rat River.

## METHODS

Interview questions were co-developed by the AHTC, DFO, and FJMC (Appendix A). The AHTC identified a list of potential Inuvialuit Knowledge Holders that could be interviewed. In-person interviews were conducted in February 2021 by a local coordinator employed by the AHTC. At the beginning of each interview, participants were asked their name, their age group (Youth 15–30, Adult 31–59, or Elder 60+), and their preference between being recorded through an electronic audio device or written notes. Additionally, all participants were asked if they were comfortable having their knowledge shared at a community workshop, at WSWG meetings, and in a report for sharing with the community and co-management partners.

The coordinator followed a semi-structured interview approach, using the questions as a guide to generate discussion and knowledge sharing, and asking follow-up questions as needed. Both the coordinator and the Knowledge Holders were compensated for their time and contributions through rates established by the AHTC. All participants signed off on their interview form following their interviews. Interview recordings were then fully transcribed by the coordinator. Only responses with information for that specific question were summarized (nil responses were not noted) and were presented in alphabetical order of the interviewees. Quotes were included where full responses were shared through audio recordings, otherwise responses have been paraphrased. Additionally, while the focus of these interview questions was on the Big Fish River Dolly Varden population, responses included knowledge of other stocks and fishing areas, which were also presented in this report.

Once interviews were fully transcribed and summarized, AHTC, FJMC and DFO coordinated a community verification workshop in the Aklavik Hamlet Council Chambers on March 3, 2023 (see Appendix B for pictures). Workshop participants included most interviewees, the interview coordinator, AHTC board members and staff, and FJMC and DFO biologists. Transcribed responses were reviewed with each participant on an individual basis to ensure that they were accurately transcribed, and any outstanding clarifications were made where possible. While interview verifications were being completed, Knowledge Holders and biologists met over large maps to discuss and share their knowledge and observations of important Dolly Varden areas.

Lunch was served mid-way through the day. Following individual verifications, workshop participants met as a group to review and verify a summary of interview responses for this report. Interview verification took place over email/phone or at an individual's home as required for those who were unable to attend the workshop. Compensation was provided to interview participants for the time taken to verify their responses and participate in the workshop.

The final draft of the report was reviewed and approved by the AHTC. Knowledge Holders were recognized through authorship and all their responses have been identified by name. The full transcriptions of the interviews and audio recordings, where available, have been archived with the AHTC and the Joint Secretariat.

## INTERVIEW RESPONSES

A total of 15 Inuvialuit Knowledge Holders were interviewed in February 2021, including 1 Youth, 9 Adults, and 5 Elders (Table 1). Following the preference of the interviewee, 11 of 15 interviews were recorded with an electronic audio recorder while the remaining four interviews were recorded using hand-written notes. All Knowledge Holders indicated that they were comfortable with sharing their knowledge at a community workshop, at WSWG meetings, and in a written report. Their responses to the respective questions and topics raised are presented below, either paraphrased or in italics for direct quotes from recorded interviews.

*Table 1: Inuvialuit Knowledge Holders interviewed, their age group, and whether they were comfortable with an audio recording and their knowledge being shared more broadly at a community workshop, at WSWG meetings, and through a written report.*

	<b>Name</b>	<b>Initials (on maps)</b>	<b>Age Group</b>	<b>Recording</b>	<b>Comfortable with sharing knowledge</b>
1	Peter Archie	PA	Adult	Yes	Yes
2	Robert Archie	RA	Adult	No	Yes
3	Dennis Arey	DA	Adult	Yes	Yes
4	Joe Arey	JA	Elder	Yes	Yes
5	Nellie Arey	NA	Elder	Yes	Yes
6	Stephanie Charlie	St.C	Youth	No	Yes
7	Frank Dillon	FD	Adult	Yes	Yes
8	Annie B. Gordon	ABG	Elder	Yes	Yes
9	Annie C. Gordon	ACG	Elder	Yes	Yes
10	Danny C. Gordon	DCG	Elder	Yes	Yes
11	Danny Gordon Jr.	DGJr	Adult	Yes	Yes
12	Michelle Gruben	MG	Adult	Yes	Yes
13	Sam McLeod	SM	Adult	No	Yes
14	Johnnie Storr	JS	Adult	No	Yes
15	William Storr	WS	Adult	Yes	Yes

## **Big Fish River Fish Hole**

- 1. Have you harvested Dolly Varden at the Big Fish River fish holes in the past (over 20 years ago)? If so, what years and what time of year did you go? How many char would you harvest on average when you went? How you would travel out there? How would you harvest the fish?**

**Dennis Arey:** Before the area was closed to fishing Dennis used to travel up by snowmobile in September when it first snowed and would get hundreds sweeping.

**Nellie Arey:** “Yes, fall time we always go up and go fish for fish. We would go with dog team, we never used skidoo when we lived down that way. Years ago, more than 20 years ago we used to go with my dad. To fish, two loads of toboggans. You know those little fish that don’t grow [residents]? My dad used to have a sack of those, if we come to town my dad would just pass them around to Elders. Elders used to ask for those fish that don’t grow. We would get lots! Maybe about 1,000 in bags, bring them back with dog team. We would go in recent years in we would go with skidoo; we used to have sweep nets. My dad used to make sweep nets, you know those small nets that he used to make, really long and small so the small ones don’t go through. Long ago when they used to make their own sweep nets.

Well you gotta go early if you want to if you want to fish for those real char, if you want to fish for those you gotta go early. As soon as a little of snow we would go up, it’s not like long ago anymore. You could pretty much travel up there without getting stuck but nowadays, you can barely travel. You gotta look hard to find somewhere to go up.”

**Annie B. Gordon:** “I haven’t been up there for so long. I know there’s a big change from the time we used to use to go up there. When my husband was alive we used to take kids up there. We would stay up there about a week or ten days, we would take kids from the school. Lots of change from the first time I went to fish hole; the first time I went up there we would just stay in tents. Then they had a cabin after that, then the last time we went up there we just stayed in tents again because the cabin was too old and there was not enough room for everybody. The river and all are all changing; it’s not the same anymore. Even where they sweep for the fish, all that has changed too. Lots of changes in that short time, there’s that fish hole there used to be a lot of water coming down and we used to see fish, it’s not like that anymore. It’s cause the falls above the camp, with that earthquake we had, it don’t run like it used to, so it’s way different now.

In the past yes, when my husband was alive yes. I can’t remember the years but it was in the fall time right after the snow falls and freeze up and it was safe to travel up there. Long ago when my husband first started going up there they were going with dog team. When I went out we went with skidoo, I waited until my kids grow up. I don’t know how many fish, we would get quite a few. When we first went there it was good, but later on it start changing, like I say even those falls don’t have that water running there anymore. That creek that’s coming down is not as deep as it used to be.

We had nets; they get fish with that. They would go to that fish hole and sweep, they would take that fish out like that.”

**Annie C. Gordon:** “Yes, lots of times. Fishing mostly. We used to trap up there, me and Danny, we used to have a trapline up there... Yes, I’ve been down Fish River and I’ve been up at fish hole lots of times. When my kids were small... I’ve been down there with my kids. We used to have about 50 in Fish River and in fish hole, we used to go up there all by ourselves.... More than 5 times, three times we would take students. If you find a deep hole you would get lots of fish. [We travelled] with skidoos and went with dog team. We would sweep. I went up there when they were building house too. We went up there with peoples, biologists and stuff like that. We’ve been up there with lots of peoples. We used tent and house.”

**Danny C. Gordon:** “Yes, the first time [I travelled to the fish holes] was in 1962 with dog team, and after that my first skidoo trip was in 1964. I’ve been going up quite a bit since; I can’t verify the exact amount of time but pretty well every year. It’s so close to Aklavik; it’s only 50 miles to fish hole. I would go usually in October and November, whenever the snow arrives. You would need snow to travel with snow machine.

I would harvest an average of 30-40 but my largest harvest was 300 fish. That was the most we ever had, but on an average day it would be 30-40. We would never think of numbers, so it’s difficult to give actual numbers. We were careful because we knew the numbers were declining so even before DFO came forwards and closed the fish hole. We knew it was declining so we were taking less. That’s the reason as to why we asked DFO to close the hole so we could hope the fish would recover. It’s been ups and downs.

I would travel mostly with snow machine, but in 1962 I went with dog team. It’s a lot more difficult nowadays because of landslides and erosions. You can’t go with the same route that you used to use 20 years ago, you have to avoid the landslides, erosion, and the creeks becoming deeper even for travel so you have to pick your way up now. It used to be that you could just go one way.

I would harvest the fish with gill nets, 2-4 inches; we would sweep with it. We would never use sweep nets. A regular net takes a lot more to do the work because they would get tangled up not like a sweep net. We always release the big males; they’re edible but we don’t eat them. We would always release them, long ago people would use them for dog feed because they were soft. We would keep the good fish, the spotted. If you had dog teams you would keep them all for the dogs.”

During the verification interview, Danny described how toboggans in the past were about 10 feet long and 16 inches wide and could transport a maximum of 200 char in one. Now toboggans are usually about 20 inches wide and you can fit more.

**Johnnie Storr:** Johnnie never went up there to harvest but his father and grandfather travelled out to the fish holes with snowmobiles in the past and returned with big sled loads of fish.

## **2. Have you participated in any of the community harvests at the Fish Holes in the past 10 years?**

**Peter Archie:** Peter participated in the community harvest in fall 2018 and 2019 using a seine net.

**Robert Archie:** Robert participated in the community harvest in fall 2015, travelling by snowmobile and using the large seine net to capture char.

**Joe Arey:** *“Yes, I’ve been going up there [for the fall harvest]. Three times I go up, we went up all times in November. Last time we went up [2016], there was no snow we even had to camp half way. We took our time. That time we got what we were allowed 140 or something. I know how each time, we chopper right down to the hole we had to put up tent in the flat. We never took skidoos.... We would sweep net long ago when we would go with dog team.”*

**Nellie Arey:** *“Yes, we went with skidoo not long ago [2016]. We went with Joe Arey and them, we went up there for a few hours trip. So rough everyone was tired by the time we got up there.”*

**Stephanie Charlie:** Stephanie participated in the fall 2018 community harvest with a sweep net.

**Frank Dillon:** Frank participated in the community harvest in 2019 but has also been working at the fish holes using similar methods for the char tagging program every September since 2009. *“Last year [2019], we did that community harvest. No other ones before that, in 2019 in the Fall time. September. It was a small amount, not very large numbers of fish so we had to do it a few times in order to get the quota for the community. We went with a chopper, [using] a seine net. ...what we use up at Ivavik, that kind of seine net.”*

**Danny C. Gordon:** Danny has participated in the community harvest in recent years and also various workshops and programs related to the fish holes.

**Danny Gordon Jr.:** Danny participated in the community harvests in 2014, 2017 and 2018.

**Michelle Gruben:** While Michelle has not harvested at the Big Fish River before she has been the lead AHTC coordinator for the community harvest since it started again in 2014 and has also travelled out there for water quality work in early September.

**Sam McLeod:** While Sam has not harvested out at the fish hole he has travelled out there during fall (November) as part of the temperature monitoring and char tagging projects.

**Johnnie Storr:** Johnnie has participated in the harvest, did some work in the area setting up the DIDSON cameras, and the fall char tagging program.

3. **What changes have you noticed in the environment at the Big Fish River fish hole over time including water conditions (level, temperatures, depth, flow, taste, salinity, turbidity), erosion, any other changes? Why do you think these changes are happening? Have you noticed this during your own harvesting trips, DFO projects, or for other trips out there?**

**Peter Archie:** *“The water level where the fish were where we set tent, it was a little different [in 2019] compared to 2018. It was a lot of lower levels and narrower. Yes, quite a bit of erosion on the river and different creeks. Yes, from one year to the next. Probably more snow now, it just piles up and it melts and comes down, re-routing the water system.”*

**Robert Archie:** The water at the fish holes used to be much saltier, and there have been a lot of landslides in the area likely as a result of global warming.

**Dennis Arey:** The salinity has changed and the river is much shallower than it used to be; the banks are slumping in. There used to be a lot more water coming out from the waterfall where it looked like water was coming right out of the hill. He has noticed the effects of climate change and also the earthquake that happened many years ago.

**Joe Arey:** *“Yes, long ago used to be hip waders used to go around the holes, now some of them you can’t go around them. You have to fish down below, you’re not allowed to fish further up, fisheries shut it down. You can’t go to last fish hole. That’s the rules we had. Not very much erosion, maybe now. Last time we went up we were using skidoos using the dog team trail. We used to across and we had to go around now, because of cut bank. Really changed lots, right at Cache Creek you had to look for a place to climb [with skidoo]. Too much rain sometimes. It just cut out, just like the highway. It slides away.”*

**Nellie Arey:** *“It changed lots because there used to be lots of water in those pockets... [when] we went the year before [in 2019] those boys had to work, man those boys had to work! 14 sweeps they did, barely make it to what we have to get. We went up too late and there was no water in those pockets. Long ago there was lots of water.”*

*I noticed erosion, lots. All over its changing even on the way up it used to be good climb [by skidoo] any way you want but now you have to look for a place to climb, even in the little lakes because they’re just cut banks now. Dangerous, right now it’s dangerous to do that. Especially if there’s no snow.*

*I think it’s too warm, everything is thawing out and everything drops and its really changed from long ago, lots of changes. Ground falls so much you know, it drops so much.”*

**Stephanie Charlie:** In 2019 and 2020 there were less fish from what they usually get and what she has heard from others.

**Frank Dillon:** *“Oh yes, [the water] was very high [in 2020]; we couldn’t start from where we usually start from and work our way down. That water was too fast and we were just getting dragged down by that net. There were not that many fish too, in that high water. There were a few places where the rock face wall was eroding there (shows on the map). That one place where we do that seine net there, it’s not far from that one pool where we do our seine netting. Climate change I think; it’s getting warmer.”*

**Annie B. Gordon:** *“There’s lots of [change] happening now, when I told you about that earthquake, that waterfall that got filled in, so that makes that river shallow and not as much*



water go down. Because of that earthquake and nothing is ever the same; it's always changing. If it wasn't for that, I don't know what else would've happened there, but I think almost every year everything changes. There's lots of fish and sometimes not much fish. So people have to take whatever they could get. When they used to have dog teams people had to think about getting food for their dogs, so they didn't throw anything away. Not even the small little fishes, they pick all that up and put them in bags and bring them all home. Everything. After they stop using dog team and start using skidoo all the time lots is wasted but no one try to report it."

**Annie C. Gordon:** "Some deep holes are getting shallower, and I think so where it comes out, I've been up there. It's just a hole up in the rocks, it comes down and sweeps out. They fall the sides, the rivers getting wider, cause you know it falls. Sometimes it's really cut bank, and it never used to be. Willows that you could pull up and it's falling everywhere else."

**Danny C. Gordon:** "The fish hole itself, never seen that much change. There's lots of landslides and rock sliding down. I can only assume that some of the fish holes are getting shallower than they used to be 30 years ago because of the rocks sliding down and building up and taking away the water. There's one place at the fish hole that changes from year to year, there's one little spot that's 300 yards, sometimes it's through a channel on this side, sometimes it goes on the other opposite side, but that's it. All depends on the breakup I think, we're not sure.

Sometimes it goes this way, other times it it's on the other side. I think it has to do with how much rain is coming down. It varies on how much snow there might be or rain, I think that's what governs it from being high or low. The other thing that we know, I know this and everybody else, is that with time I think that the salt content is getting way lower than 30 years ago. Sometimes even you can drink the water out of that and other times you can't; it's just straight salt. I think if you look at the map, the salt content used to come way up the fish hole just below the falls, about 40 years ago.

We used to get trees from here (shown on map) for building that cabin, where this area is open we used to notice salt, rolling down from the banks. It's quite steep and you can see salt content it was so thick when it flows down it makes little ripples, you know the water will flow straight, without any interference the salt was so thick, 30-40 years ago that you could see salt coming down from this area. That's where the salt comes from all the way from here to there, it seems to come from the high mountain up in here (shown on map). We don't understand, maybe that could be one of the things DFO might be able to investigate, we need some kind of answer to what we don't know.

I don't know how to answer that I think I would have to assume here and there that my thinking might be different from somebody else. If you interview another person you would get different ideas why what's happening is happening. I know the salt content is for sure [different] as I've seen it many times. I know the salt content is really getting weak. Like I said sometimes you can drink from there sometimes you can't. Most of the time you can't, there's too much salt there... where it's coming from must be getting less and less, I'm assuming. I'm assuming it's coming from farther up and comes down. As far as noticing really big differences I haven't noticed that. There are some changes, there's one place that's really steep and there's rock mixed with dirt, sometimes it rolls down and kind of blocks it up. I think the water comes around and takes it



away again. For a little while it might be blocked or slow the flow. That's what I think; I've been up there quite a bit. I think the water goes up and down because of the weather."

**Danny Gordon Jr.:** "It's pretty clean, cold water. It's pretty clean. Kind of shallow. There's lots of erosion on the sides of the cliff, on Big Fish. There's too warm weather I figure. Noticed this during my own harvesting trips."

**Michelle Gruben:** "The water levels seem way lower than in the past. I don't know what they mean by the past but when I seen it in 2016 or 2017 the water was really dry, but from what I understand even the water temperature is increasing at the falls by 1 or 2 degrees. Where we landed was in the valley, the banks had erosion because there was a lot of really rough terrain, so I'm not sure if it was a mud slide, I'm not completely sure if it was erosion or not. I don't know you hear some Elders say there might've been an earthquake. Alaska's our neighbour they have frequent earthquakes, maybe we get the aftermath of them."

**Sam McLeod:** Sam saw a lot of high dirty water due to rainfall, including a lot of trees in the river and cut banks due to the erosion.

**Johnnie Storr:** "I know and have heard the water is not as salty. You can see a little change of the direction of the water bed each year and noticed three areas that are slumping on the river due to melting permafrost."

**4. What changes have you noticed in the fish over time, including the size, number, condition, or any other observations? Why do you think these changes are happening?**

**Peter Archie:** Peter has heard that in past fall harvest that they were catching far more spawners, whereas when he went in 2018 and 2019 they were mostly silvers. Also in 2019, there were far less fish than has been observed in the past at that time of year.

**Robert Archie:** Robert has noticed the same number, possibly more in recent years since they haven't been harvested, although he has not travelled up there in a while. He also noted that it was much better fishing long ago. Elders report catching many more char.

**Dennis Arey:** "There's not as many as there used to be, well the fish holes are way shallower than they used to be so I don't know where they're over wintering now."

**Nellie Arey:** "Pretty well they used to be [lots of fish]; it's not like long ago anymore. There's not much fish anymore, just once when we went up we had one good sweep [in 2016]. We went up with DFO, one good sweep we were good. After that barely get fish because there's no water, you can barely get those real char not the skinny ones."

**Frank Dillon:** “Oh, [2020] was a very tough year; the only place we tagged out in all those fish hole systems was Babbage River. There were some small ones as well at Babbage and some good medium sized ones... those other systems [the fish] were kind of small. It’s gotta be the climate change I think.”

**Annie B. Gordon:** “It all depends on the water, of course we got to have a certain amount of water to get your feeding, sometimes they say the fish is really good and fat, sometimes the fish is not as fat as other years and it’s just really thin. Even the taste is not that good, I don’t know why just like everything else it changes. Some years we have good years for everything and other years it’s not as good.”

**Annie C. Gordon:** “These are young ones at the fish hole and some of them are only so long but when you go, when they’re coming up, they’re big fish. There used to be lots of little fish.... I’ve never been up there for about 10 years.”

**Danny C. Gordon:** “When I’m up there I’m observing quite a bit. Observe and see, I know the bank is eroding, we know that. It’s all along, I’ve never been up there when it’s happened but I can see sometimes it has happened ... that’s what I’m thinking. Now if you interview somebody else it may be different than what I’ve said it but that’s what we’re supposed to do. I can’t really say that [I’ve noticed anything different about the fish], no, I don’t know how to answer that. I think for me I’d say the numbers are down, we know that, but size of fish from the ones I’ve always caught for myself I’ve never seen any big ones. I think sometimes, some fish are lean or skinny than the other fish. I don’t know why that happens, little fish are usually the choice for me. That’s what we like to catch, sometimes the numbers are really low and they will be really out of shape. When you see a skinny fish you can tell right away. But I always notice silver fish are always nice looking, good for eating because that’s what we choose. The other ones are spotted or whatever the name [spawners].”

**Danny Gordon Jr.:** “I think there’s more fish now, because of the warmer weather and the fish are running more up that way.”

**Michelle Gruben:** “From what I understand, when we used to do fishing at the Big Fish River fish hole back in the 70’s it was very plentiful. They used to get lots of fish, so tiny fish they would just eat them bones and all. Now when we do this harvest when the fish comes back to the office it’s just like a herd. Some Elders come in to get the best fish, and you can tell which ones are the best. Some Elders say there still good shape but some are straggly. I guess depending on who the fisherman are that depends on how the fish quality is.”

**Johnnie Storr:** “I have been seeing more fish and all have been in really good shape. I think it’s due to the slumping depositing more food in the waters.”

**William Storr:** “The size and the condition compared to long ago is no different [at Husky River since 1974, fishing for Rat River char]; we still get the big ones we still get the fat ones. It’s still

*really good condition and some years there's more and some years there's less, it's been pretty consistent. Until this year [2020] and we got low."*

- 5. Have you ever observed big changes in the number of fish there from one year to the next, around the same time (specify the season)? What decade/time did you observe this in? Were there any peculiar conditions in the ocean or the Little Fish Creek in around that time that might explain a big change in the abundance of char at the fish hole?**

**Peter Archie:** Peter has noticed changes in the channels at the Big Fish River, likely caused by high water conditions and erosion during spring.

**Dennis Arey:** *"No, not when we used to go up there, there used to be lots of fish. When did they shut it down the 1980-1990s, sometime around there I think. I don't know, the rivers are sort of getting wider and shallower."*

**Joe Arey:** *"Long ago they used to clean it right out, quite a bit, coming out from old stories. Now when you try to fish there... we don't get like we used to anymore. In the last few years, since they start coming up they start getting more."*

**Nellie Arey:** *"Yes, there's not much fish anymore up there. It's not salted too anymore, that's why... It used to be just salty. Now it's not salty, you can drink out of it."*

**Frank Dillon:** Frank observed a big decline between 2018 and 2020 (but then noticed an increase again in 2022 with an abundance of silvers present).

**Annie B. Gordon:** *"When we first start going up there, people would have dog teams, nothing is wasted; it was all brought home. Even those graylings, some people just throw them away and there's other people who can use it for eating. I don't know how it is now, I haven't been up there for, how many years... it's probably 15 years since I've been up there and there's quite a bit of change. Some years I think the water is high and that helps the fish, and other years the water gets very low; it all depends on the rain too."*

**Annie C. Gordon:** *"Up there, they're smaller fish and some are skinny. The big red fish, the red bellies [male spawners], we let them go. When they're going up [the river], they change."*

**Danny C. Gordon:** *"I really have to say I don't know, because I'm observing I'm thinking the same as 10 years ago. They look the same but the numbers are declining and we know that... No, I don't know that [in regards to the ocean]. Only thing I know is last year, I can say this now I think, last year DFO got some money to fly some people from Aklavik with a helicopter [for a habitat survey of the river in late-October 2020]. Right from the end of the fish hole all the way down to the delta. It was for us to observe what we see and report what we've seen and what might have been interfering with migration. What I've seen from that I've never forgot, I followed*

*Big Fish River for about 10 miles down and that's all and I've gone no farther than that. Except for Cache Creek, which is the next one down. I've never travelled Big Fish River, I was quite amazed of how crooked it really is. It's really bendy, and the banks are really high in some areas. Three locations, I took some photos I have yet to divvy up yet; the river went way up and came back we came back to 300 yards across, then when you turn there three places there was a bank straight up and down a good possibility of landslides. Sometimes in a big rain, it has to be because it's straight down. Once in a while I'm assuming, I'm thinking that the river might've been blocked. From landslides from the rocks coming down. I think that the high tides rains always open it up, maybe that's why there's always good numbers of fish when the DFO takes the count. Other times it's so low. I'm thinking I kind of would like to see DFO fly, I think we should make this motion in one of our meetings. For them to take a helicopter and follow it all the way and land in locations – were supposed to look for deep holes too, where fish might have been using that area, to winter. We were too late [when they went for the helicopter survey over the entirety of the Big Fish River in late-October 2020] as it was all frozen, we couldn't see everything we wanted to everything were suppose to see. That's the only thing I noticed, three places where there is possibly rock and landslides, I think that could happen. Hopefully in March when we have WSWG this might come up. We make this suggestion to DFO with FJMC, they fly that route and find all these places. I've never seen it before it is my first time and I really was surprised.”*

**Michelle Gruben:** *“One year when we sent out people [for the community harvest] they had to get 150. They got that in two sweeps but the next year about the same time we sent out another crew. They were going to get the same amount of fish but they had to do 6 sweeps with the net which is unusual; I don't know why it's like that but sometimes they can do it all in one sweep. This decade, had to be after 2014 -2019 sometime in between there. I went in 2017 or 2018 to the fish hole. The only thing that comes to mind is that earthquake... in Alaska. Even here at HTC the lights were moving, it was that same year that we noticed the fish weren't as abundant either in the community or at Shingle.”*

**Sam McLeod:** Sam has participated in the fall tagging program over the last few years and he noted that the water level was high and from what he heard from others the char numbers were low in 2020.

**Johnnie Storr:** 2020 was really odd with such low numbers being reported from the Big Fish River, especially after the last few years when they were higher.

**William Storr:** *“No big changes. It's been pretty consistent. Yeah, there was a little more slumping in the mountains. I don't think as many fish were getting up through to the spawning area. That's probably plays a big role; I don't think it's any less, I think they just weren't able to go through there. Over time I think it's through the mountains, and [with] run off it re-opened the spawning area.”*

**6. Are there old stories from Elders that suggest if the char populations were low (or high) at Big Fish that they were also low (or high) in other fish holes?**

**Nellie Arey:** “Yes, long ago used to be lots. Everyone fished and there was still some more fish. Long ago there were fish you could sweep. Not long ago, hardly any fish now.”

**Frank Dillon:** The number of char observed at the fish hole in fall 2020 was one of the lowest he’s seen.

**Annie B. Gordon:** “Long ago when I was just growing up I remember the Elder men, they used to go with men, my uncle and quite a few Elders will go, and that time it used to freeze up middle of October and by then it was safe to travel. They would go up with dog team and they would stay up there week or little more and they would get fish. I remember that some Elders would say someday we won’t be doing this anymore, that the fish is going to get less and less, not knowing there would be skidoos and the people would be wasting fish. I remember hearing Elders saying that. Everybody worked together and nothing was ever thrown away. We used to fill his toboggan right up; they would have four dog teams, pulling that fish up. They would divide everything up. Now it’s not like that anymore, we don’t know if people throw fish away.”

**Annie C. Gordon:** “Yes. My brother and them used to come home when they would go up there with lots of fish, just about half a toboggan full... lots of people used to go up there and some used to go up with dog team. When we were 50-60 years old, I used to make frozen fish and I would get them from there.”

**Danny C. Gordon:** “1962 was the first time I went up, with dog team and just once. After that 1964, with snow machine. Now the numbers before I went up, I’ve always heard I’ve never witnessed it. There’s been times where people went up by dog team, maybe early when they first got skidoo, there was up to 3,000 fish taken out of there. I’ve never been there when it happened but apparently people would get lots. So the number used to be way up high, taking that much; that’s a lot of fish and to have space to winter the holes on the groundwater depth must have been high. For them to winter that many, they say 3,000 at least 5 or 8-10 thousand fish at one time. DFO said there’s little guys and big guys, we count all of them. 3 years ago [DFO] said there’s 12,000 fish up there now. That’s just an estimate. When I go up there I take a guess and usually I have a bit of a dispute with DFO because it’s more than that I always count a little more than they do. I’m just doing as estimate. There used to be a lot of fish up there. No doubt about it if they’re taking 3,000 that’s a lot of fish. I’ve never seen that happen.”

**Michelle Gruben:** “From what Elders used to say, they never used to overharvest, they only took as much as they needed. They never ever overharvested. They knew, even when the BFR was closed they used to say DFO needs to work with the community of Aklavik so the people could go up there to fish so they could take fish out of that stock. You don’t want to have too big stock because it’s going to overpopulate. They’re going to start fighting, that’s why they encouraged the fishing at the fish hole, so they can sustain that population for the future. From what I hear, we’re not going to overharvest because we don’t want to deplete the population.

Elders, you always got to listen to their stories; they were never there to overtake, they just took what they needed.”

**Johnnie Storr:** “The numbers sounded like they were really high in all areas across the fish holes, you hear of people pulling sled loads and tub full from nets long ago.”

**William Storr:** “Yes, there were more char and talking to my uncle, they used to see a lot of char, and then little bit after a while the numbers started dropping and that’s when people started mentioning to DFO and that’s when DFO shut it down in the 80’s. When people thought they were overharvesting but they weren’t; it was just a cycle and the water levels. It was a long break of not fishing at the fish holes.”

**7. Please describe the changes you are seeing on the land that you think could negatively affect char populations.**

**Peter Archie:** “If you were able to ride the whole river system, from the bottom all the way up to the fish hole then you can see where all the different spots of where the water runs off, from the stretch of the mountains it erodes from the side of the mountain and kind of settles into the water source, creating a dam.”

**Robert Archie:** The landslides in the area are blocking the river.

**Dennis Arey:** The fish holes are much shallower; they used to be able to walk around in hip waders and now you can walk around them with rubber boots. Dennis also noted that slumping would have a negative impact.

**Nellie Arey:** “Probably the erosion; there’s lots of changes even when you see them. Long ago we used to just go around and we could see where they go and they would go across and you could sweep it because there were lots of water. Now you could barely sweep, you could walk around in the middle with rubber boots. It’s not salty anymore; you could drink out of it now. Long ago it used to be salty; that probably affected the fish too.”

**Stephanie Charlie:** “Lower water and warmer conditions and weather are making the fish softer.”

**Frank Dillon:** “Last year we caught a Salmon, it was in 2019, I think it was. It was at [Big] Fish River and we caught a couple at Babbage [in 2017]. When we were up at the Firth [in 2019], we could see them they were green head and red body but [the water] was just too deep. They were right in the fast water. I think this is affecting the char population, I would think so. Once those guys come in they’re probably just territorial, those spawners and those female egg laying. First time saw a salmon was in [2016], a couple at Big Fish when all of us boys [from Aklavik] went from here, that’s when we caught those two salmon in that one pool.” Frank also

mentioned during the verification interview that the seining crew with the DFO tagging program also saw two salmon at Fish Creek (Komakuk) in September 2017.

**Annie B. Gordon:** *“It all depends on the water I think; the landslides could affect the fish too. You never know what could happen from fish hole down to the delta through the mountains. You don’t know from landslides or whatever, because you’re not following them down all the time. Down the river or Peel, sometimes the water is high and sometimes it’s so low you could just walk. All of that makes a big difference.”*

**Annie C. Gordon:** *“You know where they have deep puddles, they could get shallower and they could be affected by that and shallower than it used to be. If mud goes in [the river], and more rocks, it gets shallower.”*

**Danny C. Gordon:** *“I can’t honestly say that I know, I can’t report to that question. If I lived up there for 6-8 months, you know like people stayed there long ago, they walked up there with their dogs. They observed all this situation, like when people said for Porcupine Caribou ‘let the leader’s go by’ when harvesting, but you can’t say that today. Long ago people lived up there, they set up camp and harvested caribou inland at fish hole. Canoe Lake, they did that. That’s why they could say because they were out there, families could see them coming, so they would let the leaders go, but you can’t say that from Aklavik, how can you say that while watching TV living in Aklavik, you haven’t seen the situation?”*

**Michelle Gruben:** *“With all the slumping in the area, slumping can have an effect on how the river system flows. Any more earthquakes and the timing of the seasons, summer is beginning to get longer, the seasons are longer, they’re not like how they used to be many years ago.”*

**Sam McLeod:** High water conditions in the fall can affect char spawning success.

**Johnnie Storr:** Erosion, low water, and more sand bars. Some of the rivers are drying up.

**William Storr:** *“I think a lot of slumping, where it slides into the creek and actually gets blocked. It would block them and sometimes they can’t get up there. I think the biggest thing is the water levels that would cause an inability to get up the creek.”*

**8. Animal populations tend to go up and down in cycles. Are there any stories about the cycle of char populations? Is it possible to describe that cycle and how it affected fishing?**

**Nellie Arey:** *“Yup, they always say there’s some years you’re not going to have fish and some years there’s lots. There’s years when we keep going up there’s not much, long ago when we used to go up we used to get lots.”*

**Frank Dillon:** “Yes, it does go up and down... it has always done that. First couple years it climbed and gradually starts going back down after a while. It must got something to do with that climate change. Something to do with the water or something for them to keep going up and down over the years.”

**Annie B. Gordon:** “Like I said, long ago when people would go up there they used to get lots of fish and other times they say there’s not enough fish, they would just get so much. That’s what they do, they don’t try get more than what they have to because they know there’s not as much fish as before.”

**Annie C. Gordon:** “Sometimes they say there’s not many fish and other times they say there’s lots of fish. Just like lots of caribou; it goes around in a cycle.”

**Michelle Gruben:** “I don’t know if there’s stories, whatever happens this year the fish were very unusual, but if you talk to local fisherman they say this is something that happened about 40-50 years ago but it’s not recorded. If you think about it, doing the survey right now there’s a lot of Elders who might have seen this a long time ago but those Elders are no longer with us today.”

**Johnnie Storr:** Johnnie has heard of stories where people stayed longer to get their catches suggesting that maybe there were less fish that year.

**William Storr:** “In the past few years, we’ve been working on [re-establishing a harvest at the fish holes] for a long time, and it shows the numbers coming back; it’s like any other species you need to harvest it for the population to grow. It’s the same as other animals.”

**9. Have you ever noticed any predator activity or evidence at the fish holes? When, where, what?**

**Peter Archie:** Peter has seen a lot of otters in the area, but suspects that it is likely the eagles and wolves that eat the char, especially in areas of low water where there more visible and easier to access.

**Robert Archie:** Robert has observed lots of bears (including dens), wolverines, and wolves in the area.

**Dennis Arey:** “One year there was a wolverine den right by the bottom last hole where they used to fish. You can see blood going in and out of the water getting fish (circled on the map).”

**Joe Arey:** “Yes, long ago you used to see bears there. You used to, and one time we left our fish net in that spot, we can’t see that bear and that night it got bothered. No bears bothered with DFO [during the harvest monitoring camp at the Big Fish River holes]. When I went with Eddie, we never hear anything and when we get up in the morning, bear tracks right beside our tent. We never even heard it; it really stayed quiet I guess.”



**Nellie Arey:** *“Well long ago they used to [see lots of predators around the fish holes] when we would go up, how many times we would go up [recently] and we never seen any. Never even see bears or wolves, just those hawks. Can’t see anything, don’t even see bears anymore up there. When we used to go up long ago wolves used to just howl up around your tent, now there’s nothing. Completely changed.”*

**Stephanie Charlie:** No predators observed but concerned about the effects of increasing numbers of Pacific salmon observed in the area.

**Frank Dillon:** *“Yeah, when we landed there [at Babbage River fish holes], there was a bald eagle eating a Dolly Varden char there, a big male Dolly Varden. You could see where those wolves were chasing those fish at Babbage too. Yes we’ve seen a couple bears. They were eating but as soon as they got our scent it just took off up the hill and kept its distance from us until we were gone.”*

**Annie B. Gordon:** *“I don’t know, maybe there was bears or eagles but I never see bear like that. Maybe eagles. We don’t really know, we just work with the fish.”* Annie noted that the predators are not around when people are present.

**Annie C. Gordon:** *“There are bears that walk around that creek, I’m sure there’s bears that get fish. You used to see tracks of bears going around there. We used to go up there with skidoos, so there must be bears and foxes if they get them in shallows. You can see them, it’s clear water, you know there’s deep holes and then it gets shallow and deep again, they must get them in the shallows, you can see them.”*

**Danny C. Gordon:** *“That’s one thing, I have not witnessed or seen bears eating fish from the fish hole, I’ve never seen it. I’ve been out there many times I haven’t seen wolves taking fish, it’s shallow you know you can go get them but I’ve seen after a while the wolves were there and took some fish. I was not there to witness it but I saw blood, meat and bones that they’ve been eating. This was in October but I have not seen grizzly bear eating there and taking fish out of the fish hole. I’ve never seen that. You always see bears at the salmon run in Alaska. But for me I’ve never seen a grizzly bear at fish hole.”*

**Danny Gordon Jr.:** Danny has observed bears and wolves in the area.

**Michelle Gruben:** *“When I flew out, there was a pack of wolves. You talk to local harvesters, they say when they get there fish sometimes that fish could have a claw mark from an eagle, could be a bear. They don’t know what kind of mark it is, and the HTC have been asking for years to do a predator monitoring assessment but still today we haven’t done any such project.”*

**William Storr:** *“Myself I haven’t noticed, but talking to other people that go there there’s otters and talking to the scientists and the people who monitor, there’s otters up there and they take a lot of fish. Bears and all that, they all have a part in keeping the numbers down. People used to do a lot more trapping than they do now and people’s [trapping] lines use to run right around the fish holes.”*

**10. Have you continued to travel out to the fish hole area over the past 20 years, even though the area remains closed to fishing other than during the community harvests? Are you going out there to hunt or for other reasons? If so, what time of year and what for?**

**Peter Archie:** Peter said he would travel out there to check it out if he had a snowmobile, but also notes that the conditions change every year. In fall 2020 there was very little snow to travel.

**Dennis Arey:** No but he does travel out in the area to hunt bears and wolves November to April.

**Joe Arey:** *“Yeah, we used to go there and go camp in that house. We go look at the fish before that house burned down (the roof fell or the wind blew the roof off) about the same time when the trapping season opened.”*

**Nellie Arey:** *“Not me, not right now. You know it’s pretty hard to deal with skidoos now because there’s no snow. On the ground all those little puddles and that there, sometimes there’s little cliffs. You gotta look for a way to get out of it. Even those, you know when you walk in the flats you can see the creeks, even those ones are deep. Cause there’s no water [in the river], it’s really changed. It starting to get lots of willows. Not me, but people go hunting [there].”*

**Frank Dillon:** Frank has always travelled out there with DFO but he also has a friend who has a trap line up there at his grandfather’s place.

**Annie B. Gordon:** Annie has not travelled out there for over 15 years and only ever went to that area to fish.

**Danny C. Gordon:** *“Bears, yeah, many actually, yes in that area. I’ve seen up to three together near fish hole. Being there or traveling, you know yes. Besides harvesting, 15-20 years ago when I was more active, I’d be skidoing up there down the coast. I loved doing that, learn the land and harvest whatever, that’s three things I like to look for: wolf, wolverine, and bears. Of course, grizzly bear is open season between April and May until October, where wolves and wolverines are [open] all the time.”*

**Danny Gordon Jr.:** Danny travels to this area for caribou and wolves and to see how the water levels are, usually in October or November.

**Michelle Gruben:** Michelle does not travel to that area but many hunters will go up that way for bear hunting, possibly caribou too. Some people will also trap in that area but not very much these days.

**Sam McLeod:** Sam has hunted for grizzly bears in this area during spring.

**11. Why is this area important to you, your family, and your community (please specify)?**

**Peter Archie:** *“We like eating char, a balance of food. Char is mostly for the summer and winter, and it’s a different staple.”*

**Robert Archie:** This area is important for feeding his family.

**Dennis Arey:** *“That’s where we used to get our Dolly Varden instead of down at Shingle; the [fish] holes were easier access.”*

**Joe Arey:** *“The animals are more important; everybody goes hunting.”*

**Nellie Arey:** *“Cause we get fish out of it, whatever we hunt for... that’s why it’s so important to us.”*

**Stephanie Charlie:** This is an important area for providing food for her family and community.

**Frank Dillon:** *“It’s where we get our fish from when we get a chance to go. You get to fish if it’s open, when everyone gets a chance to go out fishing.”*

**Annie B. Gordon:** *“If I could eat fish now, I would do anything to get that fish, but I don’t eat fish now so I don’t. My kids go, it’s getting less and less people, because they know all that work to get there and they don’t get enough fish or nothing at all. A lot of difference when the water doesn’t flow. That water from the fish hole, we used to hear it but now it’s nothing.”*

**Annie C. Gordon:** The area has provided a good source of fish for her family.

**Danny C. Gordon:** *“I’m always protective of the land, I’ve always thought against when there’s been thoughts of oil activity up here. Yukon and up here in our region, Black Mountain. I’ve always disliked when they talked about it, this was about 30 years ago when they thought they might build a pipeline from Alaska up here and make it south to Dempster Highway and down. That fell apart; they’ve been boom and bust with oil companies, there were a lot of meetings with oil companies. Using the line up here with caribou for oil activity, I’ve always thought that we need to protect that land you know; it’s valuable. I think that land is everything to me. You can’t put a price on it. It’s just too much there, because... other activities they’re here for 7-8 years, then they’re gone, and I’m here when they’re gone. I’m here. When they’ve disturbed the land or misused it or whatever happened, you can’t put a price on it the land; it’s everything. The land’s been good to me, yes, I can’t deny that. It’s good for me; the land is valuable.”*

**Danny Gordon Jr.:** This is an important area for harvesting Dolly Varden. Danny noted that most of his harvest at the fish holes was approximately 100 yards from the log cabin.

**Michelle Gruben:** *“It’s important to the community of Aklavik because that’s where they get their char; that’s what feeds the community. It’s the char, when it used to be open we used to go*

up with dog team but even [in 2020] with people signing up with the harvest. There was only 6 of them, those 6 people didn't take the opportunity to go because of weather conditions or no snow. That place is important to the community and to HTC because we want to see it to continue to feed the community of Aklavik for years to come."

**Johnnie Storr:** This is an important fish source for the community.

**William Storr:** "We grew up eating a lot of char; my dad used to go there every year to harvest char at the fish hole. When we eat northern foods, you can eat only so much, it's good to have a change. We adapted, it's important for our lifestyle."

**12. If you have harvested at the fish holes in the past (before the closure in the 1980s), can you mark on the map what fish holes/areas you fished the most?**



Figure 2: Fishing areas at the Big Fish River Fish Holes as noted by interview responses (initials presented in Table 1; photo C. Gallagher).

## Mouth of Big Fish River

1. **Have you harvested Dolly Varden at the mouth of the Big Fish River in the past (over 20 years ago)? If so, what years, and what time of year did you go? How many char would you harvest on average when you went? How you would travel out there? What kind of fishing nets or gear did you use?**

**Peter Archie:** Peter noted that his uncle has fished there with his boat and gillnet during August.

**Dennis Arey:** Dennis has fished out there in the past when it was open, during August with a 4-inch mesh gillnet.

**Joe Arey:** *“Yes, not very much me. One time we go fishing, I took my family down for a couple of nights. The next day it start raining and the water get dirty and I was working so I had to go back. When I was working with monitors Jonas got some fish from there. In middle of August, when they start coming up. With boat or canoe, wide canoe. We would use 4 inch. We used to fish at the river too, long ago, we never get much. When you stay there, you gotta be 3 -4 days because of the rain. You gotta wait for clear water. Got your nets in then, you gotta wait for clear water.”*

**Nellie Arey:** *“Not really, when we lived down there [at the mouth] with my dad. That’s the only time we worked in the mouth of it and in Babbage, in fall time, in August. That’s when we used to go for fish, in fall time. When peoples long ago catch fish, they keep everything, there not fussy. They keep everything. We used gill nets.”*

**Annie C. Gordon:** *“Before fish hole closed down, we would go [to the mouth of the Big Fish River] every August. I spent time with my brother, I would take my kids out [for about a week] when Danny was working; I would boat myself. Not far from the mouth, there’s a point one little creek goes to mountains, one goes towards Aklavik and one goes to our fish holes. Right about 3 miles down we used to have summer camps (see in map). Lots of people. We would fish and it was fun, we would hang them for frozen fish, no dry fish it’s fall time they’re hard to dry. But we hang them up. They’re better looking fish than after you go to the fish hole. By boat, in August. Gill nets.”*

**Danny C. Gordon:** *“Oh yeah, I’ve done that. Down at the delta? Yes, where they allow us to fish. Lots of rivers meet with Big Fish River, one, two, three different channels but all of them when the fish are migrating the fish go up Fish River. I’ve camped with my family many times when it was open for open season. That was good fishing, easy to get, that was. I guess we hear from people when the fish are going by from Shingle Point, we know it might be another 3-4 days before they come up the river, so we go off of what we hear and get fish... It used to be 15 tents one time... Where we went fishing I remember counting many many fish, that would be in August. I think so anyways. I would imagine that they would’ve been 600-700 fish caught. By number of people were there, I’ve made an estimate. I’m taking a guess, I think one family*

would get 600 just between two of them. Boat would be how they travelled and a net, 4–4.5 inch net.”

During the verification Danny noted that in the past before the closures there used to be about six families fishing at the mouth of the river with a net each. He also noted that people used Schooners with 3-4 feet draft but now the river channels are so shallow that it is difficult to navigate with a speed boat.

**William Storr:** *“In August, I would have went in late 70’s with a boat, using a gill net, 4 inches.”*

**2. Have you participated in any of the summer harvesting at the mouth in the past 10 years?**

**Peter Archie:** Peter travelled out there about 5 years ago to fish with the monitors during the day, have a picnic and then returned to Aklavik.

**Robert Archie:** Robert travelled to the mouth of the Big Fish River to fish with Daryn Archie (summer char monitor in 2012 and 2013).

**Michelle Gruben:** *“We set the net but we never did catch any fish, it was in early August before the 15<sup>th</sup> of August. We set net but nothing in the net in 2015 – 2016. We went with boat, but you have to set net in a certain place, because we have a bigger boat we have to go when waters a little bit higher. If it’s too low we can’t make it in. You can make it quite a way with a 30HP. 4inches mesh, 50 ft long.”*

**Sam McLeod:** Sam attempted to fish here in August 2020 for three hours while berry picking but did not catch any char. Sam noted that he has seen fish in the Little Moose Channel during clear water conditions in August and he is not sure what kind of fish they were but they could have been char.

**Johnnie Storr:** Johnnie used a gill net in fall 2019 while passing through on a caribou hunt but never caught any char.

**William Storr:** *“No, it’s been closed and [since] they opened it and I never tried. When they first opened it, [the AHTC guideline] was 10 fish [per person] and that’s not very much to go that far to fish.”*

**3. What changes have you noticed in the environment at the mouth of the Big Fish River over time, including water conditions (depth, temperature, flow, turbidity), channels, etc.? Why do you think these changes are happening?**

**Peter Archie:** “Yes, it really did change. When they go down towards the coast past Big Fish River, and you go further down there’s a mud bank with a lake. That bank eroded, and water steam coming from another water source.”

**Robert Archie:** The river is much shallower with lots of sandbars which is likely a result of global warming and more beaver dams in the area.

**Dennis Arey:** The area is much shallower and the channels have moved. He also noted that when it rains in the mountains, the water runs backwards down the Anderton Channel.

**Joe Arey:** “No, I never go there for a long time. It gets shallower when you’re travelling, different channels. When you come out from the cut off, it has an island in it now and less water.”

**Nellie Arey:** “It was good when we used to fish there. There’s another place you could fish, you know when you go down Fish River you could get to Nunaluq spit. That’s where we fished in June, we used to get lots.”

**Frank Dillon:** “Yes, it’s really getting shallow; you can see more mud bars. We had a skidoo trail to get to there but it’s all eroded too now, you gotta look for a different place to get to the channel there. The channels are different. It’s all about climate change; the landslides and it’s all melting, in summer time it gets pretty warm and all that permafrost melts.”

**Annie B. Gordon:** “Before that river started to get shallow, we used to have place in that area. Lots of people used to stay there, camp used to be there. We used to use nets out there. It’s too shallow, I don’t know the fish go up there.”

**Annie C. Gordon:** “Yes, it’s getting shallow. It used to be sort of deep and swift, but now it’s not that swift. Since DFO told us not to go down there anymore we haven’t been... well the erosion and sticks coming down, blocking creeks and making it shallow. The sticks will pile up and pile up the sand and mud.”

**Danny C. Gordon:** “Yes, there’s a massive change in the channels. The channel we used to travel is blocked, due to a couple of big trees that fell out and got drifted right on the Anderton channel which is a couple of hundred yards from where we used to camp and fish. A sandbar, no more channel (see on map).

We know the whole river has got shallow, say 50 years ago, you could go up Fish River with 30-40 ft schooners; you can’t even get up there with speed boat anymore. It’s only about normal level about 1 ft. It used to be 5-6 ft deep. So, the reason for that is because a lot of slumping and mudslides, the build-up. The water’s not getting shallow, it’s the mud building up. Can’t go up there anymore, unless there’s a lot of rain and the tide could come up. I’ve seen it come up 6 ft, from rain from the mountain. That’s the change; fish need about a foot to travel. They don’t need deep water, that’s how they make it up. They have to fight their way up shallow spots.”

**Danny Gordon Jr.:** The river channels are getting shallower with more silt moving downstream and piling up at sandbars.

**Michelle Gruben:** *“When they fish at the mouth the water is dirty, lots of silt and muddy. Depending on where they go in the mouth, there’s only so far you can make it up. You can’t go all over like they used to. Sometimes there’s that foam on the river, sometimes there’s that around the mouth. Sometimes the river can get dirty with sticks during a storm. I don’t know if it’s getting warmer at the mouth but I know it gets dirtier. It must be because it’s so shallow. I don’t know, even the way us we go to Shingle today, maybe in the next 10 years we won’t be able to go that way anymore cause those small channels change over time.”*

**Sam McLeod:** The water is really shallow and channels change through the summer following every rain fall. The banks often fall into the river and into lakes now.

**Johnny Storr:** The water is warmer, shallower, and dirtier, with more erosion along the rivers.

**William Storr:** *“Yes, it used to be a lot more water. Used to go through Big Fish River and then we used to even go through Little Fish River. Now you can’t even go down Little Fish River. Used to go down Big Fish River to go through Little Moose River and now you can’t. In the later years, in the 80’s you can’t go through Little Moose River. Erosion is not too bad, it’s been pretty stable back in those days compared to long ago erosion is not much different. It’s just the water levels that are different. I think of the turbidity around Aklavik, upstream. Our waters been more silty and then it goes down river and it settles when it gets down into those small little channels, just dumping the silt there. When it gets to a slow-moving part, it starts going through those small channels and it’s slower moving and those channels just let it settle. It doesn’t have that movement anymore.... your ability to get around with a boat [has changed]; even with a jet boat we ended up high and dry with no more creek.”*

4. **What changes have you noticed in the fish over time, including the size, number, condition, or any other observations? Why do you think these changes are happening?**

**Peter Archie:** Peter has heard from others that it is much different each year.

**Stephanie Charlie:** There are less fish than the past.

**Annie C. Gordon:** They were healthy silver fish (not in spawning condition) caught at the mouth.

**Michelle Gruben:** *“I never caught fish at the mouth, when we did a monitoring program one year they said those fish were huge! I’ve never seen it compared to the little char we get at Big Fish River, at the fish hole. I’ve only heard about it once, even these people that fish, they get a*



*little amount. I don't know if fishing there was plentiful long ago but people do try to fish but they can't get anything. I don't know if they're at the wrong spot or something.*

*For the mouth, that one year when HTC did that monitoring work, I know the monitor there had to get 150 fish. He got that in no time, he had a small little boat so he was able to go way up.*

*Say if I went, I wouldn't have made it to where that monitor went with my bigger boat. Maybe if you had a small equipment you would have a better chance of fishing."*

**Sam McLeod:** Sam has noted that mostly the medium fish pass through in July and the larger and smaller ones come later in the season.

**Johnnie Storr:** *"You see bigger fish longer here and spread out runs probably from more [sediment] deposited into the water."*

- 5. Have you ever observed big changes in the number of fish there from one year to the next, even when everything else is the same (time of year, effort, gear)? Can you tell us more about this, and when you observed this?**

**Dennis Arey:** *"When we used to fish there sometimes the run is late or sometimes it's earlier... rain that year could affect the amount. When it rains the water gets muddy and when we fish it's usually clear up there."*

**Joe Arey:** *"I never fished much there, just that one time. Lots of people used to go there."*

**Nellie Arey:** *"Some years there's hardly any fish but some years there's lots. Like they say when they used to go up there, they used to be able to tell us "There's going to be hardly any fish" and sure enough, I don't know how they know, but they used to tell us that and they were right. Even in the ocean they would tell us, they would read the land. Someway they know what's gonna happen ahead of time, that's what they used to tell us."*

**Johnnie Storr:** *"Just this past summer/fall [2020] we had very very low numbers and the year before was really high."*

**William Storr:** No they stay pretty consistent year to year at Husky Channel.

- 6. Why is this area important to you, your family and the community (please specify)?**

**Peter Archie:** *"That's the closest spot we could go to other than going to fish hole, which is a little harder to get to if there's not much snow and if there is snow, it kind of depends on weather. You can get stuck up there for a week or days; if you're packing light then you'll probably use up all your food source if you're packing light compared to at the mouth. It's easier*

*because its closer and more valuable to go there to get the fish instead of going way up that way.”*

**Dennis Arey:** This is a much easier area to access to fish for char; therefore costs will be less to travel out there (compared to the coast or fish holes).

**Joe Arey:** *“Everybody goes fishing there because it’s easier access.”*

**Nellie Arey:** *“We make a living out of it, we make use out of it so much.”*

**Robert Archie:** This is an important area to feed his family and Elders in the community.

**Stephanie Charlie:** This is an important area for providing food to the community.

**Frank Dillon:** This is an easier area to get to during summer if you have a boat and gill net.

**Annie B. Gordon:** Many families including her own used to have a camp at the mouth of the Big Fish River before it started to get shallow. They used to set net there but it is too shallow now.

**Annie C. Gordon:** This was an important harvesting area that was easy to access and provided fish for the winter months.

**Danny Gordon Jr.:** This is where the char travel up to the Big Fish River and it is a good place to fish too.

**Michelle Gruben:** *“It’s important to the community because that place provides char for the community and it’s what the community likes because it’s a different kind of char compared to Arctic Char... [the area] provides traditional foods to the community.”*

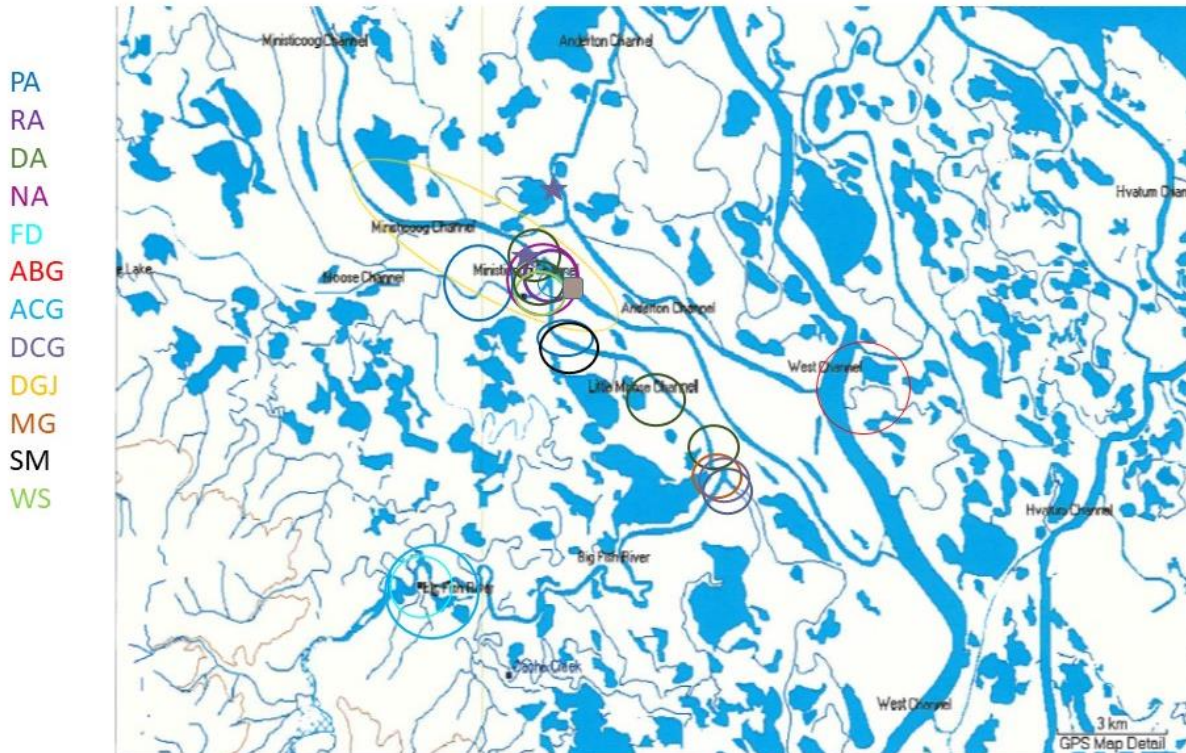
**Sam McLeod:** This is one of the community’s main summer travel routes.

**Johnnie Storr:** *“My whole family loves to eat char and would like to continue eating char for years to come.”*

**William Storr:** *“That’s where we used to go all the time in the fall time. When it used to be open [to fishing], we would look forward to setting tent and it was good for the kids, because we would bring our family out. It would give you family time and teach them how to do things.”*

- Can you mark on the map the areas that you and/or your family have fished for char in the past? Mark any changes that you've observed to the channels in this area (colour coded green, yellow, red)?

### Mouth of Big Fish River



★ Camp      ■ Mud bar

Figure 3: Fishing areas at the mouth of the Big Fish River as noted by interview responses (initials presented in Table 1).

### Other Locations along the Big Fish River

- Have you fished for Dolly Varden at any other locations along the Big Fish River, including above the falls?

**William Storr:** “Yeah, we tried all over. We tried, Little Fish River and we used to catch a few char there too. I think because of the way the river was [at the mouth], everyone used to only try a few spots but we used to try all over.”

- Have you observed char in other locations on the Big Fish River? Please describe.

**Frank Dillon:** Frank has observed char below the aufeis area during a survey from a helicopter.

## Other Char harvesting locations

1. Do you fish for Dolly Varden:
  - a) On the coast?
  - b) In the Mackenzie Delta near Aklavik?
  - c) In any other locations?

**Have you noticed any changes at those sites that you think might be related to what has been discussed above? Please describe.**

**Peter Archie:** Peter said he is not really a fisherman but that the community does a lot of fishing down at Shingle Point. He has noticed that there's a lot of erosion on the river and along the coast, and suggested a study using cameras to monitor erosion relative to snow and water levels.

**Robert Archie:** Robert harvests at Shingle Point and also in town. He has noticed more debris in the water (logs and sticks) which he thinks is affecting the fish.

**Dennis Arey:** Dennis also has fished at the Babbage River and along the coast at Shingle Point, King Point, Ptarmigan Bay, and Komakuk Beach. He has noticed the absence of ice along the coast which might be related to changes observed in the char.

**Joe Arey:** *"Yes at Shingle Point. One year we get lots. At Kingnaq (King Point), we fished around there. Around Herschel Island. Lots of fish there, but more salmon though. Getting more, last year there's hardly any, even at Shingle Point. Lots of salmon too, I don't know why we never used to get that long ago. We used to fish in Aklavik, we would get the silver salmon."* Joe noted during the verification interview that he had never seen char at the Malcolm River.

**Nellie Arey:** Nellie has also fished at Shingle point, Herschel Island, King Point, Komakuk and Nunaluq. She noted that everything is connected and the fish travel; not long ago (in 2020) they found a char tagged in the Babbage River over in Kaktovik, Alaska.

**Stephanie Charlie:** Stephanie also fishes across the river in front of Aklavik and at Shingle Point.

**Frank Dillon:** Frank has fished on the coast at Shingle Point. He thinks all of the areas are affected by climate change which is making it more difficult for everyone to fish at Shingle Point and other locations.

**Annie B. Gordon:** *"Yes at Shingle Point and King Point. One year, we went down to King Point we were going to go berry picking and we went down looking for berries and we came back to where we go into that lake. There was lots of ice, drifting out on the ocean and the little east wind brought the ice to the shoreline. Then they just strung the net out and they started bringing in fish. We stayed there quite a while, just cutting fish up and hanging them; that ice brings the char in somehow....As soon as the ice starts coming in they start getting char, one time when*

*they were coming from Alaska. One place where they stopped they said there was lots of ice and they start throwing in their hooks and next thing they were just pulling fish in. That ice has something to do with it; now we don't have ice. At that time we used to have ice half of the summer now it's not like that. I don't know what's in the ice that makes the fish interested."*

**Annie C. Gordon:** Annie has also fished all along the coast including Shingle Point, Ptarmigan Bay, Niaquliq (Philips Bay), and King Point, out near Fish Creek (Komakuk) and in the Mackenzie Delta. In the past she mostly travelled by schooner in the river and along the coast. She noted that there used to be houses and ice houses near the Dew Line at Komakuk but they were knocked down many years ago. Annie described how as a teenager she would travel up to the Fish Creek fish holes at Komakuk during summer with a mud sled pulled by dogs to fish for char at the fish hole, either for the day or camping overnight before returning back to the coast with about 20 char. She has never seen char at the Malcolm River but does recall that one Elder used to talk about it but she never heard otherwise so she thinks maybe there was a mix-up with the location being described (see Papik *et al.* 2003).

**Danny C. Gordon:** *"I do a lot of fishing in Ptarmigan bay, Yukon North Slope. That's where I do most of my fishing if I'm not going to fish hole with skidoo. To me when I go there, Ptarmigan Bay, there's always fish there. Especially if there's ice, lots of ice. Where there's ice you're going to get fish. That's the way it always been those little bugs. They come in with the ice because they stick underneath, then fish come in with them. That's always been the same; you rejoice when you see ice."*

During the verification Danny also noted that he had not heard of Dolly Varden in the Malcolm River.

**Danny Gordon Jr.:** Danny has also fished at Shingle Point, where he has observed lots of dirty water every year, along with high water and high winds.

**Michelle Gruben:** *"My father-in-law used to bring us to one place along the coast, but now due to erosion and big winds, we used to be able to go into that creek with boat but now because all the sand and built up is there, now we can't even get into that creek anymore. When the waves come it puts sand into the creeks and eventually closes, big winds close that spot."*

**Sam McLeod:** Sam has also fished a lot on the coast and has observed lower numbers in recent years.

**Johnnie Storr:** Johnnie has fished on the coast including Herschel Island and in the Delta near Aklavik. He has noticed dirtier and warmer waters while fishing.

**William Storr:** *"Yes, [2020 at Husky Channel] was a really good example. The water levels never dropped, then in the summer we had high water until freeze up and when I usually get 60 char [but in 2020] I only got 7. This was the first year my nets were so full of silt and moss."*

**2. Have you observed any overwintering areas for char in the past? If so where and when, and what did you see?**

**Dennis Arey:** Dennis has observed overwintering areas at the Babbage River in the past.

**Nellie Arey:** *“Some places, if you go into Babbage, there’s a place. There’s a place in Firth River. They must have some places to go because we used to go up in late-May. We used to go up with dog team and there used to be a big ice. My daduk used to tell us, water come out of that ice [at Babbage and Firth River deltas], there’s gonna be fish all over. When I first went up I didn’t really believe him, he said it’s going to shoot out and fish are gonna be everywhere. I was thinking in my mind, it can’t. One day we were walking and my dad start yelling, sure enough when that ice shot out, they were all over. Grayling, char, on the ice [hundreds to thousands of fish]. He told us wait till the water drains and we’ll pick them up.”*

Nellie also noted that she has never seen char at the Malcolm River.

**Frank Dillon:** Frank has observed char at Fish Creek (Komakuk) as well at the Firth River Delta spring that they surveyed during fall (September) and winter (March) as part of the Dolly Varden population research in Ivvavik National Park. He was surprised to see so many fish in both given that both streams are small and narrow.

**Michelle Gruben:** *“Never, I wouldn’t mind to hear more about it. You hear lots of stories. There’s an Elder in the community, they say when they used to travel that way to Babbage or the Firth, they used to travel with dog team they used to be so much pressure in that fish hole (it’s frozen over top), there’s so much pressure, if they’re there at the right time when it’s starting to melt there’s so much pressure would come and fish would just burst through that hole. Fish all over on the ice; they used to just pick them up. I wouldn’t mind to see. Just like a rainfall of fish.*

*The falls, because of warmer weather they never stop running. They should be frozen but because of warming temperature they’re running later in the season.”*

**3. Is there anything else that you’d like to share? Do you have any ideas of follow up areas that we should be focusing on with the collection of Traditional Knowledge of Dolly Varden?**

**Peter Archie:** *“Just probably check out the area and see when the best time is to go; certain years can be better than others. It changes year to year, if you ask Elders in the town when is the best time to go. You can ask their family, check with the Elders.”*

**Robert Archie:** Robert suggested opening the fish holes every year to the community and Elders and monitor for changes.

**Dennis Arey:** *“Research should be done to identify overwintering areas. We’re getting the blame for the fish population dropping but it could be where there overwintering that’s hurting*

*them. I know the Babbage and Nunaluq you would hear stories of where they could pick fish right off the ice in the spring time. When the water rushes out it goes over the ice and when the ice lifts and there's fish on the ice. Nellie Arey would have photos of that. They would just pick fish off the ice they didn't have to fish for them."*

**Nellie Arey:** *Nellie suggested that whatever people wanted to do, that they should go to the fish holes early so they can get lots.*

**Frank Dillon:** *"Babbage would be a good one to focus on [for a harvest], cause that's just above Shingle Point. Every spring or winter time whenever they get to go out they could harvest fish up there."*

**Annie B. Gordon:** *"I don't know what we could do, it's natural for sometimes fish get lost or something. On the coast if there's no ice there we won't get lots of fish; it has something to do with the water. I think it's getting a little bit harder now because of the landslides, maybe it does something to the bottom of the ocean."*

**Annie C. Gordon:** *"You know, the fish is depleting... you know why? Because there are only ladies no males in the fish... do you know why? Because it's Dolly Parton... Dolly's a lady, that's what happens when you name a fish after a lady [joke]."*

**Danny C. Gordon:** *"Where the fish hole stops there's a hole underground, about 60 ft up the water come, it flows all of the time. That's 60 ft up, where's the water coming from way up there. It has to be frozen now but it will be drizzling. And beyond that if you haven't been up the fish hole it just stops sometimes, way beyond our time there must have been an earthquake and it closed all that river. It's gone completely but if you go farther up with snow machine or whatever, about 4 miles it starts again and there's fish there [at a lake close by but not on the Big Fish River]. Maybe DFO can go up there and do it, like they did this summer. See what kind of fish are there, how did they get up there [to that lake], there's no river. There's no flow, there must have been one, one time and they got caught, how come they're surviving?"*

**Michelle Gruben:** *"I think that this is good that DFO is finally working with the AHTC for this collection of TK for fish at the BFR. Even now there some people are saying there might not only be fish at the fish hole but there must be another hole farther up that no one knows about; where are the fish going?"*

**William Storr:** *"I think they need to do a little more [habitat] monitoring on the fish holes and the rivers on the way to the fish holes."*

## SUMMARY

This report builds on earlier documentation of Inuvialuit Knowledge of Dolly Varden from the Big Fish River and Yukon North Slope and the importance of these fisheries and habitats, including, but not limited to, Byers (1993), Nagy (1994), Papik *et al.* (2003), Stephenson (2003), Byers *et al.* (2009), AHTC *et al.* (2016), and Byers *et al.* (2019). Through these interviews, Inuvialuit Knowledge Holders described Dolly Varden harvesting, population, and habitat changes at the fish holes on Little Fish Creek, the mouth of the Big Fish River, and other fishing areas over time. It is important to note that both the community of Aklavik and Little Fish Creek are located near the boundary of the ISR and Gwich'in Settlement Area (Figure 1), reflective of a long history of overlap in traditional use, shared harvesting areas, and family connections between Inuvialuit and Gwich'in Peoples. As such, while this knowledge has been collected from Inuvialuit membership through the AHTC, some elements may also reflect historical and contemporary Gwich'in Knowledge sources.

The fish holes on Little Fish Creek are an important traditional harvesting area for the community during fall (September to October) as soon as there was enough snow to travel by dog team or by snowmobile beginning in the 1960s. Harvesters would use gill nets (2–4" mesh) or made their own sweep nets to sweep the fish holes, catching hundreds to thousands of char at the fish holes each year in the 1960s and 1970s, and began harvesting less when the population was beginning to show signs of declines. When travelling with dog teams they would harvest everything they caught, otherwise they typically released the male spawners. Some Elders expressed a preference for harvesting some of the smaller char as well (residents and anadromous silvers). Many harvesters noted the importance of just taking what was needed, and sharing their catches once they returned to town. Elders emphasized the importance of travelling to the fish holes early in the fall when the fish were still in good condition; however, delays in the onset of winter and snow cover has made this increasingly difficult. This area has also been used for hunting and trapping by the community but not as frequently in recent years.

Inuvialuit community members have reported a number of changes in the Dolly Varden habitat at the Big Fish River fish holes. Earthquake activity in the 1970s and 1980s is thought to have changed the water flow, most evident from the reduced volume of water entering the creek at the waterfalls. Reduced water flow as well as erosion and deposition from the river banks have made the fish holes much shallower than in the past. Many reported that the groundwater is warmer and much less salty than it used to be. Climate change has made it more difficult to travel to the fish holes by snowmobile during fall, with warmer air temperatures, later freeze-up, and less snow cover; additionally historical travel routes are now challenging with slumping/cut banks, more willows, and accelerated erosion. Knowledge Holders reported direct observations of wolverines, bears, wolves, hawks, and eagles near the Big Fish River fish holes and suspected they might be eating char, and also reported that there may be otters in the area.

The area near the mouth of the Big Fish River was an important traditional fishing area accessed by boat during late-summer (typically August), with several families camping and fishing nearby. Harvesters noted that this fishing location was historically easier to access than the fish holes or



coast and was along a main travel route to the coast for Aklavik during summer; however changes in the river channels have made navigating this area by boat more challenging over time. Harvesters would typically use 4 or 4.5 inch mesh gillnets and catch several hundred of fish from this area annually in the past. The timing of the run was variable and often would depend on the rain and water levels each year, though fishing was generally better when the water ran clear. Elders noted that the fishing was better here than in the fish holes with better quality and larger fish. This area has changed significantly over the last several decades; not only is it difficult to travel here because of changes in the river channels but also to be able to catch char, with catch rates much lower and the timing being different compared to the past.

Harvesters described a number of changes observed in many of the key river channels that were used for boating and fishing near the mouth of the Big Fish River. Many channels are much shallower now (from 5–6 feet to 1 ft water depth), with more sand/mud bars, beaver dams, and sticks in the water, making it difficult to navigate even by small boat. Elders reported that they used to travel to this area by schooner (3–4 feet draft) but at present day it is difficult to navigate the area using a power boat. Harvesters also noted that the water was warmer with more silt, and voiced concerns about the erosion and slumping occurring along the river which could affect the upstream migration of char.

Knowledge Holders described declines and cycles in the Big Fish River Dolly Varden population over time. Similar to other species, the population has gone through cycles with some good years and some bad; additionally, cycles in the fatness of the char were observed. Elders reported that the population was historically (in 1960s and 1970s) much larger than it is in recent decades. Following a period of relative stability followed by a gradual increase (approximately 2009–2018), the community noted a population decline in 2019 and 2020, which were predominantly based on observations made during the 2019 fish hole harvest and the fall tagging program in 2020. These observations aligned with population abundance estimates generated by DFO from the annual mark-recapture program at the fish holes. Knowledge Holders also reported more difficulty catching char on the coast (mixed-stock) and in the Delta (Rat River stock, near Aklavik) in 2020, adding to their concerns of overall Dolly Varden declines in the region.

While interviews were focused on Dolly Varden from the Big Fish River, knowledge was also shared from other areas, including the Yukon coastal mixed-stock fishery, in Peel and Husky Channels for char from the Rat River population, and other river systems and associated fish holes along the Yukon North Slope (Fish Creek (Komakuk), Firth River, and Babbage River). Although there is an unclear description of Dolly Varden occurrence in the Malcolm River was reported in Papik *et al.* (2003) (i.e., presence of a fish hole on the Malcolm River at Stickler Lake, which does not conform with typical spring-fed riverine habitats in the mountains, as lakes would be associated with coastal plains habitat), all Elders interviewed had not directly observed nor heard of stories from other Elders in the past of Dolly Varden present in this watershed. One Elder described fishing in the river deltas of the Babbage and Firth Rivers during spring break-up when she was younger, when the river water and hundreds of char and Arctic grayling would spill out over the ice. Another Elder described how she would walk up from the coast near Komakuk Beach with her dogs to the fish holes at Fish Creek and harvest a small number of char. Several

harvesters reported that fishing for Dolly Varden on the coast is better when more ice is present; however, with less ice in recent years, and more challenging weather and water conditions it is becoming more difficult to travel and fish in coastal waters.

Knowledge Holders emphasized the importance of Dolly Varden as a staple for the community, both historically and at present day, not only as a food source but also for their culture and lifestyle. Fishing for Dolly Varden from the Big Fish River and other char harvesting locations in the Delta or coast has become increasingly more difficult over time, not only because of declines in the population (since the 1960s and 1970s and more recently observed in 2019/2020), but also due to environmental changes which have negatively affected the catchability of char (e.g., weather, water levels, debris, timing of the runs) and the accessibility of these key fishing areas to harvesters (i.e., travel conditions including weather, water, and snow conditions). Harvesting and spending time out on the land remain extremely valuable for Inuvialuit from Aklavik, who have taken a conservative approach to management to ensure that Dolly Varden can be harvested for many generations to come. Given the significance of the species to the community, many noted that continued collaborative research, monitoring, and documentation of Inuvialuit Knowledge remains an ongoing priority.

## REFERENCES

- AHTC (Aklavik Hunters and Trappers Committee), Aklavik Community Corporation, the Wildlife Management Advisory Council (NWT), the Fisheries Joint Management Committee (FJMC) and the Joint Secretariat. 2016. Aklavik Community Conservation Plan. Joint Secretariat, Inuvik, NT. 195 p.
- Ayles, B.G., Bell, R. and Hoyt, A. 2007. Adaptive Fisheries Co-Management in the Western Canadian Arctic. *In Adaptive Co-Management: Collaboration, learning, and multi-level governance. Edited by Armitage, D., Berkes, F. and N. Doubleday.* UBC Press, Vancouver, BC. pp. 125–150.
- Ayles, B., Clarke, R., Hynes, K., Bell, R. and J. Noksana Jr. 2018. Co-management of Fisheries Resources in the Western Canadian Arctic. *In Building Bridges: Case Studies in Collaborative Governance in Canada. Edited by C. M. Rocan.* Invernire, Ottawa, ON. pp. 135–176.
- Byers, T. 1993. Aklavik Traditional Knowledge- Big Fish River: a study of indigenous wisdom in fishery science. Report to the Aklavik Hunters and Trappers Committee. Byers Environmental Studies, Winnipeg, MB. 21 p. + Appendices.
- Byers, T., Reist, J.D., and Sawatzky, C.D. 2019. Compilation and synopsis of literature on the Traditional Knowledge of Indigenous Peoples in the Northwest Territories concerning Dolly Varden. *Can. Manuscr. Rep. Fish. Aquat. Sci.* 3177: vi + 63 p.
- DFO. 2010. Integrated Fisheries Management Plan for Dolly Varden (*Salvelinus malma malma*) of the Gwich'in Settlement Area and Inuvialuit Settlement Region Northwest Territories and Yukon North Slope 2011–2015. Volume 1 and Volume 2. Fisheries and Oceans Canada, Ottawa, ON. 29 p.
- DFO. 2013. Assessment of Dolly Varden from the Big Fish River, NT 2009-2011. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2012/065.
- DFO, Fisheries Joint Management Committee, Gwich'in Renewable Resources Board, and Parks Canada Agency. 2019. Integrated fisheries management plan for Dolly Varden (*Salvelinus malma malma*) of the Gwich'in Settlement Area and Inuvialuit Settlement Region, Northwest Territories and Yukon North Slope. Volume 1: The Plan – 2019 Update. Fisheries and Oceans Canada, Ottawa, ON. 52 p.
- Gallagher, C.P., M.-J. Roux, K.L. Howland, and R.F. Tallman. 2011. Synthesis of biological and harvest information used to assess populations of northern form Dolly Varden (*Salvelinus malma malma*) in Canada. Part II: Big Fish River. DFO Can. Sci. Advis. Sec. Res. Doc. 2010/115. v + 45 p.
- Gallagher, C.P., Howland, K.L., Harris, L.N., Bajno, R., Sandstrom, S., Loewen, T., and Reist, J. 2013. Dolly Varden (*Salvelinus malma malma*) from the Big Fish River: abundance estimates, effective population size, biological characteristics, and contribution to the coastal mixed-stock fishery. DFO Can. Sci. Advis. Sec. Res. Doc. 2013/059. v + 46 p.

- Gallagher, C. P., Howland, K. L., Banjo, R., Sandstrom, S. J., and Reist, J. D. 2018. Population abundance, biological characteristics, and contribution to coastal mixed-stock fisheries of Dolly Varden (*Salvelinus malma malma*) from the Babbage River: 2010-2014. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/029: vi + 105 p.
- Indian and Northern Affairs Canada. 2005. The Western Arctic claim: The Inuvialuit Final Agreement as amended. Department of Indian Affairs and Northern Development, Ottawa, ON. 162 p.
- Justice Canada. 2017. Northwest Territories Fishery Regulations (C.R.C., c. 847). Department of Justice Canada, Ottawa, ON. iv + 73 p.
- Lea, E.V., Gruben, M., Gallagher, C.P., and Costa, J. 2020. 'This is my Office': How Aklavik harvesters are monitoring Dolly Varden populations on the North Slope. Tusaayaksat Magazine. Fall 2020 Issue. Available from [https://issuu.com/tusaayaksatmagazine/docs/tusaayaksat\\_fall\\_2020](https://issuu.com/tusaayaksatmagazine/docs/tusaayaksat_fall_2020)
- Lea, E.V., Gallagher, C.P., Maier, K., and Ayles, B. 2021. Dolly Varden (*Salvelinus malma malma*) fisheries in the Inuvialuit Settlement Region and the Gwich'in Settlement Area 2009–2014: harvest, monitoring and communications in an adaptive co-management setting. DFO Can. Sci. Advis. Sec. Res. Doc. 2021/041. iv + 29 p.
- Nagy, M.I. 1994. Yukon North Slope Inuvialuit Oral History. Occasional Papers in Yukon History No. 1. Yukon Tourism Heritage Branch.
- Papik, R., Marschke, M. and Ayles, G.B. 2003. Inuvialuit traditional knowledge of fisheries in rivers west of the Mackenzie River in the Canadian Arctic. Canada/Inuvialuit Fisheries Joint Management Committee Report 2003-4: 20 p.
- Sandstrom, S., and Harwood, L.A. 2002. Studies of anadromous Dolly Varden (*Salvelinus malma*) (W.) of the Big Fish River, NT, Canada, 1972-1994. Can. Manuscr. Rep. Fish. Aquat. Sci. 2603. 39 p.
- Sawatzky, C.D., and Reist, J.D. 2014. Life history types and stages of northern form Dolly Varden, *Salvelinus malma malma* (Walbaum, 1792). Can. Manusc. Rep. Fish. Aquat. Sci. 3029: vi +39 p.
- Stephenson, S.A. 2003. Local and scientific observations of Dolly Varden (*Salvelinus malma*) (W.) in the Big Fish River, Northwest Territories: 1995-2002. Can. Manuscr. Rep. Fish. Aquat. Sci. 2644: v +20 p.

Special Note: A compilation of video clips from the 1971 community harvest of Dolly Varden at the Big Fish River Fish Holes was produced by Robert (Bob) K. Bell, who was a teacher and Principal at Aklavik's Moose Kerr School from 1969 to 1975, and then served as the FJMC Chair 1987–2009. Individuals interested in accessing this video can contact the FJMC directly.

## **KNOWLEDGE ACCESS, OWNERSHIP, AND CONTROL**

All Knowledge Holders have provided their consent for sharing their knowledge in this report, have verified their responses in advance of publication, and have been recognized as co-authors of this report. Original interview recordings and transcriptions have been archived at the AHTC and Joint Secretariat. Requests to access to these files must be submitted to the AHTC for approval.

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## APPENDIX A: INTERVIEW FORM

### Big Fish River Dolly Varden Traditional Knowledge Interviews AHTC and DFO February 2021

Name (optional):

Age (circle): Youth (15–30)    Adult (31–59)    Elder (60+)

In Fall 2020 the Aklavik Hunters and Trappers Committee (AHTC) identified the need for additional Traditional Knowledge being documented from the community. Despite everyone's efforts to keep harvest levels low following the leadership and careful management of the West Side Working Group (WSWG) and AHTC, Dolly Varden (char) population declines have been observed recently in the Big Fish River and other river systems and we don't really understand why.

It was agreed to conduct interviews of local Knowledge Holders identified by the AHTC to document important information about the Big Fish River. Following these interviews and compilation of this information, we will be holding a community workshop with all of the TK holders to present and verify the knowledge shared. We will be planning to present a summary of this knowledge back to the WSWG in early March.

The questions below are ideas of questions to ask to generate discussion, and the interviewer is encouraged to ask follow-up questions to the topics below, or anything else that might be relevant to the Knowledge Holder.

Are you comfortable with being recorded during this interview? If not we'll just take notes.

Would you be comfortable with all of this information provided being shared:

- 1) At the community workshop?
- 2) At the March 2021 West Side Working Group Meeting?
- 3) In a report for sharing with the community and other co-management partners?

If the answer is no to any of these questions, please specify which information that you would like stored at the AHTC only (this can be revisited at any point in the interview).

#### **A. Big Fish River Fish Hole Area:**

1. Have you harvested Dolly Varden at the Big Fish River fish holes in the past (over 20 years ago)? If so, what years and what time of year did you go? How many char would you harvest on average when you went? How you would travel out there? How would you harvest the fish?
2. Have you participated in any of the community harvests at the Fish Holes in the past 10 years?
3. What changes have you noticed in the environment at the Big Fish River fish hole over time including water conditions (level, temperatures, depth, flow, taste, salinity, turbidity),

erosion, any other changes? Why do you think these changes are happening? Have you noticed this during your own harvesting trips, DFO projects, or for other trips out there?

4. What changes have you noticed in the fish over time, including the size, number, condition, or any other observations? Why do you think these changes are happening?
5. Have you ever observed big changes in the number of fish there from one year to the next, around the same time (specify the season)? What decade/time did you observe this in? Were there any peculiar conditions in the ocean or the Little Fish Creek in around that time that might explain a big change in the abundance of char at the fish hole?
6. Are there old stories from Elders that suggest if the char populations were low (or high) at Big Fish that they were also low (or high) in other fish holes?
7. Please describe the changes you are seeing on the land that you think could negatively affect char populations.
8. Animal populations tend to go up and down in cycles. Are there any stories about the cycle of char populations? Is it possible to describe that cycle and how it affected fishing?
9. Have you ever noticed any predator activity or evidence at the fish holes? When, where, what?
10. Have you continued to travel out to the fish hole area over the past 20 years, even though the area remains closed to fishing other than during the community harvests? Are you going out there to hunt or for other reasons? If so, what time of year and what for?
11. Why is this area important to you, your family, and your community (please specify)?
12. If you have harvested at the fish holes in the past (before the closure in the 1980s), can you mark on the map what fish holes/areas you fished the most?



(Photo C. Gallagher, DFO)

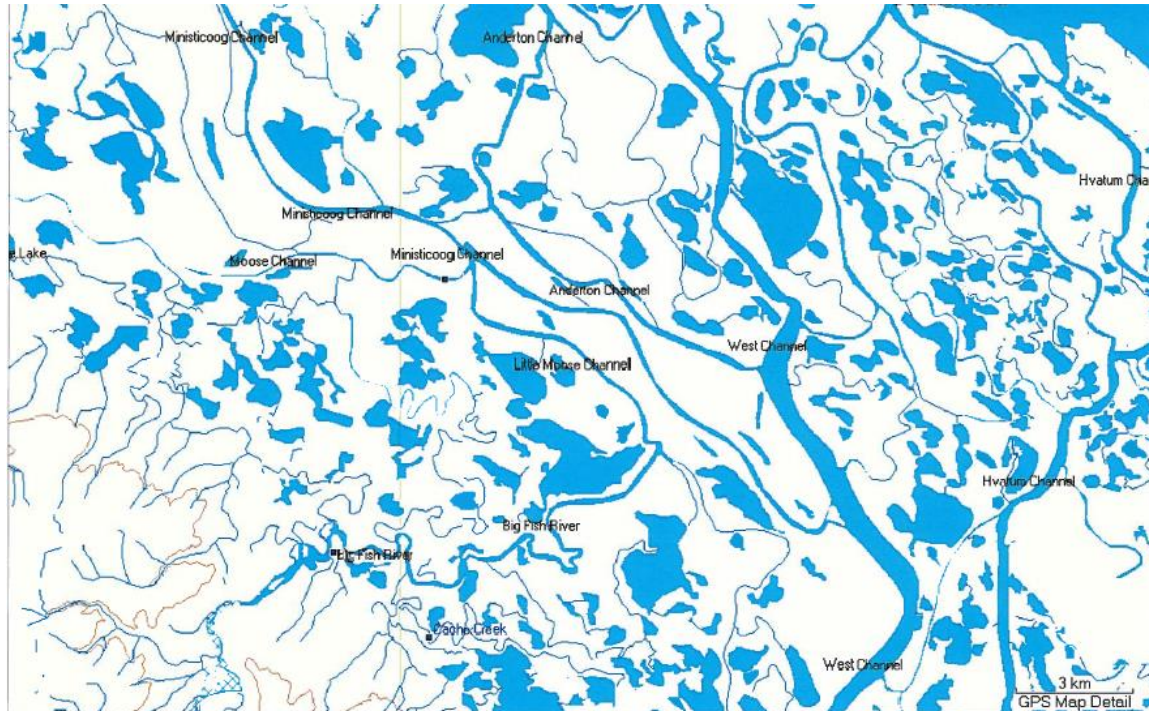
Falls

**B. Mouth of Big Fish River**

1. Have you harvested Dolly Varden at the mouth of the Big Fish River in the past (over 20 years ago)? If so, what years, and what time of year did you go? How many char would you harvest on average when you went? How you would travel out there? What kind of fishing nets or gear did you use?
2. Have you participated in any of the summer harvesting at the mouth in the past 10 years?
3. What changes have you noticed in the environment at the mouth of the Big Fish River over time, including water conditions (depth, temperature, flow, turbidity), channels, etc.? Why do you think these changes are happening?
4. What changes have you noticed in the fish over time, including the size, number, condition, or any other observations? Why do you think these changes are happening?



5. Have you ever observed big changes in the number of fish there from one year to the next, even when everything else is the same (time of year, effort, gear)? Can you tell us more about this, and when you observed this?
6. Why is this area important to you, your family and the community (please specify)?
7. Can you mark on the map the areas that you and/or your family have fished for char in the past? Mark any changes that you've observed to the channels in this area (colour coded green, yellow, red)?



**C. Other Locations on the Big Fish River:**

1. Have you fished for Dolly Varden at any other locations along the Big Fish River, including above the falls?
2. Have you observed char in other locations on the Big Fish River? Please describe.

**D. Other Char harvesting locations:**

Do you fish for Dolly Varden:

- d) On the coast?
- e) In the Mackenzie Delta near Aklavik?
- f) In any other locations?

Have you noticed any changes at those sites that you think might be related to what has been discussed above? Please describe.

Have you observed any overwintering areas for char in the past? If so where and when, and what did you see?

Is there anything else that you'd like to share? Do you have any ideas of follow up areas that we should be focusing on with the collection of Traditional Knowledge of Dolly Varden?

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Signature

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Date

**APPENDIX B: PHOTOS FROM KNOWLEDGE VERIFICATION WORKSHOP,  
AKLAVIK HAMLET CHAMBERS, MARCH 3, 2023**



Participant photos, listed from left to right: B) Ellen Lea and Michelle Gruben; C) Nellie Arey, Annie B. Gordon, Megan Lennie, Dorothy Erigaktoak, Peter Archie, and Frank Dillon; E) Kiyoo Campbell, Ellen Lea and Billy Storr; F) Colin Gallagher, Nellie Arey and Frank Dillon;

Photo credits: Colin Gallagher and Ellen Lea





Participant photos, listed from left to right: G) Joe Arey and Colin Gallagher; I) Phillip Ross, Frank Dillon, Peter Archie, Maya Townend, and Dorothy Erigaktoak; J) Nellie Arey, Peter Archie, Dorothy Erigaktoak, Phillip Ross, and Frank Dillon; K) Danny C. Gordon, Annie C. Gordon, and Ellen Lea; L) Joe Arey and Ellen Lea.

Photo credits: Colin Gallagher and Ellen Lea