PELLY RIVER SUB-BASIN COMMUNITY STEWARDSHIP PROJECT

CRE-31N-06

Prepared for:

YUKON RIVER PANEL

SELKIRK FIRST NATION

and

FISHERIES AND OCEANS CANADA

Prepared by:

SELKRK DISTRICT RENEWABLE RESOURCE COUNCIL

with

CAN-NIC-A-NICK ENVIRONMENTAL SCIENCES

MARCH, 2006

ABSTRACT

This project added to existing information on several habitat and stock assessment projects (supplements several recent inventory projects) and related research activities on Chinook salmon that utilize tributaries of the Pelly River near the community of Pelly Crossing, Yukon. The Pelly River is a major sub-drainage of the Yukon River and lies within the Traditional Territories of the Selkirk First Nation and Ross River Dena Council in the central Yukon. The tributaries chosen for this study support anadromous Chinook salmon and include both natal and non-natal streams. The continued occurrence of Chinook salmon populations in the vicinity of Pelly Crossing is an important management objective for the Selkirk First Nation, the Selkirk District Renewable Resource Council, the Department of Fisheries and Oceans Canada and the people who live in the community of Pelly Crossing.

This project details the stewardship and research activities that were conducted on Caribou Creek, Crosby Creek, Grayling Creek, Mica Creek, Moose River, Needlerock Creek and Willow Creek during the summer of 2006. The primary objective of the stewardship aspect of the project was to maintain access to traditional spawning and rearing habitat for wild Chinook salmon in these streams. This was accomplished by monitoring, evaluating and in some cases remediation of potential obstructions that restricted fish movements and habitat use. Research included the collection of baseline information on habitat characteristics, thermal profiles, flow estimates, obstruction surveys and fish utilization in the lower reaches of these tributary streams. An aerial survey of Moose River confirmed habitat utilization by spawning Chinook salmon in this drainage.

TABLE OF CONTENTS

ABSTRACT i
TABLE OF CONTENTS ii
INTRODUCTION 1
STUDY AREA 2
OBJECTIVES 3
METHODS 3
RESULTS AND DISCUSSION 5
Caribou Creek 5
Crosby 6
Grayling Creek 7
Willow Creek 8
Mica Creek 9
Moose River 10
Needlerock Creek 11
RECOMMENDATIONS 13
REFERENCES 14
PERSONAL COMMUNICATION 14
ACKNOWLEDGEMENTS 15

LIST OF FIGURES

Figure 1 Pelly River stewardship project primary study area 16

Figure 2 Large inactive beaver dam located on Caribou Creek 17

Figure 3 Erosion of sediment from behind a large beaver dam 17

Figure 4 Comparison of instantaneous flow measurements collected in the lower reaches of Caribou, Grayling, and Willow creeks 18

Figure 5 Crosby Creek near the confluence with the Pelly River 18

Figure 6 Growth of wild juvenile Chinook salmon (0^+) captured in minnow traps 19

Figure 7 Growth of wild juvenile Chinook salmon (1+) captured in minnow traps.....19

Figure 8 Comparison of water temperatures in the lower reaches Mica, Willow and Grayling creeks 20

Figure 9 Comparison of 2005 and 2006 summer water temperatures in the lower reaches Mica Creek 20

Figure 10 One of several beaver dams that were breached on the lower reaches of Willow Creek 21

Figure 11 Average daily discharge recorded in the lower reaches of Mica Creek 21

LIST OF TABLES

Table 1 Catch and effort statistics of wild juvenile Chinook salmon captured in minnow traps 22

APPENDIX I ..... 2006 Juvenile Chinook Salmon Capture Data

INTRODUCTION

The Yukon River Salmon Agreement specifically funds programs in Canada and the United States which focus on the restoration, conservation and enhancement of Canadian-origin salmon stocks. Included in this agreement is ability to fund projects directed at promoting stewardship of salmon and their habitats and maintaining viable fisheries within the Yukon River drainage. Through various projects in both countries there is hope that sustainable salmon fisheries can continue along the Yukon River over the long-term and that Chinook salmon returns can once again approach historic levels.

Each year, Chinook salmon migrate up the Yukon River to spawn in the mainstem and major tributaries of the Pelly River in south-central Yukon. These fish have long been important to the people of the Selkirk First Nation whose traditional territory encompasses the lower and mid watershed. For generations the rich salmon resources associated with the Pelly River provided food for many families. These fish were highly prized and were at the forefront of the Yukon's cultural mosaic prior to contact with Europeans. In recent times, global salmon populations have declined (Lichatowich 1999). Causal factors have been largely speculative, although a combination of factors including over-harvesting, habitat destruction and climate change have been implicated. The continued maintenance of Chinook salmon spawning populations, specifically in Mica and Needlerock creeks near the community of Pelly Crossing, and access to local rearing streams by juvenile salmon, are important management objectives for the Selkirk First Nation (SFN), the Selkirk District Renewable Resource Council (SRRC), the Department of Fisheries and Oceans Canada (DFO) and the people who live in the region. The spawning populations in Mica and Needlerock creeks contribute to a larger subdrainage population that is thought to be genetically distinct and separate from populations in other subdrainages of the Yukon River Basin (Beacham, *in press*.).

Together, the SFN and the SRRC are committed to understanding salmon resources within the SFN Traditional Territory. In keeping with this vision, both the SFN and SRRC are involved in salmon stewardship activities and research in and around the community of Pelly Crossing. Projects of this type have the benefit of developing fisheries management skills in the community which contributes to both the SFN and

SRRC taking on an increasing role in the stewardship and management of land and resources within the SFN Traditional Territory.

STUDY AREA

The entire Pelly River watershed is known to encompass a drainage area of about 51,000 km^2. The headwaters are situated in the Selwyn Mountains, and major tributaries include the Ross, Hoole, Ketza, Lapie, Glenlyon, Tay, Tummel, and Macmillan Rivers. The Pelly River watershed is situated in the Traditional Territories of the Selkirk First Nation and Ross River Dena. Freshwater species are common to the drainage and include lake trout, Arctic grayling, lake and round whitefish, longnose sucker and northern pike. Other species that are known occur but are less frequently observed include inconnu, broad whitefish and Arctic lamprey. During the summer, runs of Chinook salmon ascend the Pelly River to spawning habitats widely distributed throughout the watershed. Chum salmon also are known to migrate into the drainage during the late fall but spawning areas are not well known (Rodger Alfred, pers. com. 2006).

The study streams in 2006 included six creeks (Caribou, Crosby, Grayling, Mica, Needlerock and Willow creeks) that flow into the lower mainstem of the Pelly River near the community of Pelly Crossing (Figure 1). In addition, the Moose River was chosen for a reconnaissance aerial survey for spawning Chinook. While Mica and Needlerock creeks are well known to sustain spawning populations of Chinook salmon (Wilson 1999) little information has been documented on the Moose River, a tributary of the MacMillan River whose confluence is approximately 100 km east of the community of Pelly Crossing. Recently, the lower reaches of the Moose River have been included within the boundaries of a proposed Special Management Area. Juvenile Chinook salmon (jcs) are known to utilize rearing habitat in the lower reaches of Caribou, Grayling and Willow creeks near the community of Pelly Crossing. The physical and biological attributes of Caribou, Grayling and Willow creeks have been previously described by other research and stewardship programs (Wilson 1999, SRRC 2006). No previous information was available for Crosby Creek.

OBJECTIVES

The Selkirk Renewable Resource Council, together with the Selkirk First Nation, is continuing to support this project primarily to increase understanding of salmon resources within the SFN Traditional Territory. More specifically, this project is intended to maintain, and in some instances restore salmon populations to their fullest sustainable levels and protect those resources from conflicting land uses. Specific objectives of this project are too:

1. Continue to build capacity in conducting fisheries management projects in the community of Pelly Crossing;
2. Contribute to the process where the SFN and the SRRC take on an increasing role in the stewardship, management and research of land and resources within its Traditional Territory;
3. To examine, document and maintain access of salmon to traditional spawning and rearing habitat in watercourses near the community of Pelly Crossing;
4. Undertake adult spawning enumeration, dead pitch and redd surveys on salmon spawning streams near the community of Pelly Crossing;
5. Complete a preliminary assessment as to the extent of salmon utilization of Crosby Creek and the Moose River.

METHODS

A hydrological monitoring station, established on Mica Creek in 2005, was used in 2006 to record flow and surface temperatures. The station is intended to provide some insight into the range and regime of year to year variations of creek temperatures and flows as they pertain to salmon and salmon habitat. An AquaStar® PT2X submersible pressure and temperature sensor was attached to an anchor and placed on the stream bed. The sensors data cable and vent tube were secured to the base of a tree above the high water mark. The vent tube allowed the pressure sensor to compensate for changes in atmospheric pressure. Data was collected on an hourly basis and stored until downloaded into a laptop computer. At no time was the sensor disturbed or did its position vary relative to the water surface. A benchmark that was established in 2005 was used to derive a water surface elevation.

With the exception of the Moose River and Needle Rock Creek, instantaneous water discharge was measured at least once for each study stream. The location for the

discharge estimate was a relatively uniform cross section of the lower reaches of each stream. A propeller-driven Global Flow Probe was used to measure flow. The average velocity for each measurement in the cross section was derived by moving the probe vertically from the surface to the bottom for approximately 40 seconds. Individual measurements across the stream width were summed and converted into an instantaneous total discharge. For Mica Creek, a previously developed stage-discharge curve was used derive flow from hourly water level (stage) data recorded by the submerged sensor.

Onset Hobo™ temperature data loggers were installed between June 15 and 16 on Caribou, Grayling and Willow creeks in accordance with the *Yukon River Panel's Protocol for the collection and submission of data collected by Hobo™, StowAway™ or Tidbit™ brand Data Loggers for Canadian R&E Projects* (2006a). Each data logger was attached to a brick with zip ties and submerged in a deep scour pool. Sensors were placed directly under each bridge on the Pelly Farm road. Locations were marked with flagging tape tied to rooted riparian vegetation and GPS coordinates were noted. Loggers were retrieved on August 29 and recorded data was downloaded onto a laptop computer. Mean daily water temperatures were computed from recorded hourly temperatures for analysis.

Habitat within a 100 meter section of Crosby Creek both at the road crossing and near the confluence with the Pelly River, was surveyed using habitat assessment techniques described in the BC Resources Inventory Committee (2001) in their standards and procedures handbook. Variables that were measured included channel and wetted widths, cover and morphology characteristics, gradient and flow.

During June and July several obstruction surveys were conducted on the lower reaches of Caribou and Willow creeks. Willow Creek received the most effort throughout the early summer with identified barriers on these streams were managed in accordance with the *Yukon River Panel's Protocol for Obstruction Management* (2006b). As catches of jcs improved during July trapped fish on Caribou and Grayling Creeks were simply transported above physical barriers on the stream. All captured jcs were sampled in accordance with the *Yukon River Panel Protocol for collection and reporting of data from juvenile salmon sampled in Canadian R&E Projects* (2006c).

For the adult spawning period water flow conditions in 2006 were thought to be at a level that a pre-spawn aerial survey for barriers was not needed. High sustained summer flows are thought to discourage beaver from constructing new dams that would otherwise impede upstream migration of salmon. Aerial surveying was limited to single overflight of Moose River, Mica and Needlerock creeks during the peak spawning period which was believed to be in and around August 11, 2006. Features such as active beaver dams and associated ponding, logjams and any sightings of salmon or eagles were georeferenced during the flight. Based on observations during the flight the potential obstructions were priorized and managed in accordance with the *Yukon River Panel's Protocol for Obstruction Management* (2006b).

RESULTS AND DISCUSSION

CARIBOU CREEK

Caribou Creek represented one of the smallest drainages in the study area and was estimated to have an area of about 98 km^2. It discharges into the Pelly River about 24 km northwest and downstream of Pelly Crossing. The creek valley is situated in a south facing aspect. Caribou Creek is accessible by the Pelly Farm road that originates at Pelly Crossing. The road has a reach that runs parallel with the creek for a distance of about 3 km. There are two bridges that span the creek and both are in good condition, not posing any barrier to fish movement (Figure 1).

The water temperature logger installed on the stream bed in June was buried in sand and was not recoverable. Sand originating from a beaver pond situated some distance upstream was mobilized when the associated beaver dam was removed in early June (Figure 2 and 3). As in 2005, measured discharge was again consistent and low compared to other stream gauging sites on Grayling and Willow creeks, with estimates for the summer period ranging from 0.03 to 0.37 $m^3 sec^{-1}$ (Figure 4).

The lowest reach of Caribou Creek was characterized in 2005 as having abundant fish cover for fish and provided the best habitat values for fish. After consultation with both DFO habitat biologists and local road maintenance personal, two beaver dams in this section were removed in June in an attempt to provide greater access of jcs to additional upstream habitat. It was noted before their removal that the stream bed below the most

upstream beaver dam consisted of clean gravel and the turbidity of the water was generally low. After these barriers were removed turbidity immediately increased and remained high for a number of days. More importantly, the removal of the dam contributed a large bedload of sand that essentially smothered the clean gravels that constituted the streambed prior to removal of the dam. While the effect the sediment pulse had on fish catches is unknown it would have had some effect on invertebrate abundance and perhaps had a negative influence on jcs catches during the summer program.

Based on catch results of 2005, minnow trapping for jcs did not begin in earnest until early July. The first recorded captures of jcs were on July 7. Minnow trapping continued until the first week in August. During this period, a total of 246 wild jcs were captured in 264 overnight minnow trap sets (Table 1). All captured jcs were released upstream of a physical barrier associated with a creek diversion located just upstream of the 1st bridge crossing on Caribou Creek. The catch from most of the traps was sampled during each trapping episode for fork length (Appendix I). Catches of jcs in 2006 (0.9 fish/trap/24hr) were generally much lower in comparison to 2005 (7.0 fish/trap/24hr). Growth of all captured age 0^+ jsc from Caribou and Grayling creeks during the summer program is depicted in Figure 6. During the minnow trapping program a total of 27 age 1^+ jcs were also captured in Caribou Creek. Summer growth of this age group is depicted in Figure 7. Several of these larger juveniles were well over 140 mm in fork length causing some concern whether an error was made in their reported measurement or identification.

CROSBY CREEK

Crosby Creek is the smallest drainage in the study area and was estimated to have an area of about 45 km^2. It discharges into the Pelly River about 28 km northwest and downstream of Pelly Crossing. The creek valley is situated in a south facing aspect similar to the other study creeks in the area and is accessible by the Pelly Farm road as well as a spur road that accesses the creek mouth.

Crosby creek was surveyed on two occasions during the summer. The first survey was on June 30 where discharge was measured at two sites on the creek. The first site

was at the Pelly Farm road culvert about 4 km directly north of the creek mouth. The location was well above the Pelly River along the valley wall. Surface flows were modest here and estimated to be about 0.07 $m^3 sec^{-1}$. The second survey site on this creek was near its confluence with the Pelly River. The stream at this location was low in gradient with a shallow and poorly defined sandy channel that flowed roughly parallel to the Pelly River. Downstream of the site was a wide low wide depression that was dominated by *Equisetum sp* (Figure 5). The measured discharge of 0.01 $m^3 sec^{-1}$ was significantly less than the upstream site. It was concluded that much of the surface flows of this creek were becoming groundwater before entering the Pelly River. No surface flows were observed on the second survey of this site on July 13 and further fish and fish habitat investigations of Crosby Creek were discontinued.

GRAYLING CREEK

Grayling Creek, with a watershed of about 515 km^2, discharges into the Pelly River about 10 km northwest and downstream of Pelly Crossing. The creek valley has a south facing aspect and the creek origins are a series of small lakes up on the Pelly Plateau. Grayling Creek is accessible by the Pelly Farm road. The road crossing is a wooden bridge that is situated about 1.5 km upstream of the creek mouth (Figure 1). The road skirts along the west side of the creek around a large wetland. The wetland has long been established and is the result of extensive beaver activity and their dams that has modified the creek channel (Dale Bradley, pers. com., 2005).

Measured discharge varied significantly with estimates ranging from 0.36 to0.94 $m^3 sec^{-1}$ during June and July (Figure 4). As in 2005, flow declined sharply in July to a sustained flow during the later summer months of approximately 0.45 $m^3 sec^{-1}$. Wilson (1999) estimated winter base flows of about 0.28 $m^3 sec^{-1}$ for Grayling Creek. Water temperatures were generally cooler than those recorded for either Willow or Mica creeks throughout the summer, with a peak daily average of 9.6° C reached on July 29 (Figure 8).

As discussed previously, the lowest reach of Grayling Creek was dominated by a beaver modified channel that resulted in the creation of a large wetland. Below the furthest downstream beaver dam the main channel of the creek is deep, with numerous

glides and runs with few riffles. The velocity of the water is slow and the substrate consists of fine sediment and organics. At the creek mouth water levels can vary dramatically and are controlled by surface fluctuations of the Pelly River.

The first recorded capture of a jcs was on June 30 but it was not until mid July that the frequency of capture increase noticeably. Minnow trapping continued throughout July until the first week in August. During this period, a total of 326 wild jcs were captured in 249 overnight minnow trap sets (Table 1). All captured jcs were released upstream of the wetland at the Pelly Farm road crossing. A subsample of the catch was measured for a fork length during each minnow trapping episode (Appendix I). Catches of jcs in 2006 (1.3 fish/trap/24hr) were generally lower in comparison to 2005 (4.3 fish/trap/24hr). Growth of all captured age 0^+ jsc from Caribou and Grayling creeks during the summer program is depicted in Figure 6.

WILLOW CREEK

Willow Creek represents one of the larger drainages in the study area that is utilized by jcs for rearing with no known Chinook spawning population (Figure 1). The drainage area is about 615 km^2 and the stream discharges into the Pelly River a short distance downstream of the community of Pelly Crossing. The Willow Creek watershed has a south facing aspect and the creek flows in a southern direction from Willow Lake, skirting the west side of the Klondike Highway. Willow Creek is accessible by the Pelly Farm road where a bridge spans the lowest reach of the creek just above its confluence with the Pelly River. The bridge is in good condition, not posing any barrier to fish movement. The Klondike Highway crosses a headwater tributary of Grayling creek approximately 20 km north of Pelly Crossing.

Measured discharge varied between 0.37 and 1.78 m^3 sec^{-1} during the summer monitoring period with peak flows likely occurring in mid to late June. By early August, flows approximated those of Grayling Creek (Figure 4). No information could be located concerning winter base flows although they are likely to occur based on the size of this large drainage basin. As in 2005, water temperatures during the summer of 2006 were generally warmer than Grayling Creek with a peak daily average of 14.1° C reached on July 11 (Figure 8).

The lowest reach of Willow Creek contains abundant fish cover that provides excellent fish habitat values especially for jcs (Wilson 1999, SRRC 2006). All attempts were made to maintain access of about 3 km of documented rearing habitat in the lowest reach of the creek to juvenile fish. This required the monitoring of 3 beaver dams and breaching them several times throughout the period from late June to early August (Figure 9). Obstructions were generally not an issue until late July, a period of decreasing flows and an increase in the activity of beaver to construct dams. There appeared to be significantly more beaver activity of this stream compared to 2005.

Willow Creek received intensive restoration work in 2000 (Selkirk First Nation, 2002). At that time, a large beaver dam at the mouth made access by non-natal jcs difficult. Many of the beaver in lower Willow Creek were trapped and their associated dams breached. The 2005 stewardship project (SRRC 2006) found only remnants of past beaver dams during an obstruction survey in June. By fall several newly established beaver dams were located and breached to maintain access for jcs in the lowest reach of this stream. A single Chinook salmon adult was observed in Willow Creek in 1991 and none have been observed since (Don Trudeau, pers. com., 2006).

MICA CREEK

Mica Creek represents the largest watershed in the study area having a drainage area of 1,595 km^2. The drainage contains important rearing and spawning habitat for Chinook salmon as well as many species of freshwater fish (Wilson 1999; Selkirk First Nation 2001; FISS database). Mica Creek flows northwest from the Tatchun Hills into the Pelly River at the community of Pelly Crossing (Figure 1). Its basin contains several moderate sized lakes that include Tadru Lake, Ess Lake, Tatlmain Lake (Ta'tla Mun) and Towhata Lake. The drainage spans a distance of about 100 km in length. Mica Creek is accessible at several sites from an ATV trail that runs parallel to the creek. The trail terminates at Tatlmain Lake. A single bridge which spans Mica Creek is located in Pelly Crossing. The bridge is in good condition and does not impede fish movement.

On average, recorded surface water temperatures of Mica Creek at the monitoring station near the community, were warmer than the other smaller rearing streams that were monitored in 2006 (Figure 8). In comparison to the 2005 water temperature regime, 2006

was generally cooler except for a period during late July (Figure 9). Daily average temperature peaked at 16.8° C was reached on July 11, just prior to the arrival of adult Chinook salmon. Temperatures declined sharply at the end of July and again over the latter half of the spawning period to average at about 12.5° C through the month of August.

Figure 11 shows the average daily discharge in Mica Creek from June 15 to the end of August for the summers of 2000, 2005 and 2006. With the exception of spike in flow on June 30, flow in 2006 generally decreased steadily after freshet from a recorded high of 3.0 m^3 sec^{-1} to a more sustained flow of about 1.0 m^3 sec^{-1} that continued throughout the Chinook spawning and well into the egg incubation period. Recorded flows were generally lower during the late summer than either 2000 or 2005. During the Chinook spawning period from July 15 to August 15, average discharge was 1.2 m^3 sec^{-1}. In 2000 and 2005 the average discharge for the same period was 1.8 m^3 sec^{-1} and 1.4 m^3 sec^{-1}, respectively. Little study of base winter flows of Mica Creek has been previously completed. A single measurement at the end of March in 1999 reported a flow of 0.39 m^3 sec^{-1}(Wilson 1999).

An aerial survey on August 11 of Mica Creek, from below Towhata Lake to its confluence with the Pelly River, revealed several low lying dams without ponds in the lowest reaches the stream. No spawning salmon were observed in the creek although visibility was limited by high winds that rippled the water surface. Several groupings of bald eagles were seen during the flight and most of the habitat where previous sightings of adult salmon had been noted, were clear and free of major obstructions. Nonetheless, crews were dispatched on several occasions to survey the beaver dams on the lowest reaches of the creek. The dams were determined to have been recently constructed, pooling little water and having very little hydraulic head. No adult salmon were observed below or lodged in any dam infrastructure. Crews breached two of the dams that had the most potential obstruct fish movement on several occasions. Due to budgetary and scheduling constraints the lowest reach of Mica Creek was not foot surveyed in 2006. Therefore, redd and dead pitch surveys were not completed during this project.

MOOSE RIVER

Moose River has a catchment area of approximately 1,055 km^2. Moose River flows southwest from its headwaters in the Stewart Plateau. The watershed contains two moderately sized lakes, Moose and Mist lakes. Moose River is about 30 km in length from the outlet of Moose Lake to its confluence with the McMillan River, a large tributary of the Pelly River. Its confluence with the Macmillan River is approximately 96 km east of the community of Pelly Crossing. The watershed is bounded by the Kalzas River basin to the west, the Hess River basin to the north and Russell Creek to the east. The drainage is only accessible in the summer by boat or aircraft during the open water season.

An aerial survey of Moose River on August 11 revealed several spawning Chinook salmon and several eagles in the lower reaches of the creek approximately 1 to 2 km upstream from the confluence with the Pelly River. While the extent of Chinook spawning habitat in this stream remains unknown, habitat utilization is likely more pronounced along the lower reaches of this stream akin to the distribution of spawning adults and redds on Mica and Needlerock creeks (Wilson 1999; Selkirk First Nation 2001; SRRC 2006; FISS database). Stream morphology at the Moose Lake outlet was characterized as a low gradient wetland inundated with slow moving water and expanses of aquatic vegetation not characteristic of Chinook spawning habitat. The mid and lower reaches of the creek had long sections of riffle-pool habitat with ample fish cover and very few potential obstructions. No spawning fish or scavengers (eagles or bears) were observed in the upper reaches although the meandering nature of the stream and overhanging vegetation made visibility difficult.

NEEDLEROCK CREEK

The Needlerock Creek catchment basin is only slightly smaller than the Moose River basin having a drainage area of 991 km^2. Its headwaters originate in the Tatchun Hills, flowing northwest and entering the Pelly River just below Granite Canyon approximately 18 km east of Pelly Crossing (Figure 1). As with Mica Creek, this drainage also contains important rearing and spawning habitat for Chinook salmon as well as many species of freshwater fish (Wilson 1999; Selkirk First Nation 2001; FISS

database). Access to this watershed is primarily by boat during the open water season. There is also an abandoned winter road from Pelly Crossing that crosses the lower reaches of this stream. The road was constructed in the early 1980s and is in poor condition which prevents easy access by off road vehicles such as ATV's and snow machines. Unlike the Mica Creek watershed, the Needlerock Creek basin contains few lakes and those present are comparatively small in size.

An aerial obstruction survey on August 11 of Needlerock Creek revealed the stream was clear and open to above the furthest point of previously documented adult salmon sightings. No spawning salmon were observed in the creek although visibility in the water was limited by high winds that rippled the water surface. Several groups and individual bald eagles were noted along the lowest reach just above the confluence with the Pelly River. Due to budgetary and scheduling constraints the lowest reach of Needlerock Creek was not foot surveyed in 2006. Therefore, redd and dead pitch surveys were not completed during this project.

RECOMMENDATIONS

1. Continue efforts to monitor access constraints of juvenile Chinook salmon to rearing habitat in the lower reaches of Caribou, Grayling and Willow creeks.

2. Continue to explore mitigative options for the Caribou Creek diversion channel and erosional issues associated with the Pelly Farm road.

3. Restore juvenile Chinook salmon rearing capacity of Caribou, Grayling and Willow creeks by minnow trapping below the lowest barrier in the drainage for release into suitable upstream rearing habitat.

4. Continue efforts to monitor and maintain access of adult Chinook salmon to spawning habitat in the lower reaches of Mica and Needlerock creeks.

REFERENCES

BC Resources Inventory Committee. 2001. Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures. Version 2.0. Web site: http://ilmbwww.gov.bc.ca/risc/pubs/aquatic/recon/ch4.htm Accessed: January 24, 2006.

Beacham, T. D. J. R. Candy, K. L. Jonsen, J. Supernault, M. Wetklo, L. Deng, K. M. Miller, R. E. Withler, and N. V. Varnavskaya. *in press*. *Estimation of stock composition and individual identification of Chinook salmon across the Pacific Rim using microsatellite variation.* Transactions of the American Fisheries Society.

Government of Canada. Unpublished. *FISS database.* Fisheries and Oceans Canada, Fish Habitat Branch. Web Site: http://www-ops2.pac.dfo-mpo.gc.ca/fiss/dcf01.cfm Accessed: January 24, 2006.

Lichatowich, J. 1999. Salmon without rivers. A history of the Pacific salmon crisis. ISBN 1-55963-360-3. Island Press. Washington, DC. USA

Selkirk First Nation. 2001. *Salmonid Habitat Restoration and Monitoring of Three Sub-drainages of the Pelly River, Yukon Territory 2000.* Prepared by Can-nic-a-nick Environmental Sciences. Prepared for DFO, Yukon Dept. of Ren. Res. and the Yukon Fish and Wild. Man. Board.

Selkirk Renewable Resource Council (SRRC). 2006. Pelly River Sub-basin Community Stewardship Project. Prepared by Can-nic-a-nick Environmental Sciences. Prepared for the Yukon River Panel and Selkirk First Nation.

Wilson, J. 1999. *Chinook Salmon Habitat Assessment and Restoration Enhancement Possibilities for selected tributaries of the Pelly River in the vicinity of Pelly Crossing, 1998.* Prep. for the Yukon River Panel, Whitehorse, Yukon.

Yukon River Panel. 2006a. *Protocol for the collection and submission of data collected by Hobo™, StowAway™ or Tidbit™ brand Data Loggers for Canadian R&E Projects.* 1 p.

Yukon River Panel. 2006b. *Protocol for Obstruction Management in Canadian YR R&E Projects* 1 p.

Yukon River Panel. 2006c. *Protocol for collection and reporting of data from juvenile salmon sampled in Canadian R&E Projects.* 1 p.

PERSONAL COMMUNICATION

Alfred, Roger July 2006. Selkirk First Nation, Pelly Crossing, Yukon. Y0B 1P0. Tel: 867-537-3331.

Bradley, Dale August 2005. Farmer, Pelly Crossing, Yukon Y0B 1P0. Tel: Mobile Phone 2M-8339 (Minto Tower).

Trudeau, D. January 2006. Elder, Pelly Crossing, Yukon Y0B 1P0. E-mail: Trudeau@northwestel.net Tel: 867-537-3331.

ACKNOWLEDGEMENTS

The author gratefully acknowledges the efforts and dedication of Dorothy Bradley of the Selkirk District Renewable Resource Council for financial administration and management of this project. Hugh Monaghan, the Executive Secretary of the Yukon River Panel, provided both encouragement and administrative support on behalf of the Yukon River Panel. The excellent effort of Al von Finster, Rick Ferguson and Jody Mackenzie-Grieve are also acknowledged for their technical knowledge, project guidance and review of this manuscript on behalf of Fisheries and Oceans Canada. Recognition and thanks is also extended to the excellent field assistance of Kevin Vaughan, Calvin Menzi and Scott Bradley. Thanks to all.

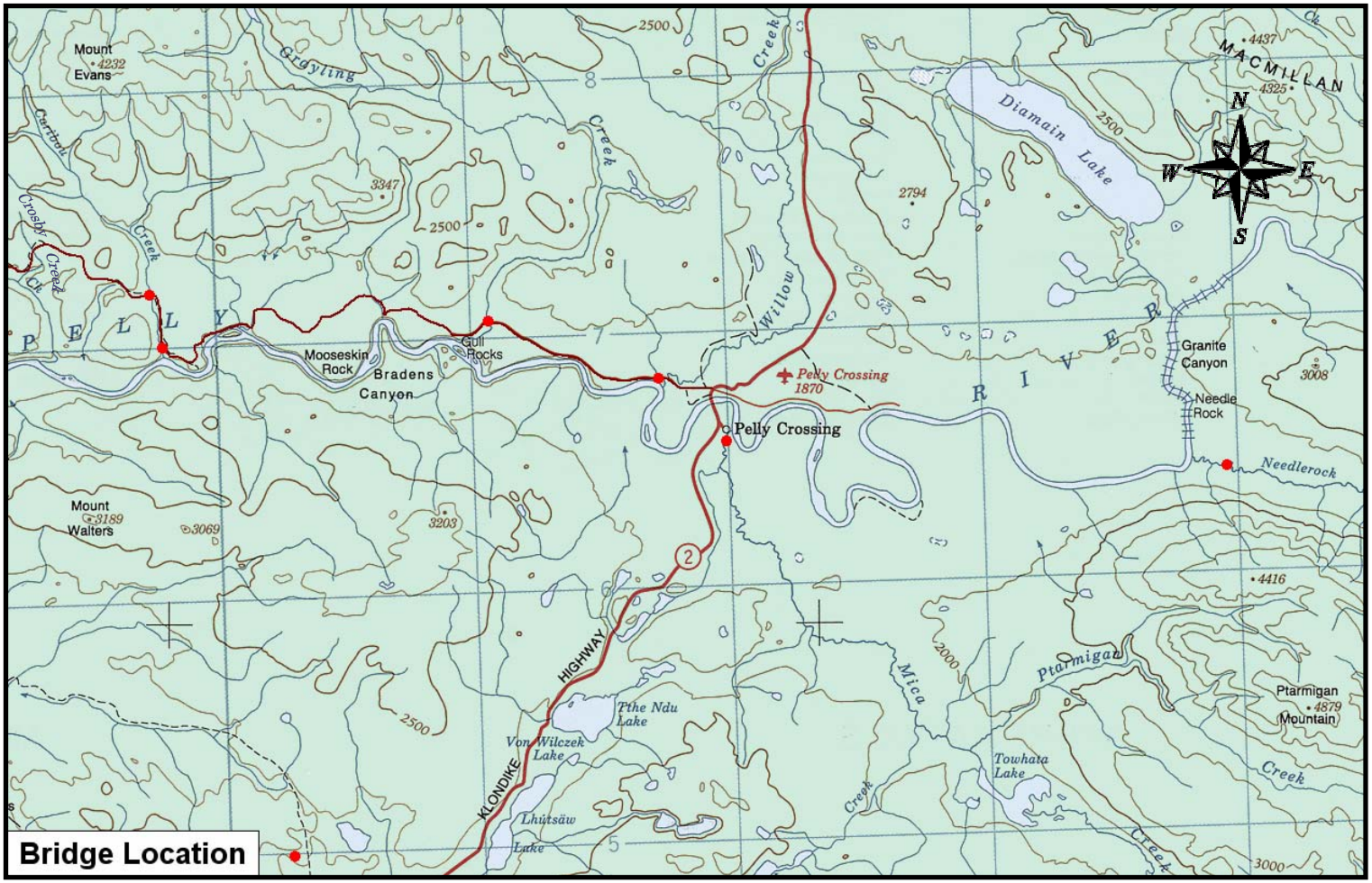


Figure 1 Pelly River stewardship project primary study area showing Caribou, Grayling, Mica, Needlerock and Willow Creek drainages in the Selkirk First Nation Traditional Territory.

5 0 5 10 15 km

SCALE 1 : 250,000

Figure 2 Large inactive beaver dam located upstream of the 1st bridge on Caribou Creek and removed on June 16, 2006.

Figure 3 Erosion of sediment from behind a large beaver dam that was removed from Caribou Creek on June 16, 2006.

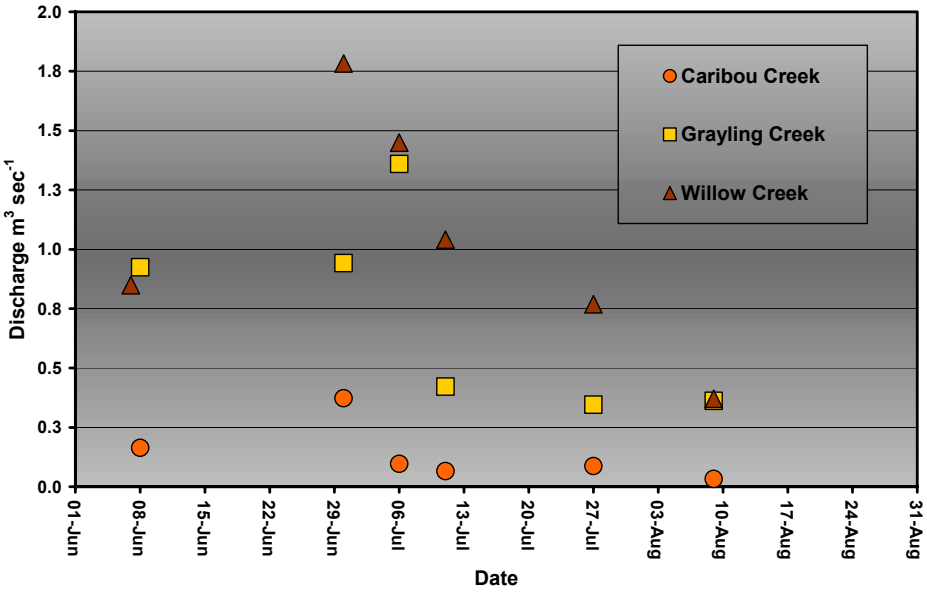


Figure 4 Comparison of instantaneous flow measurements collected in the lower reaches of Caribou, Grayling, and Willow creeks near Pelly Crossing during the summers of 2005 and 2006.

.

Figure 5 Crosby Creek near the confluence with the Pelly River on June 30, 2006

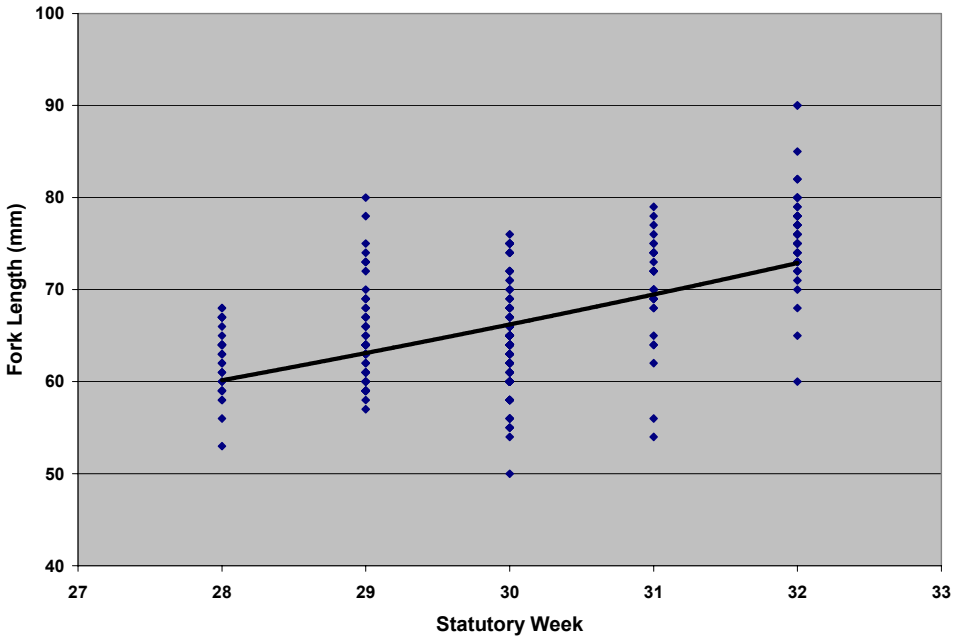


Figure 6 Growth of wild juvenile Chinook salmon (0^+) captured in minnow traps from Caribou and Grayling creeks near the community of Pelly Crossing during the summer of 2006.

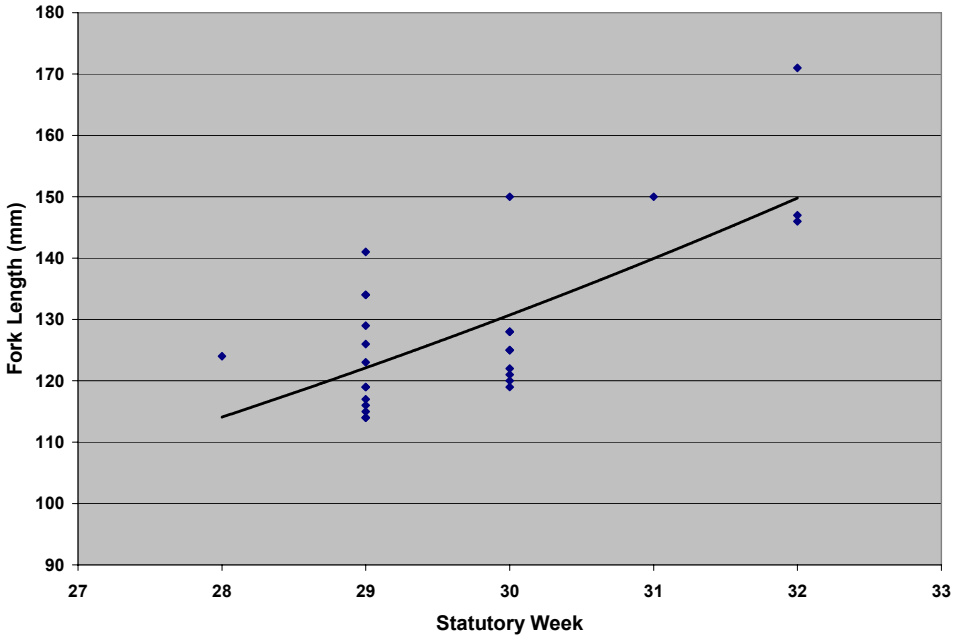


Figure 7 Growth of wild juvenile Chinook salmon (1^+) captured in minnow traps from Caribou Creek near the community of Pelly Crossing during the summer of 2006.

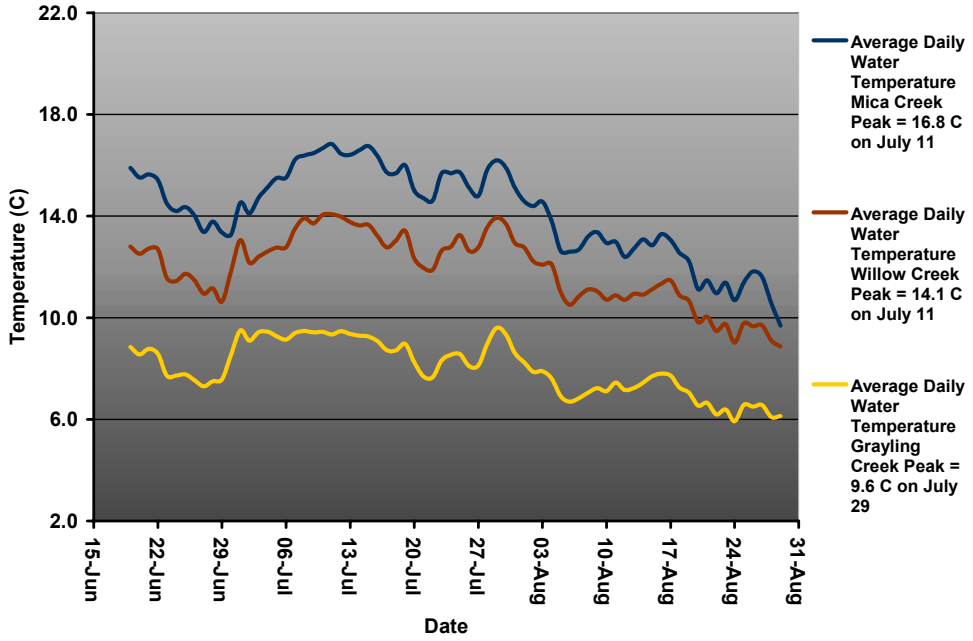
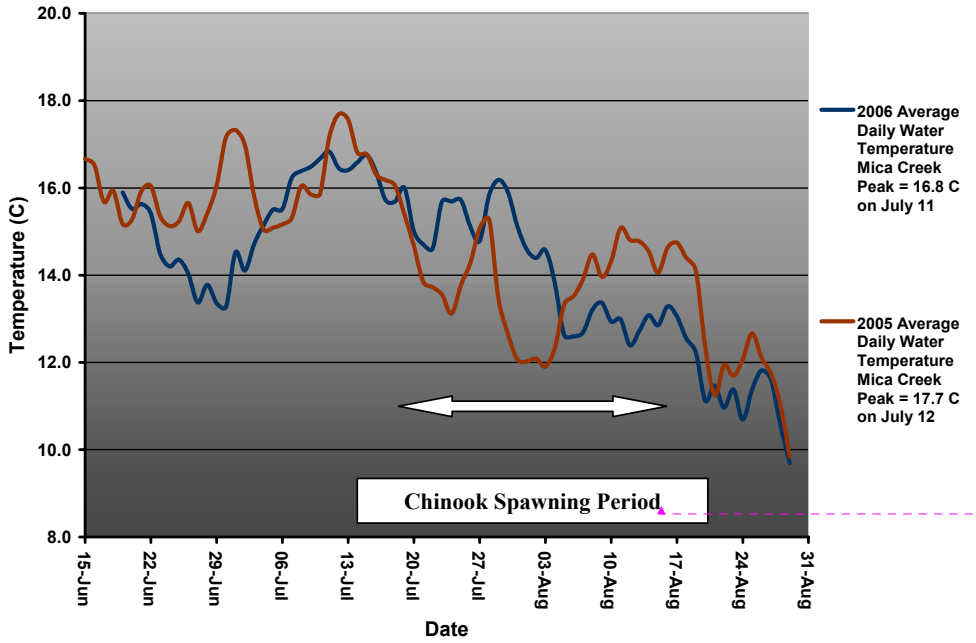


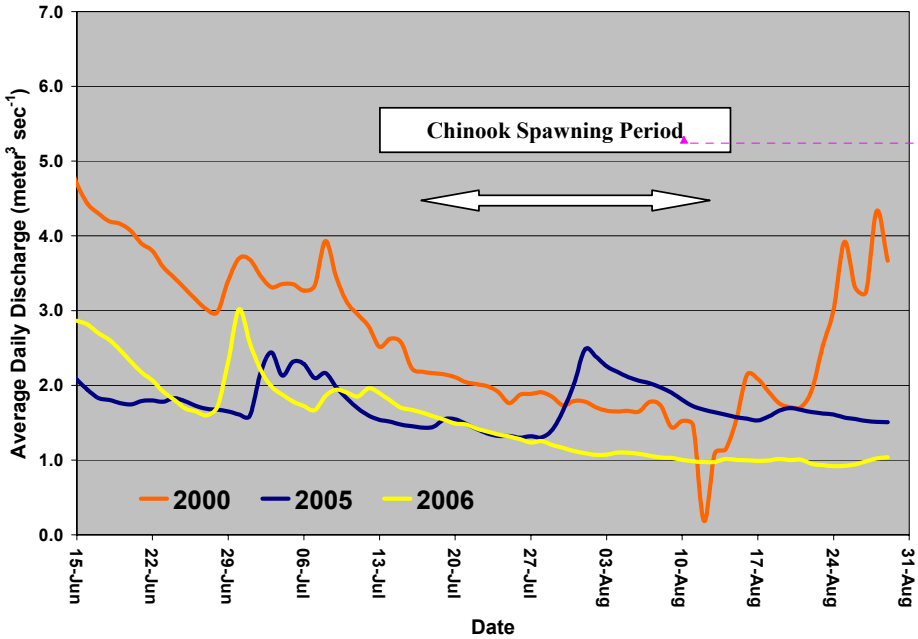
Figure 8 Comparison of water temperatures in the lower reaches Mica, Willow and Grayling creeks near Pelly Crossing during the summer of 2006.



Formatted: Font: 10 pt, Bold, English (Canada)

Figure 9 Comparison of 2005 and 2006 summer water temperatures in the lower reaches Mica Creek, a Chinook spawning stream located near Pelly Crossing.

Figure 10 One of several beaver dams that were breached on the lower reaches of Willow Creek during the summer of 2006.



Formatted: Font: 10 pt, Bold, English (Canada)

Figure 11 Average daily discharges recorded in the lower reaches of Mica Creek near Pelly Crossing during the summers of 2000, 2005 and 2006.

Table 1 Catch and effort statistics of wild juvenile Chinook salmon captured in minnow traps in Caribou and Grayling creeks near the community of Pelly Crossing during the summer of 2006.

Parameter	Caribou Creek	Grayling Creek
No. Minnow Traps	264	249
Average Soak Time (hr)	23.8	23.6
Wild Juvenile Chinook Catch	246	326
CPUE (fish/trap/24hr)	0.9	1.3

APPENDIX I

2006 JUVENILE CHINOOK SALMON CAPTURE DATA

APPENDIX I 2006 JUVENILE CHINOOK SALMON CAPTURE DATA

Location	Drainage	Date	Species	Length (mm)	Age (years)
Caribou Creek	Pelly - Yukon	12-Jul-06	Chinook	60	0+
Caribou Creek	Pelly - Yukon	12-Jul-06	Chinook	61	0+
Caribou Creek	Pelly - Yukon	12-Jul-06	Chinook	62	0+
Caribou Creek	Pelly - Yukon	12-Jul-06	Chinook	63	0+
Caribou Creek	Pelly - Yukon	12-Jul-06	Chinook	63	0+
Caribou Creek	Pelly - Yukon	12-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	12-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	12-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	12-Jul-06	Chinook	67	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	58	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	59	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	60	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	61	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	63	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	67	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	67	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	67	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	68	0+
Caribou Creek	Pelly - Yukon	13-Jul-06	Chinook	124	1+
Caribou Creek	Pelly - Yukon	14-Jul-06	Chinook	65	0+
Caribou Creek	Pelly - Yukon	14-Jul-06	Chinook	66	0+
Caribou Creek	Pelly - Yukon	14-Jul-06	Chinook	67	0+
Caribou Creek	Pelly - Yukon	14-Jul-06	Chinook	68	0+
Caribou Creek	Pelly - Yukon	19-Jul-06	Chinook	66	0+
Caribou Creek	Pelly - Yukon	19-Jul-06	Chinook	67	0+
Caribou Creek	Pelly - Yukon	19-Jul-06	Chinook	68	0+
Caribou Creek	Pelly - Yukon	19-Jul-06	Chinook	72	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Caribou Creek	Pelly - Yukon	19-Jul-06	Chinook	73	0+
Caribou Creek	Pelly - Yukon	19-Jul-06	Chinook	74	0+
Caribou Creek	Pelly - Yukon	19-Jul-06	Chinook	126	1+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	59	0+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	62	0+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	63	0+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	70	0+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	73	0+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	75	0+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	80	0+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	117	1+
Caribou Creek	Pelly - Yukon	20-Jul-06	Chinook	141	1+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	59	0+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	63	0+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	67	0+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	69	0+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	69	0+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	78	0+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	114	1+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	119	1+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	129	1+
Caribou Creek	Pelly - Yukon	21-Jul-06	Chinook	134	1+
Caribou Creek	Pelly - Yukon	22-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	22-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	22-Jul-06	Chinook	68	0+
Caribou Creek	Pelly - Yukon	22-Jul-06	Chinook	114	1+
Caribou Creek	Pelly - Yukon	22-Jul-06	Chinook	115	1+
Caribou Creek	Pelly - Yukon	22-Jul-06	Chinook	116	1+
Caribou Creek	Pelly - Yukon	22-Jul-06	Chinook	119	1+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Caribou Creek	Pelly - Yukon	22-Jul-06	Chinook	123	1+
Caribou Creek	Pelly - Yukon	22-Jul-06	Chinook	134	1+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	58	0+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	60	0+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	65	0+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	69	0+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	70	0+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	71	0+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	71	0+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	75	0+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	120	1+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	121	1+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	125	1+
Caribou Creek	Pelly - Yukon	23-Jul-06	Chinook	128	1+
Caribou Creek	Pelly - Yukon	25-Jul-06	Chinook	72	0+
Caribou Creek	Pelly - Yukon	25-Jul-06	Chinook	74	0+
Caribou Creek	Pelly - Yukon	25-Jul-06	Chinook	119	1+
Caribou Creek	Pelly - Yukon	25-Jul-06	Chinook	122	1+
Caribou Creek	Pelly - Yukon	25-Jul-06	Chinook	125	1+
Caribou Creek	Pelly - Yukon	25-Jul-06	Chinook	128	1+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	55	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	62	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	63	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	63	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	68	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	69	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	72	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	75	0+
Caribou Creek	Pelly - Yukon	27-Jul-06	Chinook	150	1+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	68	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	68	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	69	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	69	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	69	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	70	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	70	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	70	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	72	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	72	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	72	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	72	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	73	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	74	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	74	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	74	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	74	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	75	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	75	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	76	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	77	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	78	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	79	0+
Caribou Creek	Pelly - Yukon	30-Jul-06	Chinook	150	1+
Caribou Creek	Pelly - Yukon	07-Aug-06	Chinook	73	0+
Caribou Creek	Pelly - Yukon	07-Aug-06	Chinook	77	0+
Caribou Creek	Pelly - Yukon	07-Aug-06	Chinook	78	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Caribou Creek	Pelly - Yukon	07-Aug-06	Chinook	90	0+
Caribou Creek	Pelly - Yukon	07-Aug-06	Chinook	90	0+
Caribou Creek	Pelly - Yukon	07-Aug-06	Chinook	146	1+
Caribou Creek	Pelly - Yukon	07-Aug-06	Chinook	147	1+
Caribou Creek	Pelly - Yukon	07-Aug-06	Chinook	171	1+
Caribou Creek	Pelly - Yukon	08-Aug-06	Chinook	77	0+
Caribou Creek	Pelly - Yukon	08-Aug-06	Chinook	78	0+
Caribou Creek	Pelly - Yukon	08-Aug-06	Chinook	82	0+
Grayling Creek	Pelly - Yukon	14-Jul-06	Chinook	53	0+
Grayling Creek	Pelly - Yukon	14-Jul-06	Chinook	56	0+
Grayling Creek	Pelly - Yukon	14-Jul-06	Chinook	58	0+
Grayling Creek	Pelly - Yukon	14-Jul-06	Chinook	59	0+
Grayling Creek	Pelly - Yukon	14-Jul-06	Chinook	59	0+
Grayling Creek	Pelly - Yukon	14-Jul-06	Chinook	59	0+
Grayling Creek	Pelly - Yukon	14-Jul-06	Chinook	62	0+
Grayling Creek	Pelly - Yukon	14-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	19-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	19-Jul-06	Chinook	61	0+
Grayling Creek	Pelly - Yukon	19-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	19-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	19-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	19-Jul-06	Chinook	66	0+
Grayling Creek	Pelly - Yukon	19-Jul-06	Chinook	67	0+
Grayling Creek	Pelly - Yukon	19-Jul-06	Chinook	73	0+
Grayling Creek	Pelly - Yukon	20-Jul-06	Chinook	58	0+
Grayling Creek	Pelly - Yukon	20-Jul-06	Chinook	59	0+
Grayling Creek	Pelly - Yukon	20-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	20-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	20-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	20-Jul-06	Chinook	61	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Grayling Creek	Pelly - Yukon	20-Jul-06	Chinook	62	0+
Grayling Creek	Pelly - Yukon	20-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	20-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	21-Jul-06	Chinook	61	0+
Grayling Creek	Pelly - Yukon	21-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	21-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	57	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	59	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	59	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	59	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	59	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	61	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	66	0+
Grayling Creek	Pelly - Yukon	22-Jul-06	Chinook	69	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	56	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	58	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	58	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	62	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	67	0+
Grayling Creek	Pelly - Yukon	23-Jul-06	Chinook	67	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Grayling Creek	Pelly - Yukon	25-Jul-06	Chinook	70	0+
Grayling Creek	Pelly - Yukon	25-Jul-06	Chinook	74	0+
Grayling Creek	Pelly - Yukon	25-Jul-06	Chinook	75	0+
Grayling Creek	Pelly - Yukon	25-Jul-06	Chinook	75	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	50	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	54	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	55	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	55	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	56	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	56	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	58	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	58	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	58	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	58	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	58	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	61	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	61	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	61	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	61	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	61	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	62	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	62	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	62	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	62	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	62	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	62	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	63	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	66	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	66	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	66	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	66	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	66	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	66	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	66	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	66	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	67	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	67	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	67	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	68	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	68	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	68	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	68	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	68	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	68	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	69	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	70	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	72	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	72	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	74	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	75	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	75	0+
Grayling Creek	Pelly - Yukon	27-Jul-06	Chinook	76	0+
Grayling Creek	Pelly - Yukon	30-Jul-06	Chinook	54	0+
Grayling Creek	Pelly - Yukon	30-Jul-06	Chinook	56	0+
Grayling Creek	Pelly - Yukon	30-Jul-06	Chinook	62	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Grayling Creek	Pelly - Yukon	30-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	30-Jul-06	Chinook	64	0+
Grayling Creek	Pelly - Yukon	30-Jul-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	30-Jul-06	Chinook	69	0+
Grayling Creek	Pelly - Yukon	30-Jul-06	Chinook	70	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	60	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	65	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	68	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	70	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	71	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	72	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	72	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	73	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	73	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	73	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	74	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	74	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	74	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	75	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	75	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	75	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	75	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	76	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	76	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	76	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	76	0+

Location	Drainage	Date	Species	Length (mm)	Age (years)
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	77	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	77	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	78	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	78	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	78	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	79	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	79	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	80	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	80	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	80	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	80	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	82	0+
Grayling Creek	Pelly - Yukon	08-Aug-06	Chinook	85	0+