

YUKON FISHERIES NEWS

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FALL 2006



YUKON RIVER
DRAINAGE
FISHERIES ASSOCIATION

*A United Voice for
Downriver and Upriver
Fishermen.*



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YRDFA reserves the right to include or omit any submissions to the Yukon Fisheries News. The views expressed in this newsletter are those of the author and may not necessarily reflect the views of YRDFA.

THE CHATANIKA RIVER HABITAT RESTORATION PROJECT

BY CHRIS STARK

In a multi-agency effort to restore salmon access to 65 miles of habitat in the upper Chatanika River, a Tanana River tributary just west of Fairbanks, a dam originally built in the 1923 was partially removed in the winter of 2001-2002. The Yukon River Drainage Fisheries Association (YRDFA) sponsored a stream monitoring project to document the return of adult and/or juvenile salmon to this upper portion of the Chatanika River.

The Chatanika River above the dam was not cataloged as anadromous by the State of Alaska. Verification of juvenile or adult salmon presence was required to receive anadromous status and associated level of environmental protection by the state of Alaska. Without anadromous protection the basic reason for removing the dam, giving salmon access to 65 miles of stream habitat, is in danger. Numerous placer mining operations are presently working in this area of the Chatanika drainage. As of fall of 2006, juvenile Chinook salmon have been found in approximately 75% of the recently accessible 65 miles of habitat above the dam. The stream habitat not occupied during surveys was likely not occupied due to lower stream flow conditions. The dam removal has been a great success. Juvenile Chinook have even been found in streams with active mining (i.e. Faith Creek).

Since 2002 field surveys have been undertaken, annually, in the late summer

and early fall. During late summer surveys, adult Chinook have been found spawning 12 miles below the dam site but non above the dam. Adult chum salmon have been located 20 miles below the dam site. As expected juvenile Chinook are not able to swim upstream until they grow to 6 cm (2½ inches) in length, which should be by late July. Juvenile Chinook have been found upstream of the dam every year, though no adult Chinook nor any juvenile chum salmon have been found upstream of the dam.

Alaska Department of Natural Resources (DNR), Office of Habitat Management and Permitting (OHMP) personnel conducted juvenile salmon surveys above the dam site in August 2003 and 2004. They confirmed the findings reported in 2003 (2002 field work) by YRDFA as well as finding juvenile salmon in Ruby, Faith and in the Chatanika River just below the confluence of McManus and Smith Creeks (upstream of 2002 located fish and the dam). These findings have been nominated by DNR-OHMP for inclusion in the anadromous stream catalog, a very significant step, especially on Faith Creek, a currently mined stream.

Restoring salmon habitat and access to that habitat should make the Chatanika River a more viable salmon producer and help maintain the sustainability of the Yukon River fisheries.

This work was completed through funding provided by NOAA, grants number NA03NMF4720295.

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* sponsored by Alakanuk Native Corp. ** sponsored by Nerkilikmute Native Corp. *** sponsored by Kotlik Yupik Corp.
**** sponsored by Pilot Station Inc.

YUKON FISHERIES NEWS

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and the management of Yukon River salmon.

A MESSAGE FROM THE DIRECTOR

BY JILL KLEIN, EXECUTIVE DIRECTOR

As the summer season comes to an end and fall has arrived, we are thinking about meeting season. Every October, the meetings begin to review one summer and plan for the next. This winter brings a different meeting



that we have not seen in a few years; the Alaska State Board of Fisheries (BOF) Arctic-Yukon-Kuskokwim meeting, which will be taking place January 31st – February 5th, 2007.

Preparing for and attending BOF meetings brings me back to the core of what the Yukon River Drainage Fisheries Association (YRDFA) is about. YRDFA was formed to work on communications between user groups and to promote the health of the salmon stocks. Bringing a group of fishermen from the different geographic regions of the river together, YRDFA enables people to talk about the difficult issues facing their fisheries. Sixteen years ago, it was apparent that an organized voice for the Yukon River was needed. Again today, while we have made progress, there is still the need for us to focus on the goal of communicating and working together.

The AYK region has been one of the most, if not the most affected in Alaska by low salmon returns. It is only natural that conflict will arise out of low numbers of the natural resources that people depend on. While other parts of the world are actually engaged in warfare over their resources, we should be thankful that we are not at that stage of conflict. But, we are at a point where the AYK BOF meetings might be more contentious due to strong emotions over wanting to protect the salmon and the people who depend on the salmon. It is still important that we mitigate even this level of conflict.

While YRDFA provides a forum for people to work within, there are other groups with other missions working on the Yukon River and we all need to work together at the organizational level when we attend the BOF. While we may have our viewpoints to secure, we also have to be responsible to the other

viewpoints that exist. Responsibility to listen to each other will only enable us to work better together and more importantly, it will facilitate a cohesive and organized approach to working together. It would be extremely powerful if we went into the BOF in a prepared manner in 2007. Not only would we be making our own decisions that best suit the Yukon River, but we would be portraying our region as a model that can work together to solve fisheries problems.

One issue in particular is fish size. Repetitive proposals have been submitted to the BOF to take action based on the size of salmon, as well as other issues related to getting the right amount, the right gender ratio and the right size of salmon to upriver fisher-

men and to the spawning grounds. This is an important issue, since we have seen so many proposals go before both the state and federal regulatory agencies. Due to the seriousness of the issue, YRDFA is sponsoring a fish size meeting on October 30th in Anchorage. We will be bringing fishermen, scientists and managers together to discuss the importance of fish size in salmon populations and what we know about it on the Yukon River. We hope that this meeting will bring together local observations from fishermen, scientific review of data and also policy decisions that affect on the ground fishing activities. It is this axis of interaction that leads to us moving forward to work on today's problems for tomorrow's future. ☞

You're invited to attend
**A Riverwide Meeting on the
Size of Yukon River Chinook Salmon**

Monday, October 30, 2006
8:30 a.m. - 5 p.m.

Hilton Hotel
500 West 3rd Avenue · Anchorage, Alaska

**Gather with Yukon River fishers and state and federal agency staff
to learn about the size of Yukon River Chinook (King) salmon.**

THE AGENDA WILL INCLUDE:

- **Local observations:** what fishers are seeing up and down the Yukon River;
- **Presentations** on the science of fish size and;
- **Group discussion** on how to monitor and preserve Yukon River Chinook (Kings).

*Please call Casey at the YRDFA office (1.877.999.8566 x101)
to let us know you'll be attending this meeting by **October 20**.*

Some limited travel assistance is available, but we urge you to seek funds to attend this meeting as there will be more interest than funds available.

A group discount rate is available at the Hilton.
Call 907.272.7411 or 1.800.HILTONS and
ask for the Yukon River Drainage Fisheries Association rate.

2006 RAMPART RAPIDS VIDEO FISH WHEEL PROJECT FALL CHUM SALMON SEASON SUMMARY AND ASSESSMENT METHOD

BY STAN ZURAY

FALL SUMMARY

Total fall chum run size guess through Rapids this year ended up at 455,262 fish. Looking at all project years from 1996 to 2006, only 1996 (728,221) and 2005 (1,459,167) were higher.

The first sign of fall chum arrival was on August 2nd when the catch rate started to rise and the normal summer chum “percent of red flesh” of 5-8% rose to 13%. By August 4th the catches had tripled and red fleshed chum rate was over 50%, which is the point each year, this project starts counting all chum as fall chum.

Four pulses were identified by ADF&G and to avoid confusion Rapids video goes by those designations. This year the first pulse corresponded nicely to Rapids first pulse. Over the years the fall chum have arrived at different dates, which puts Rapids first fall pulse often before or after the first fall pulse as determined using the ADF&G method.

Pulse 1 is always the most valued for people food with dry fish and some strips being made. The fish are their fullest and flesh the richest. Every pulse after has declining amount of these qualities with the front side of each individual pulse being the best and backside having the poorer fish. Catch rates were around 500 per day which

traditionally and project wise was good for this site and wheel. The percent of chum Rapids caught of Pilot Sonar’s estimate 18 days prior, during the first pulse, was lower than normal, which was probably because of a higher than normal amount of summer chum still coming in the mouth. Relatively few of these summer chum make it up to Rapids.

Pulse 2 was the largest, making up about 180,000 fish and still of high quality for people food. Pulses 3 and 4 were each about 90,000 and 70,000 respectively. Presently the chum catches are declining as pulse 4 moves further up river.

This year the later pulses moved upriver from Pilot Sonar at a slower than normal travel rate. Chum took almost three days longer to arrive, giving them an average of under 30 miles a day travel speed with the normal being about 35. It was thought the extreme high water that was present during much of the chum migration may have been a factor.

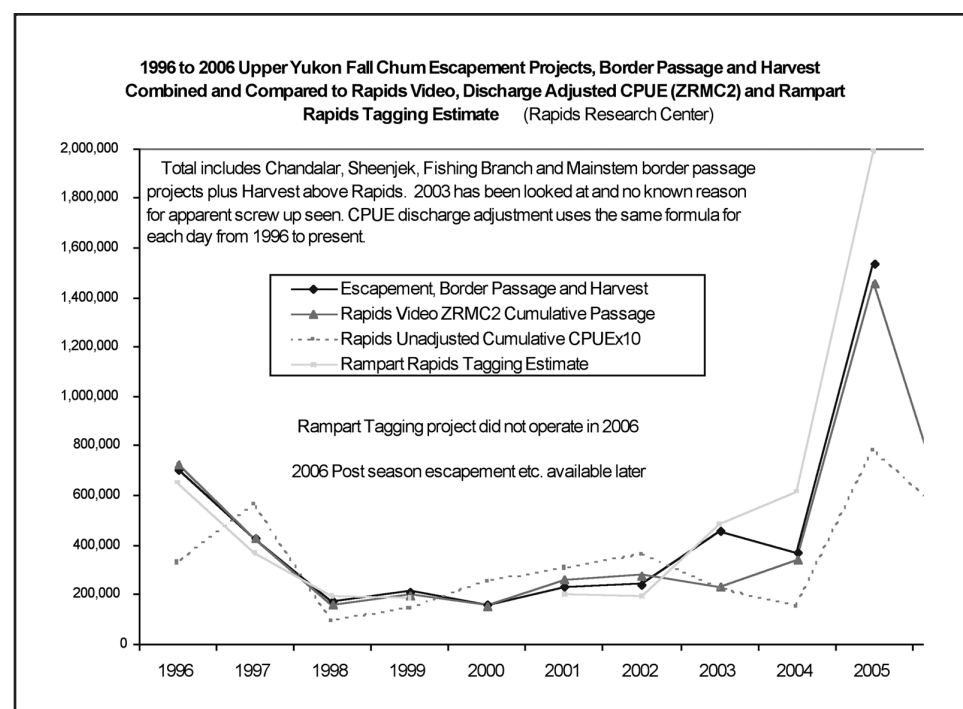
Water temperature at Rapids during the fall season varied from high in the beginning, to low midway and presently (9/16) it is back higher than normal.

For a complete 2006 listing of daily in

season comments on run activity in the Tanana, Rapids and Rampart area through word of mouth and observation or previous years video project data reports and related project info visit the project web site at: www.RapidsResearch.com

ASSESSMENT METHOD

Rapids test fishwheel assessment is made by taking 24 hour video counts and adjusting that number using a formula that takes into account the speed of the current at the fish wheel. It is much more accurate than comparing traditional CPUE each year at this site because of the varied influence of water height and speed. This then gives a number similar to a daily passage estimate. At this site it is possible to do this by monitoring USGS discharge or water height readings taken upriver at the Yukon River Bridge, as those readings have a linear relationship to the site current speed. The basic idea for this is born of fishers’ traditional knowledge that as current speed increases fish have the tendency to move closer to the banks (and fishwheels) to avoid the increased flow, and will spread out and away from the wheel as speed decreases. There are two key things that have made this type of assessment easier here. One is that there is never a time when the water does not raise that the speed of current does not increase, or water lower and the current decrease. This was shown by velocity readings taken over two summers and is not the norm for the average fish wheel site which often has periods of faster and slower current speeds unrelated to water discharge. Second is that for 10 years the site was also contracted to catch fall chum for a USFWS tagging project producing a weekly population estimate. This gave the video project many hundreds of daily “efficiency of fish wheel in different water discharges” data points with which to construct a workable formula. The method is highly suspect among many educated persons. The end result however is a yearly estimate of passage past the Rapids, which compares remarkably similar to a combined post season Upper Yukon escapement, harvest, and border passage figure from 1996 to 2005. This yearly figure is the primary method the USFWS uses to evaluate projects such as the Rampart Fall Chum Tagging project. ☺



2006 YUKON RIVER PANEL EDUCATIONAL EXCHANGE

BY MIKE ILLENBERG

Yukon River salmon are a resource shared between the United States and Canada. There are over 2,300 miles (3,700 kilometers) of waterways and over 138,000 people that live in the Yukon River Drainage.

This summer the Yukon River Drainage Fisheries Association brought four representatives from Canada to the lower Yukon River. Cheryl Charlie, a Canadian First Nation representative from Old Crow; Werner Holder an instructor at Yukon College in Whitehorse; George Wolfe, a First Nation Fisheries Technician from Teslin; and Hans Algotsson, a Dawson community representative - traveled with Yukon River Drainage Fisheries Association staff members Mike Illenberg and Jill Klein to Emmonak, St. Mary's, Pilot Station and Kaltag.

The Yukon River Panel Educational Exchange Program provides an opportunity for people involved in salmon fisheries along the Yukon River to explore experience and understand regional and cultural differences. The purpose of the exchange is to promote constructive communication about fisheries related issues between the Canadian and the Alaskan Yukon River stakeholders.

In Emmonak, St. Mary's, Pilot Station and Kaltag the participants met with local fishermen, city managers, Tribal elders, Alaska Department of Fish and Game managers and scientists, Yukon River

Panel Members and United States Fish and Wildlife Service representatives. As Cheryl Charlie from Old Crow stated "I had a nice time meeting people who were involved in fisheries in all the communities visited." Each community shared their resources with the delegation by providing food, lodging and river guides. Community members from all of the cities were very helpful and friendly.

Next summer the Yukon River Drainage Fisheries Association and the Yukon River Panel will reverse the trip and bring five Alaskans to Canadian communities to meet with local Canadian community and First Nation representatives and managers. Contact the Yukon River Drainage Fisheries Association Communications and Outreach Coordinator if you are interested in joining the delegation. 🐟



Left to right: Werner Holder, George Wolfe, Hans Algotsson, Jill Klein, and Cheryl Charlie.



During the Yukon River Panel Educational Exchange Hilda Alstrom demonstrated her fish cutting technique in St. Mary's



George Wolfe and Cheryl Charlie look at salmon drying in a Kaltag smokehouse.

BOARD OF FISHERIES MEETINGS & AGENDA

The Alaska Board of Fisheries will be meeting in Anchorage January 31 – February 5, 2007 to discuss and vote on Yukon River proposals. They will meet again in Anchorage March 9-13 to discuss and vote on statewide proposals, some of which impact the Yukon River as well. Proposals dealing with Area M will be on the agenda for the Board’s Feb. 6-11 meeting, also in Anchorage. The YRDFA Board will be considering each of these proposals at their Fall Board Meeting which will be held Oct. 31-Nov. 3. Comments on these proposals can be directed to YRDFA Board members or sent to Becca in the YRDFA office at Becca@yukonsalmon.org, or 1.877.999.8566 x106 to be included in YRDFA’s comments. Comments on Yukon River and Area M proposals must be received by January 19, 2007. Comments

on the statewide proposals must be received by February 23, 2007. The full proposal book is available on-line at: http://www.boards.adfg.state.ak.us/fishinfo/meetinfo/2006_2007/bof-prop06-07.pdf. To submit comments directly to the Board of Fisheries send comments to:

Alaska Department of Fish and Game
Boards Support Section
P.O. Box 115526
Juneau, AK 99811-5526
(907) 465-4110
(907) 465-6094 FAX

BOARD OF FISH PROPOSALS 2007 IMPACTING YUKON RIVER FISHERIES

PROP. #	AREA	PROPOSED BY	SUBJECT
158	Yukon R.	YRDFA	Change marking requirements from subsistence caught fish from removing the dorsal fin to removing both lobes of the tail fin.
WINDOWS SCHEDULE			
159	Yukon R.	Fairbanks Advisory Committee	Apply windows schedule to all fishers May 1- Sept. 1 with no exceptions.
160	Yukon R.	Tanana-Rampart-Manley Advisory Committee	Retain the window concept for commercial & subsistence fishers with no exceptions.
161	Yukon R.	E. Interior RAC	Subsistence & commercial fishers will be subject to & maintain the windowed schedule throughout the summer season.
162	Yukon R.	E. Interior RAC	Change schedule to set days of fishing followed by days of complete closure to both subsistence & commercial fishing.
GILLNET SPECIFICATIONS AND OPERATIONS			
163	Yukon R.	E. Interior RAC	Maximum gillnet size of 6” stretched mesh for subsistence & commercial fishers.
164	Yukon R.	Fairbanks Advisory Committee	Gillnets shall be no larger than 6” stretched mesh.
165	Yukon R.	E. Interior RAC	All gillnets with greater than 6” mesh may not be more than 35” in depth. Applies to subsistence & commercial.
166	Yukon R.	Fairbanks AC	No gillnets in the Yukon River larger than 6” stretch mesh will be more than 35 meshes deep.
KING SALMON MANAGEMENT PLAN			
167	Yukon R.	YRDFA	Placeholder proposal for YRDFA Fish Size working group
168	Yukon R.	YRDFA	WITHDRAWN

169	Yukon R.	YDFDA (Yukon Delta)	First commercial period in the Lower Yukon will take place between June 11 and June 15. Length of initial periods will be adjusted according to run strength. First opening for Upper Yukon will take place within specified window too.
170	Yukon R.	Tanana-Rampart-Manley Advisory Committee	CDQ bycatch along the coast at the mouth of the Yukon R. will be part of the allocation of Y1 for Yukon Kings.
FISHING DISTRICTS & SUBDISTRICTS/ KING SALMON & CHUM SALMON MANAGEMENT PLANS			
171	Yukon R.	Fairbanks AC	Change the Y1/Y2 boundary to Mountain Village and divide the guideline harvest ranges for Chinook, chum and coho equally between the new districts. Subtract the previous years bycatch of Chinook from the guideline harvest ranges and the bycatch of “other salmon” from the fall chum and coho salmon from the Y1 guideline harvest for the current year.
172	Yukon R.	Maserculiq Fish Processors Inc.	Move Distrist 3 line downstream to include Marshall.
YUKON RIVER COHO SALMON MANAGEMENT PLAN			
173	Yukon R.	YRDFA	Reassess threshold numbers for chum salmon in the coho salmon management plan.
TANANA RIVER MANAGEMENT PLAN			
175	Tanana R.	Fairbanks AC	Allow catch and release fishing for Chinook salmon below the South Fork of the Goodpaster River.
176	Tanana R.	Delta AC	In the Goodpaster River drainage, allow king salmon to be taken from Jan. 1 to Dec. 31 by catch-and-release fishing only. Any king salmon caught must be releases immediately. Sport fishing for king salmon is closed above the confluence of the south fork.
177	Tanana R.	Fairbanks AC	Archery equipment may be used to harvest salmon in the Salcha River from shore or shallow water by walking or wading.
AREA M			
189	Alaska Pen./AI	Nushagak AC	Consider returning to the regulations that were in place prior to the 2001 BOF meeting from Area M.
190	Alaska Pen./AI	Virgil Umphenour	Change S. Peninsula June Management Plan back to what it was for the 2001-2003 fishery.
191	Alaska Pen./AI	Austin Ahmasuk	Restrict the early June Area M commercial fishery – fishing will not occur until June 15 of each year and should only occur under a windows management scenario.
STATEWIDE			
227	Statewide	Dan Barr	Changes to requirements for marking set gillnets & fish wheels with CFEC permit numbers & name of fisher.
228	Statewide	United Fishermen of Alaska	Remove the Sustainable Salmon Fisheries Policy from regulation.
229	Statewide	ADFG/Dept. of Law	Changes reports required of processors, buyers, fishermen and operations of certain commercial fishing vessels; transporting requirements.
230	Statewide	Paul A. Shadura II	Revise policy for setting escapement goals such that the board will provide explanations for setting optimal escapement goals to the public.
231	Statewide	Paul Shadura II	Monofilament single filament gillnet cannot be used for salmon fishing in any state waters.
232	Statewide	Paul Shadura II	Consider changes that make the department and the board more accountable.
247	Statewide	Commissioner of ADF&G	Give the commissioner emergency order authority to allow salmon hatcheries to recover roe without further utilization of the salmon carcass in some situations under some conditions. 2 options are presented for this law.

Advisory Committee (AC) refers to an Alaska Department of Fish & Game Advisory Committee

“RAC” refers to a Regional Advisory Council to the Federal Subsistence Board 🐟

KOYUKUK FISH INVESTIGATIONS THROUGH LOCAL AND TRADITIONAL KNOWLEDGE

BY CATHERINE MONCRIEFF, YRDFA ANTHROPOLOGIST

Allakaket/Alatna: Elders and fishermen and women of Allakaket and Alatna reviewed preliminary results from interviews that took place during July of 2005 in their villages. The interviews were part of YRDFA's Koyukuk River Fish Investigations project funded by the National Oceanic and Atmospheric Administration (NOAA).

The review took place at meetings held on August 15 and 16, 2006 at the tribal offices of Allakaket and Alatna. The preliminary results included locations of salmon and other subsistence fish species that knowledgeable elders and active fishers have observed over their lifetimes. Catherine Moncrieff, YRDFA anthropologist, Mike McDougall, YRDFA biologist and Eliza Jones, of Koyukuk and Koyukon Athabascan Dictionary co-author, presented the results and displayed maps of the areas discussed. Community members who attended the meetings offered comments, corrections and added new information about locations of subsistence fish species.

In the meetings we learned that Chinook or king salmon spawn in the rock bottom area above Help Me Jack Creek, further up the Alatna River than we had understood from the interviews, and that they also spawn 4 to 5 miles above the weir on Henshaw Creek.

We learned new information about pike in the lakes around Union City on the South Fork of the Koyukuk River and in Dosennaughten Lake, grayling in Oldman or the Kanuti River, cisco in the Koyukuk River across from Allakaket and blackfish in areas around the South Fork of the Koyukuk River. We learned that long nose suckers and burbot or loche are not only in the few areas we listed but found all over. In both meetings, participants explained how sheefish gather just upstream of Chebanika Creek prior to spawning.

Following the meetings, Alatna fisherman, Harding Sam, guided Mike McDougall 240 miles up the Alatna River to see the Alatna River sites discussed in the interviews. Together they took pictures and GPS coordinates of Help Me Jack Creek, the mouth of Chebanika Creek, Putu's Bar, Sinyalak (Sinniagliq) fish camp, Blackjack, Steamboat, and Putugruaq or Buzodoc Slough as well as other sites along the Alatna River. They also documented fish by catching them in beach seines and by visually surveying the side channels or streams. Species documented on this trip include slimy and coastrange sculpin, juvenile pike, arctic grayling, arctic char and chum salmon. Most notably they documented rearing juvenile arctic char. They

also saw grayling in various life stages and many adult chum salmon. One site they observed had questionable water quality – it was a tributary stream about 220 miles upstream that was turbid and running the color of coffee with cream in it. Upstream of this tributary the Alatna River was running clear, but downstream of this discolored tributary the Alatna River was running turbid. Sam reported that this was NOT normal and McDougall took pictures

and a water sample for later analysis.

The project, entitled Koyukuk River Fish Investigations through Local and Traditional Knowledge (LTK), was proposed by residents of the Koyukuk River. At The YRDFA annual meeting in Allakaket in 2004, Allakaket and Alatna community members requested that YRDFA begin salmon research in their area. Concern over changing salmon spawning grounds was raised by more than one Koyukuk River resident as a primary concern and there was also support for talking to elders about salmon spawning streams. Thus, this project was developed. It is one that many people living in the Koyukuk River described as 'a great idea, about time that it was done.'

Salmon spawning grounds and fishing sites have changed over the years on the Koyukuk River and its tributaries. Community members are concerned about decreased productivity in their salmon spawning grounds and wonder how many such areas there are. Although salmon in the Koyukuk River are not as abundant as in the Yukon River, they are very important culturally and as a subsistence resource (Clark 1974). Some years there are many salmon and some years there are few. The main goal of this project is to identify the habitat used by salmon and other subsistence fish species at different stages of their lifecycle through interviews and site reconnaissance in the Koyukuk River drainage. Other goals include nominating important areas to the Anadromous Waters Catalog to ensure some habitat protection, if there are areas identified by local residents that are not already included, and producing a map or poster to share the final results.

In July of 2005, 17 knowledgeable elders and active fishers of Allakaket, Alatna and Hughes were interviewed about places they have seen salmon and other fish in their lifetimes. This information was mapped and recorded. In the 2005 interviews we learned that salmon are found in the following locations:



Johnson Moses describes locations of salmon and other subsistence fish species that he has observed over his lifetime to Eliza Jones. At his home in Allakaket August of 2006.



Community members and Deborah Webb of USFWS looking over place name maps at the Allakaket Tribal Office, August 2006.

- Chum (dog) salmon are found in the Koyukuk River, the South Fork Koyukuk River to Gold Bench, and the Alatna River to Help Me Jack Creek.
- Chinook (king) salmon are found in the South Fork Koyukuk River as far as Gold Bench, the Alatna River to Help Me Jack Creek, and the Koyukuk River.
- Salmon are known to spawn in Henshaw Creek, at Hughes on the Koyukuk River, South Fork Koyukuk River at Jim River and at Fish Creek, Little Indian River, Pocahontas Creek, Batza (Bear) Creek, Hughes Creek, and at Sinyalak Creek and at Help Me Jack Creek on the Alatna River.
- Salmon fry or baby fish were found at almost every fish cutting site throughout the interviews. These small fish were identified as either salmon fry or small whitefish.

Other subsistence fish species were reported in the following areas:

- Whitefish are found in the Alatna River at Blackjack, Chebanika (Ts'ebaa Negge) Creek, Putu's Bar, in the Koyukuk River, and on the Oldman (Kanuti) River in August as far as Mint Creek, and at Lake Creek. Humpback whitefish (telaaxe) and broad whitefish were reported caught on Oldman (Kanuti)

River and the Alatna River at Putugruaq (Buzodoc Slough.) Some participants observed hundreds of dead whitefish floating out of Huntington Creek in 2004.

- Pike (k'oolkloye, toonts'ode) are caught in the Koyukuk River upstream of Oldman (Kanuti) River, at Duck Slough, and below Matthew Slough. They are also seen in Pocohantas Creek, Oldman (Kanuti)

River in the nearby lakes, and on the Alatna River at Chebanika Creek.

- Grayling were reported in Grayling Lake near Huntington Creek, Hughes Creek, Henshaw Creek, the Alatna River at Chebanika Creek and Putu's Bar, South Fork Koyukuk River at Jim River, and on the Koyukuk River 8 miles down from Hughes and at Pocohantas Creek.

- Sheefish are found on the Koyukuk River around Hughes from 20 miles downriver to Rock Island Point. Sheefish are also found on the Alatna River at Putu's bar and between Sinyalak and Chebanika Creek and are known to be spawning in these areas. During the interviews, fishers spoke about the sound that sheefish make when they are spawning.

- Blackfish were reported found in the Oldman or Kanuti River in nearby lakes and on the Koyukuk River in lakes 30 miles below Hughes. It was reported in the interviews that blackfish have become scarce today.

- Long-nosed suckers (Toonts'o kk'edlet) are found in the Koyukuk River upstream of Oldman or Kanuti River and on the Alatna River at Chebanika Creek. Cisco are caught on the Kanuti River. Loche or burbot were reported in the Koyukuk River upstream of Hughes. One participant remembered a year around 1961 that eels came up the Koyukuk River. It had only happened that one time in her lifetime.

As for changes discussed in the 2005 interviews, we learned that salmon in general are smaller today, and that salmon numbers have fluctuated over time. On all the rivers discussed, participants experienced low salmon numbers in the 1930s, 1940s and 1950s. We also heard that the number of small whitefish or salmon fry is lower today than in the 1940s or 1950s.

In the 2005 interviews, we heard that there is less water today and that creeks and lakes are drying up. This also affects how far you can get up the rivers such as the South Fork of the Koyukuk River. We heard that



Eliza Jones with David David at his fish camp, July 2005.

the water in the Koyukuk River and the South Fork of the Koyukuk River has changed color. It used to be clearer and now it is described as silty or brown. Eddies in the rivers have changed and thus fishing sites have changed. One area that was fished extensively in the past but has changed today is the mouth of the South Fork Koyukuk River.

The outcomes of this project will be a

"KOYUKUK INVESTIGATIONS..." CONTINUED ON BACK PAGE

APPLICATIONS OF GEOGRAPHIC INFORMATION SYSTEMS IN YUKON RIVER SALMON STUDIES

BY KRISTIN MULL, YRDFA FISHERIES BIOLOGIST

What is GIS?

A geographic information system (GIS) is a system for analyzing and displaying data that is related to geographic locations on earth. The components of geographic information systems include hardware (computer, scanner, etc.), software (such as ESRI® ArcMap™), and geographic data (such as rivers, locations of fish, etc.). GIS is a powerful tool for displaying data visually by creating maps. But beyond simply creating maps, GIS is a very effective tool for analyzing and manipulating data, and often allows us to think about data in a new way. In many ways, GIS helps us better understand our world.

What are some applications of GIS?

GIS has many different applications, from determining the best route an ambulance should take to the site of an accident to assessing land use change over time or tracking caribou migration routes. GIS has been used in fisheries studies to determine habitat preferences of fish, track fish movements, and study how fish are distributed spatially in rivers, lakes, and oceans.

In August 2006, the Yukon River Drainage Fisheries Association started a project that

uses GIS to assess potential rearing habitat for juvenile Chinook salmon in the Salcha and Goodpaster Rivers. The Alaska Anadromous Waters Act grants extra protections to spawning and rearing habitat of Pacific salmon in Alaskan streams if the presence of salmon has been documented. Without documentation, stream habitat may be subject to degradation through land-use practices such as urbanization, mining, forestry, and road construction. The Alaska Department of Fish and Game (ADF&G), which maintains the Fish Distribution Database (FDD), suggests that the number of streams currently catalogued represents less than half of those used by anadromous species. This project uses a GIS-based approach to survey streams for the documentation of salmon habitat in the Fish Distribution Database, as well as to develop methods for application to other Yukon River tributaries.

Before any field work began, GIS data were compiled from various sources. The data layers used include the following: Salcha and Goodpaster rivers and tributaries, Alaska Department of Natural Resources (ADNR) mining claims, and the Fish Distribution Database of known spawning locations main-

tained by ADF&G Sport Fish Division (Figure 1). GIS software allowed us to determine a 20-km (12.4 mile) area around known spawning locations. Field sampling was prioritized to focus on tributaries that were within this area and that intersected with mining claim areas.

Juvenile Chinook salmon were found in several tributaries to the Salcha River (Figure 2). The processing of geographic information system data beforehand saved a lot of time in the field and made sampling much more efficient. Both the Salcha River and the Goodpaster River were sampled using a combination of dip nets and minnow traps during a two-week period in August. It is hoped that this project



FIGURE 2. Juvenile Chinook salmon sampled by using dip nets in a tributary to the Salcha River.

will continue next summer to allow for sampling further upstream in the tributaries where fish were found, in order to determine the upstream extent of juvenile rearing habitat.

This project will aid in our understanding of and ability to document habitat use by juvenile Pacific salmon in the Yukon River drainage. The final product of this study – documentation of the presence or absence of juvenile salmon for listing in the FDD and development of methods for other tributary watersheds – supports YRDFA's goal of conserving Yukon River salmon and their habitat throughout their lifecycle.

Where can I learn more about GIS?

The U.S. Geological Survey has an excellent introductory website on GIS (http://erg.usgs.gov/isb/pubs/gis_poster/#what). ESRI, which is the maker of the most widely used GIS software, ArcGIS, also has a website that describes GIS (<http://www.gis.com/whatisgis/index.html>) and a media presentation that shows some examples of how it is used (<http://www.esri.com/flashmedia/whatisgis.swf>). Other websites include the U.S. Fish and Wildlife Service GIS home page (<http://www.fws.gov/data/>), and the Alaska State Geospatial Data Clearinghouse (<http://www.asgdc.state.ak.us/>), where you can find links to state and local maps and data. There are millions of websites that deal with geographic information systems, and a Google™ search for 'GIS fisheries' will bring up over 2 million of them.

This work was completed through funding provided by NOAA, grants number NA03NMF4720295.

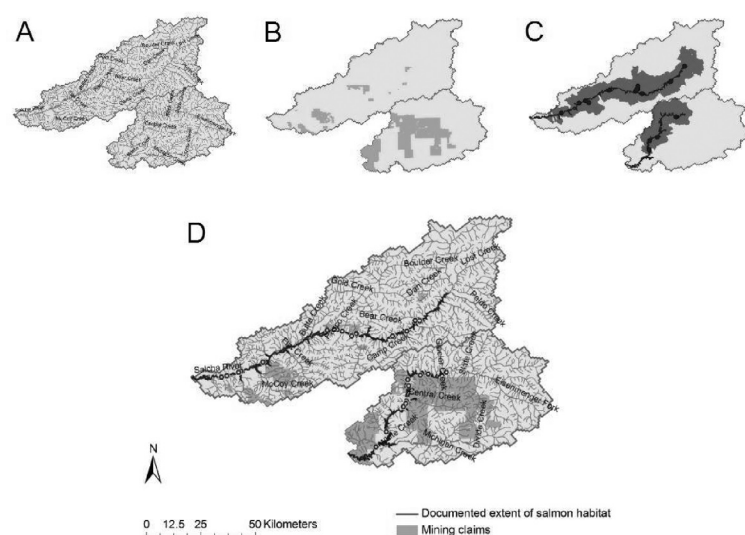


FIGURE 1. Representation of using GIS data in the Salcha and Goodpaster River watersheds. Three data layers were combined to prioritize sampling locations for better efficiency in the field. Layer A shows the mainstem rivers and tributaries in the two watersheds, layer B shows the ADNR mining claims, and layer C shows the ADF&G-Sport Fish Division spawning locations and 20-km shaded area around those. When used together in a GIS (D), it is possible to select the intersections of these three areas for sampling.

YRDFA FISHERIES TECHNICIANS ARE INTEGRAL IN ANDREAFSKY RIVER WEIR OPERATIONS

In 2006, two YRDFA Technicians worked cooperatively with the US Fish and Wildlife Service (USFWS), Fairbanks Fish and Wildlife Field Office at the Andreafsky River weir project near the village of St. Mary's in the lower Yukon River.

These two YRDFA Technicians helped make a successful field season by working on an array of duties surrounding weir operations that include fish age, sex and length sampling for Chinook, chum and sockeye salmon; collecting DNA samples from sockeye salmon; constructing, operating and maintaining a 110 meter long resistance board weir and recording count data by species that are used to estimate fish passage. The data produced from the weir project was used to assist Yukon River salmon fisheries management. They also helped host the week long Andreafsky River Weir Science Camp that provides environmental education to rural youth by the USFWS and YRDFA.

The Andreafsky River weir project has been operated for the past 12 years by the USFWS. Hiring persons from the local area has been a part of the projects' means of staffing from the beginning and the continued support from YRDFA is greatly appreciated. Hiring persons from rural communities facilitates local involvement in fisheries research and management projects, offers an excellent opportunity to gain valuable technical fisheries experience, and offers management agencies the benefit of putting local knowledge to use for the benefit of fishery resources.

The USFWS and Fairbanks Field Office staff would like to thank Mr. Willie Elia and Mr. Frank Paukan for their dedicated work to the Andreafsky River weir project. Mr. Elia has now worked on this project for about eight years with the last two supported by YRDFA. Mr. Paukan participated in the YRDFA technician training program and interned at the Andreafsky River weir project in 2005 and was hired as a technician in 2006.

The USFWS and the Fairbanks Fish and Wildlife Field Office greatly appreciate the contributions of these individuals as well as continued project support from YRDFA.

The hiring of local fishery technicians was made possible through the Southeast Sustainable Salmon Fund (SSSF) pursuant to contract number IHP-04-036. 🐟

YRDFA FISHERIES TECHNICIANS ARE INSTRUMENTAL IN ADF&G FISHERIES PROJECTS

In 2006, YRDFA Technicians worked cooperatively with the Alaska Department of Fish and Game (ADF&G) in a variety of fishery projects on the Yukon River. These projects include the Lower River Test Fishery; Ichthyophonous sampling; Chinook and Summer Chum Stock Identification and Composition; Pilot Station, Eagle, and Sheenjek Sonar; and Tanana and Kantishna Fall Chum Salmon Mark-Recapture.

These technicians assisted in an array of fishery sampling which included drift and set gillnet test fishing for Chinook, chum and coho salmon; collecting biological data from subsistence, commercial and test fishery catches; collecting DNA samples; assisting with the collection of heart samples for Ichthyophonous testing; tagging fall chum salmon captured by fish wheels; interviewing subsistence fishermen for harvest data; and operating sonar equipment and recording count data that are used to estimate fish passage. The information gathered at the various monitoring projects is then used to assist in management of the Yukon River salmon fisheries.

Hiring individuals from rural communities facilitates local involvement in fisheries research and management projects and offers an excellent opportunity to gain technical fisheries experience. The ADF&G Yukon staff would like to thank the following technicians for their hard work during the 2006 summer and fall field seasons:

- Pete Stephanoff (of Russian Mission) and Roy Bell (of McGrath): Lower Yukon Test Fishery, Ichthyophonous, and Salmon Stock Composition projects
- Richard Nick (of Pilot Station): Pilot Station Sonar
- Noreen Mountain (Nulato), Margaret Olin (Ruby), Jesse Fliris (Tanana), Dennis Argall (Nenana): Salmon Stock Identification-District 4 Chinook Salmon Subsistence Harvest Sampling
- Richard Carroll, III (of Fort Yukon): Tanana and Kantishna Fall Chum Mark Recapture Project
- Scott Cruikshank (of Eagle): Eagle Sonar
- Harry George (of St. Mary's): Sheenjek Sonar

The ADF&G Yukon staff greatly appreciates the contributions of these individuals. ADF&G would also like to thank YRDFA for its continued support of these projects!

The hiring of local fishery technicians was made possible through the Southeast Sustainable Salmon Fund (SSSF) pursuant to contract number IHP-04-036. 🐟

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map or maps that show locations of salmon and other subsistence fish species throughout their lifecycle, as identified by the local fishers, or some kind of poster that may be useful for the communities or schools. These maps will be compared to the Anadromous Waters Catalog and if applicable, nominations for new streams and locations will be submitted, thus providing better habitat protection for salmon and other important fish species. If applicable, habitat restoration or enhancement may be recommended. The final report will be distributed to the participating communities, managing agencies and other interested groups.

This project furthers YRDFA’s mission to promote healthy Yukon River wild salmon fisheries, by identifying salmon spawning ground locations on the Koyukuk River. By identifying both past and present salmon spawning grounds, we will then be able to investigate causes of changes in spawning areas. Healthy spawning grounds are necessary for healthy wild salmon runs.

ACKNOWLEDGEMENTS:

Thanks are due first to the elders and fishermen and women who participated in the interviews as this project would not have been possible without their assistance: Lindberg and Lydia Bergman, Donald Bergman, David and Kitty David, Johnson and Bertha Moses, Harding Sam, Pollock and Julia Simon, Edison Williams, Alice Ambrose, Henry Beatus, Rita Koyukuk, Martha Oldman, Lester and Ella Sam, and Bill and Madeline Williams. We also appreciate the warm and helpful welcoming from the tribal offices and the communities of Allakaket, Alatna and Hughes. Thanks to Eliza Jones of Koyukuk for assisting with project as a cultural guide and translator as well as a research partner. Harding Sam acted as an excellent guide and traveling companion for YRDFA biologist Mike McDougall on the Alatna River. And finally, thanks to the National Oceanic and Atmospheric Administration for funding this project.

BLM APPRECIATES YRDFA’S SUPPORT OF
THE TOZITNA RIVER FISH PASSAGE PROJECT

CONTRIBUTED BY DEPT. OF INTERIOR BUREAU OF LAND MANAGEMENT

BLM initiated the Tozitna River salmon counting project in 2001 as a way to help address the lack of escapement data available to fisheries managers in the middle Yukon River. The objectives of the project include estimating escapement, run timing, and age-sex-length composition of adult Chinook and summer chum salmon.

Since the inception of the project in 2001, BLM’s goal has been to provide an opportunity for local students and rural residents to gain experience and skills in the field of fisheries management by assisting with the daily operation of the project. YRDFA supported that effort in 2005 and again this year, by providing BLM with a seasonal research assistant.

For the past two seasons YRDFA has employed Tom Fogg to work on the project. Tom has proven to be a highly reliable and dedicated employee. He has lived and worked in the vicinity of the project site for over 30 years. Tom has a detailed knowledge of the local resources, river, and history of the area, works well with others, and has good ideas and skills in fixing problems and equipment. In addition to being an excellent worker, Tom is at home on the Tozitna River and demonstrates a real interest in the project. Thanks Tom!

The Fairbanks District Office fisheries staff is grateful to YRDFA for their continued support of the Tozitna project. Your contribution has increased the efficiency of our project. Thank You!

The hiring of local fishery technicians was made possible through the Southeast Sustainable Salmon Fund (SSSF) pursuant to contract number IHP-04-036.

YUKON RIVER DRAINAGE FISHERIES ASSOCIATION

“A united voice for downriver and upriver fishermen.”

Your membership supports our core purpose, which is to sustain fisheries through cooperative management.

Members receive a newsletter on the latest events affecting Yukon River salmon fisheries and voting privileges for their District’s representatives.

IN ORDER TO SUSTAIN FISHERIES YRDFA WORKS TO:

- Solve problems in fisheries management
- Sustain wild salmon populations
- Keep people informed of current fisheries issues
- Restore salmon habitat and depressed runs

ANNUAL DUES:

☐ Subsistence Only User (1 year)\$ 5

☐ Subsistence Only User (2 year)\$ 10
(You receive a YRDFA baseball cap)

☐ Commercial Permit Holder or Crew Member (1 year)\$ 10
(You receive a YRDFA baseball cap)

☐ Sport User/General Public\$ 10

☐ Commercial Permit Holder or Crew Member (2 year)\$ 20
(You receive a Barlow pocketknife)

☐ Associate/Business/Corporation.....\$100
(You receive recognition & thanks in the YRDFA newsletter)

☐ Lifetime Member\$100
(You receive a hat, a knife, and recognition & thanks in the YRDFA newsletter)

Payable by cash, check or money order to: **Yukon River Drainage Fisheries Association**

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