State of Alaska
Department of Fish and Game
Division of Sport Fish

Nomination Form
Anadromous Waters Catalog

ALASKA DEPT. OF FISH & GAME
NOV 19 2009

Region: Interior

USGS Quad(s): Eagle D-1, Charley River A-1

Anadromous Waters Catalog Number of Waterway: 334-45-11000-2501

Name of Waterway: Tatondok River

☒ USGS Name ☐ Local Name

☒ Addition ☒ Deletion ☐ Correction ☐ Backup Information

For Office Use

Nomination #	100374		
Revision Year:	2011	Fisheries Scientist	7/14/10 Date
Revision to:	Atlas ____ Catalog ____ Both X	Habitat Operations Manager	7/14/10 Date
		AWC Project Biologist	3/Jun/10 Date
Revision Code:	B-3, B-2	Cartographer	10/20/10 Date

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Present	Anadromous
Chinook salmon	8/17-8/23, 1988		139		☒
Add Chinook Salmon REARING to stream					☐
Delete coho salmon present and spawning Tule Stream					☐
					☐

IMPORTANT: Provide all supporting documentation that this water body is important for the spawning, rearing or migration of anadromous fish, including: number of fish and life stages observed; sampling methods, sampling duration and area sampled; copies of field notes; etc. Attach a copy of a map showing location of mouth and observed upper extent of each species, as well as other information such as: specific stream reaches observed as spawning or rearing habitat; locations, types, and heights of any barriers; etc.

Comments: Data from 1988 NOT previously included in AWC (see attachment). Chinook salmon rearing from site 2 (65.02447°N, 141.17697°W) downstream to Tatondok River mouth. Habitat extends beyond upstream sampling location. Unless accurate & positive identification of coho salmon spawning in drainage, coho should be deleted from Tatondok R. AWC.

Name of Observer (please print): David W. Daum

Signature: David W. Daum

Date: 11/13/2009

Agency: U.S. Fish & Wildlife Service

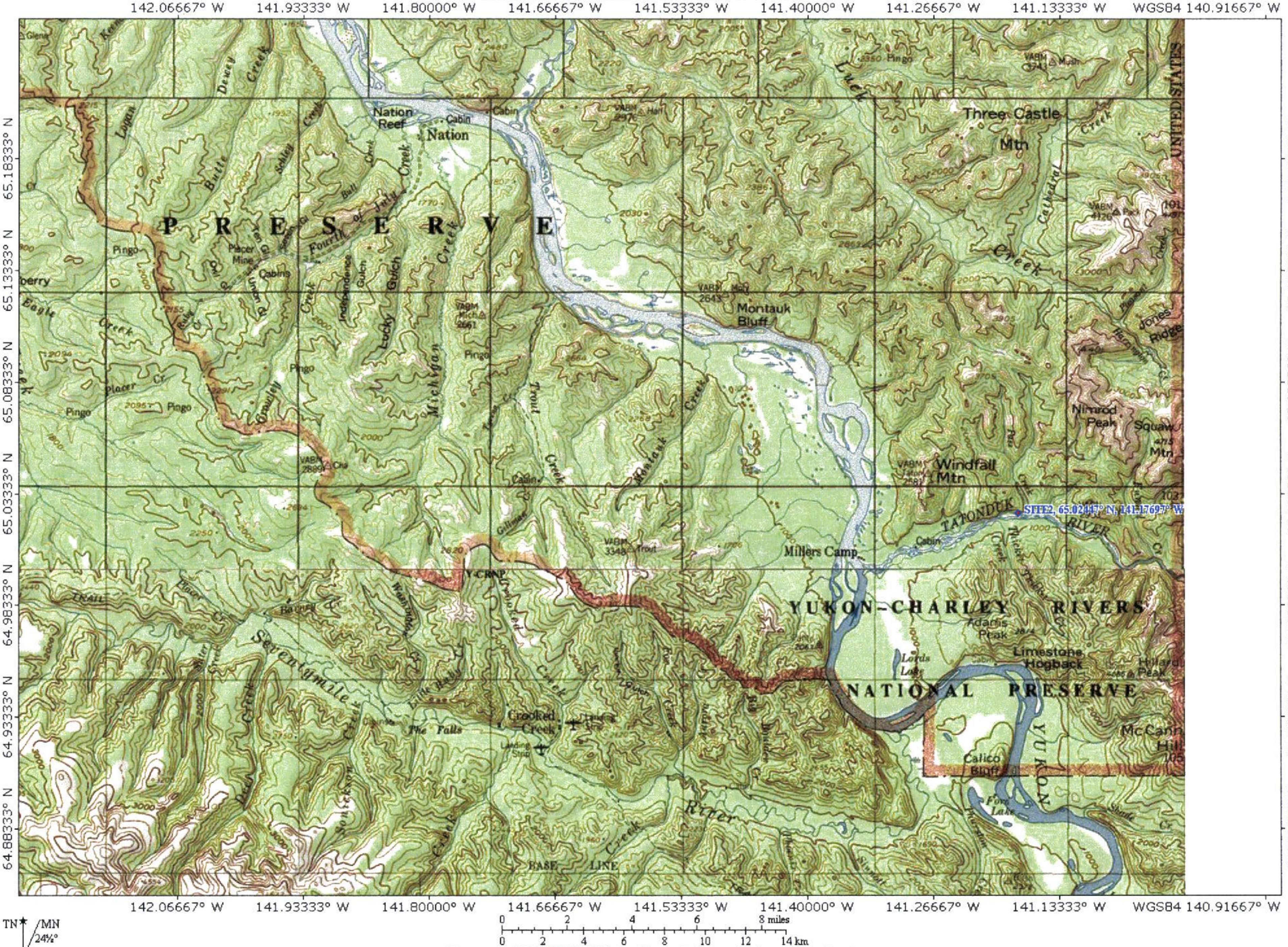
Address: 101 12th Ave., Room 110
Fairbanks, AK 99701

This certifies that in my best professional judgment and belief the above information is evidence that this waterbody should be included in or deleted from the Anadromous Waters Catalog.

Signature of Area Biologist: _____ Date: 16 NOV 2009

02/08 Revision

TOPO! map printed on 11/13/09 from "upperyukon2009AWCa.tpo"



142.06667° W
141.93333° W
141.80000° W
141.66667° W
141.53333° W
141.40000° W
141.26667° W
141.13333° W
WGS84 140.91667° W
65.18333° N
65.13333° N
65.08333° N
65.03333° N
64.98333° N
64.93333° N
64.88333° N
PRESERVE
YUKON-CHARLEY RIVERS
NATIONAL PRESERVE
UNITED STATES
Nation Reef
Nation
Cabin
Three Castle Mtn
Montauk Bluff
Windfall Mtn
Nimrod Peak
Squaw Mtn
Jones Ridge
Millers Camp
TATONDUK RIVER
SITE2, 65.02447° N, 141.17697° W
Adams Peak
Limestone Hogback
Hillard Peak
McCann Hill
Calico Bluff
YUKON
Fort Lake
Lords Lake
Crooked Creek
The Falls
Landing Strip
Seventymile
River
BASE LINE
Michigan
Lucky Gulch
Independence Gulch
Fourth of July
Butte Creek
Dewey Creek
Logan
Trout Creek
Montauk Creek
Luck
Pingo
Placer Cr
Eagle Creek
Boulder Cr
Washington Cr
TN
MN
24½°
0 2 4 6 8 miles
0 2 4 6 8 10 12 14 km

Map created with TOPO!® ©2002 National Geographic (www.nationalgeographic.com/topo)

Fisheries Investigations on the Kandik, Charley, Nation, and Tatonduk Rivers, Yukon-Charley Rivers National Preserve, 1987 and 1988

David W. Daum

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Fairbanks Fishery Resource Office
101 12th Ave, Box 17
Fairbanks, Alaska 99701

September 1994

Funded by the National Park Service
Interagency Agreement 9700-7-8012

Tatonduk River

Of the eight fish species found in the Tatonduk River, longnose suckers had the widest distribution, being found at all five sites (Table 6; Figure 5). The mouth (site 5) showed the greatest diversity with seven species present. Slimy sculpin and young-of-the-year chinook salmon, Arctic grayling, and round whitefish were captured throughout the study area indicating the abundance of spawning and rearing habitats for these species. A small run of chum salmon also spawns in the system.

During the August 17-23, 1988 sampling period, six fish species were captured, including 112 young-of-the-year chinook salmon at site 2 (Table 6; Figure 5). Four adult chum salmon (first documentation) were captured at site 3 on August 19 in spent and spawning condition. No chum salmon were observed during the September 24, 1988 aerial survey (Figure 5).

Past studies (Alt 1965, 1969, 1979; Welp *in preparation*; Barton 1984) have documented seven species in the Tatonduk River (Table 6; Figure 5). Welp (*in preparation*) captured 143 young-of-the-year grayling at site 2. A few chinook salmon were observed moving upstream on August 1, 1985 (Calvin Fifield, Bureau of Land Management, Anchorage, personal communication).

Table 6. Distribution of young-of-the-year (Y,y) and post-yearling (A,a) fish species in the Tatonduk River. Uppercase letters denote information gathered from this study in 1988, whereas lowercase letters represent data from other sources[a].

	Mainstem sites				
Species	1	2	3	4	5
Chinook salmon		Y	Y A	Yy	y
Chum salmon		YA	YA	YyAa	y
Arctic grayling		Y	A	Yy	y
Round whitefish					ya
Inconnu		Y	A	A	a
Longnose sucker	a	YA	YA	yAa	ya
Slimy sculpin					a
Lake chub					

[a]Alt 1965, 1969, 1979; Welp *in preparation*; Barton 1984 (Appendix 1).

Relative Abundance

Kandik River

Eighty fish were captured during the two sampling periods (Tables 7 and 8), including 35 slimy sculpin (44%) and 32 Arctic grayling (40%). A total of 169.5 gill net hours were spent during the July-August sample period with a combined CPUE of 0.09 fish/net hour. Of the two species captured, grayling had the highest total CPUE (0.06 fish/net hour). Grayling were most abundant at site 5. In September, 80.9 gill net hours resulted in a combined catch rate of 0.23 fish/net hour. Of the three species captured, grayling had the highest total CPUE (0.19 fish/net hour). Grayling were most abundant at site 8.

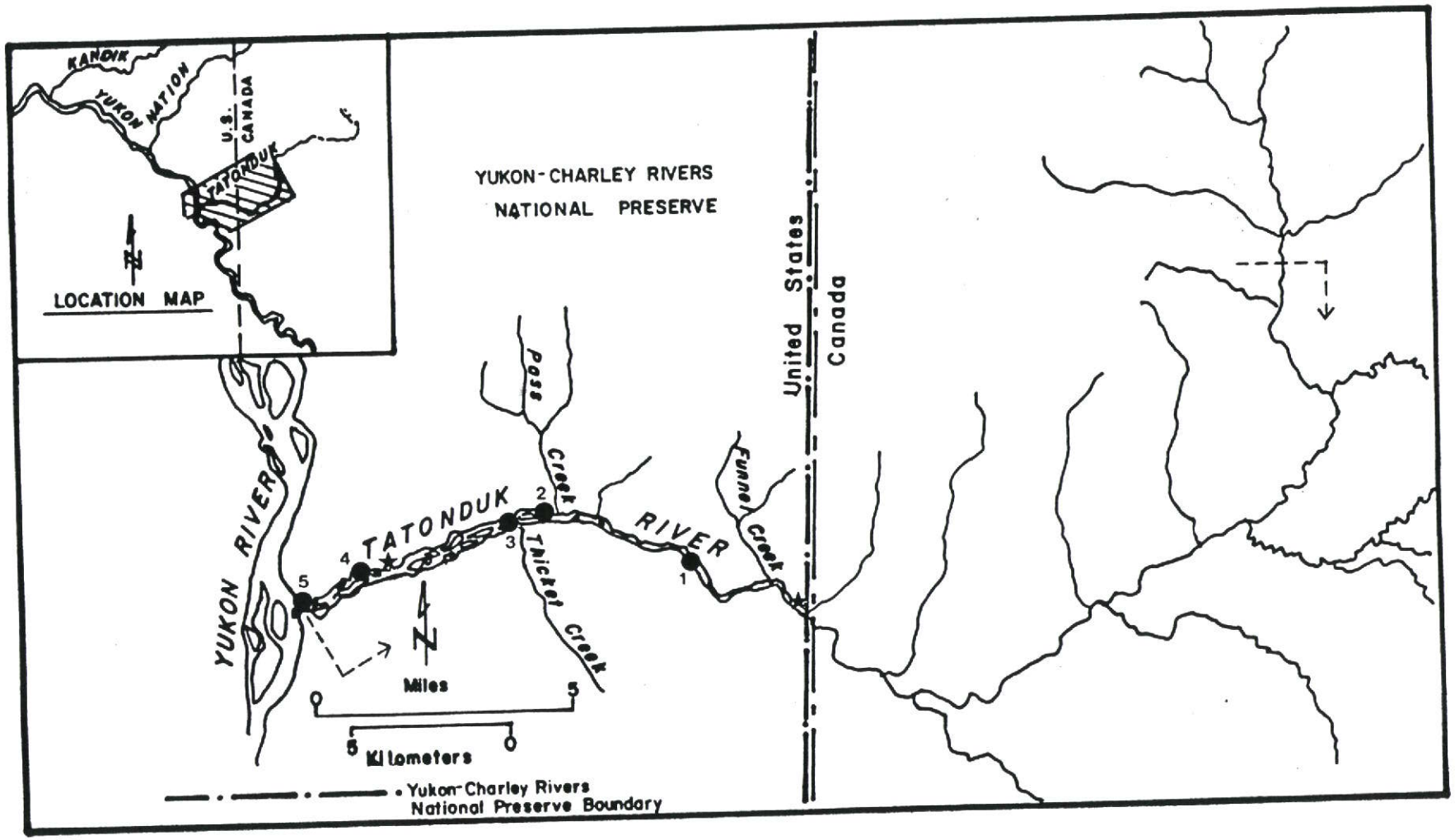


Figure 5. Mainstem (●) sampling site locations, spring areas (★) and aerial survey boundaries (- - -) on the Tatonduk River, Yukon-Charley Rivers National Preserve. Site locations are from this study along with previous fisheries investigations.

Tatonduk River

During the August 17-23, 1988 sampling period, 269 fish were captured (Table 12), including 139 young-of-the-year chinook salmon (52%) and 59 Arctic grayling (22%). A total of 212.0 experimental gill net hours resulted in a catch of four species with a combined CPUE of 0.17 fish/net hour. Grayling had the highest total CPUE (0.11 fish/net hour). Grayling were most abundant at site 3, with three chum salmon also being captured.

One multifilament gill net (10.4 cm bar mesh) was employed at sites 3 and 4 to capture chinook salmon. After 114.5 hours of effort, no chinook salmon were captured. One chum salmon was captured at site 3.

Baited minnow traps were used at two sites with a combined CPUE of 0.06 fish/hour. The traps were set for a total of 543.0 hours with a catch of slimy sculpin and young-of-the-year chinook salmon.

Seining was used at sites 3 and 4 with a combined catch of 8.8 fish/haul. Twenty-three hauls resulted in the capture of 202 young-of-the-year fish. Young-of-the-year chinook salmon were most abundant at site 2.

Length-at-age Relationships

Arctic grayling length-at-age relationships were similar among the four river stocks (Table 13). Of the 160 grayling captured, 31 (19%) had unreadable scales. Ninety-four percent of the unreadable scales were from fish with fork lengths over 320 mm. The oldest captured round whitefish was age-9 (Appendix 2). Four of the five adult chum salmon were age 0.4. Young-of-the-year chinook salmon ranged in fork length from 63-86 mm. Scales from longnose suckers were unreadable.

Weight-length relationships

Growth curves generated from captured Arctic grayling data were similar between the Kandik and Charley rivers (Figure 6) and between the Nation and Tatonduk rivers (Figure 7). A 300 mm grayling would have the highest predicted weight on the Tatonduk River (293 g) and the lowest predicted weight on the Kandik and Charley rivers (264 g). Correlation coefficients for the regressions of logarithms of weight and length ranged from 0.97 to 0.99.

Chemical and Physical Characteristics

Kandik River

Chemical characteristics did not change greatly between the July-August and September sampling periods (Table 14; Figure 2). The range of total alkalinity was 68.4-85.5 mg/L $CaCO_3$ on the mainstem and 34.2-85.5 mg/L $CaCO_3$ on the tributaries of the Kandik River. Total hardness for mainstem sites ranged from 68.4-102.6 mg/L $CaCO_3$, whereas tributaries ranged from 34.2-171.0 mg/L $CaCO_3$.

Mainstem conductivity ranged from 94-160 uS/cm. Conductivity readings for tributaries were more variable than those measured for mainstem sites with a range of 45-180 uS/cm. The pH values ranged from 7.0-7.5 throughout the mainstem and tributaries of the Kandik River.

Table 12.—Effort, number of fish collected (N), and catch-per-unit-effort (CPUE) of all fish species captured from August 17-23, 1988, on the Tatonduk River.

Site	Effort	Species[a]	N	CPUE
		Experimental gill net		
3	137.5 h	CS	3	0.02 /h
		AG	20	0.15 /h
		RWF	2	0.01 /h
		LS	6	0.04 /h
4	74.5 h	AG	3	0.04 /h
		LS	2	0.03 /h
Total	212.0 h	CS	3	0.01 /h
		AG	23	0.11 /h
		RWF	2	0.01 /h
		LS	8	0.04 /h
		Multifilament gill net (10.4 cm bar mesh)		
3	69.0 h	CS	1	0.01 /h
4	45.5 h	--	0	0 /h
Total	114.5 h	CS	1	0.01 /h
		Minnow trap		
3	280.5 h	KS	22	0.08 /h
		SS	4	0.01 /h
4	262.5 h	KS	4	0.02 /h
Total	543.0 h	KS	26	0.05 /h
		SS	4	0.01 /h
		Beach seine		
2	12 hauls	KS	112	9.33 /haul
		AG	28	2.33 /haul
		RWF	10	0.83 /haul
		SS	3	0.25 /haul
		LS	2	0.17 /haul
4	11 hauls	KS	1	0.09 /haul
		AG	8	0.73 /haul
		RWF	13	1.18 /haul
		SS	25	2.27 /haul
Total	23 hauls	KS	113	4.91 /haul
		AG	36	1.57 /haul
		RWF	23	1.00 /haul
		SS	28	1.22 /haul
		LS	2	0.09 /haul

[a]KS=chinook salmon, CS=chum salmon, AG=Arctic grayling, RWF=round whitefish, SS=slimy sculpin, LS=longnose sucker.

Consideration of removal of coho salmon AWC documentation in Yukon River systems.

Issue – Based on an extensive sampling effort trapping juvenile fishes downstream from the Canadian border, Dave Daum (USF&WS) has submitted several nomination forms to delete coho salmon rearing, spawning, or presence from a number of AWC listed water bodies. The water bodies listed below are being considered for revision. Existing AWC coho salmon life stage documentation and lower pt fish species/life stage info (in parenthesis) is included.

334-45-11000-2325 (Kandik River (Charley Creek)) – coho salmon present (CHp,COp,Ksr)
334-45-11000-2325-3013 – coho salmon rearing (COr,Kr)
334-45-11000-2325-3017 – coho salmon rearing (COr,Kr)
334-45-11000-2325-3021 – coho salmon rearing (COr,Kr)
334-45-11000-2325-3021-4006 – coho salmon rearing (COr,Kr)

334-45-11000-2501 (Tatonduk River) – coho salmon present/spawning (CHp,COp,Ks)

334-40-11000-2661 – coho salmon rearing (COr,Kr)

334-40-11000-2665 – coho salmon rearing (COr,Kr)

334-40-11000-2681 – (Big Salt River) coho salmon rearing/present (CHs,COp,Kr)

(J. Johnson) AWC documentation for Kandik River (334-45-11000-2325) & tribs or 334-45-11000-2501 (Tatonduk River) to add coho salmon does not exist (no nom), 334-40-11000-2661 - added with Chinook & coho salmon rearing, nom # 04-479 (OHMP), 334-40-11000-2665 - added with Chinook & coho salmon rearing nom# 04-473, 334-40-11000-2681 – (Big Salt River) added with coho salmon, nom # 04-482 (AFFI).

Following are excerpts from emails or phone conversations -

(Dave Daum) I would delete these records unless there is definitive proof that these juvenile fish are actually coho. I have done genetics on over 800 age-0 juveniles in this part of the Yukon and they are all Chinook so far. As I have been saying for years now, the NOAA, Morrow, etc. keys for juvenile salmon identification can be very misleading for upper Yukon River Chinook salmon. I have caught fish with sickle-shaped anal fins, white leading edges, orange hue, parr marks narrow relative to space, etc. and so far they have been all genetically identified as Chinook. I had fish removed out of the UAF museum collection that were misidentified by ADF&G personnel as coho in the 1970's in the upper Yukon area (I sent to Ray Baxter, and he confirmed through meristics as Chinook). USFWS conducted a contaminants study in the Innoko River in the 1990's and misidentified numerous coho and Chinook salmon fry using these keys. Our genetics lab since those days screens ALL salmon fry for species before doing analysis. They do this because mis-identification of juvenile salmonids has been a common occurrence,

especially in some areas of the Yukon River. We have recently done some work on the Tanana River and did pyloric caeca counts to confirm speciation in age-0 juvenile Chinook and coho. I sampled Minook Creek (directly across from Squaw Creek) on Aug 29, 2006. I captured 104 juvenile salmonids, they ranged from 65 - 95 mm, and all were genetically screened as Chinook salmon.

(Bonnie Borba) Only kings and chum salmon noted in the Charley Creek in the aerial survey database, local report of coho salmon in the Black River as well as in the local subsistence fisheries.

(Roger Dunbar) Reports capture of coho salmon @ Eagle sonar site, but very few

(Pat Milligan- DFO) Documentation of coho salmon in the Porcupine River (Canadian side) and rearing coho salmon in Fishing Branch River (trib of Porcupine R.). The coho run within the Porcupine River drainage appears to be much stronger than the one to the upper Yukon. Coho are often caught in the aboriginal fishery located on the main stem Porcupine River near Old Crow late in the season by individuals fishing under the ice.

(Joe Buckwalter) I haven't had genetic tests run on any voucher specimens, but I routinely use meristic counts (esp. pyloric caeca and branchiostegals) to confirm difficult ID on difficult specimens. White leading edge of anal fin means nothing—however, a white leading edge *followed by a black stripe/zone,* when present, seems to be a very good indicator for coho (although the black can fade on larger specimens). However, so far I'm not convinced there is sufficient evidence to retract any coho listings, at least not for Squaw Creek or Big Salt River (which I can vouch for).

(Robert Clark) The best way to confirm coho presence will be to confirm adults spawning in drainages, which I am relatively sure does occur in the upper Yukon, albeit infrequently. CF aerial surveys aren't late enough in the year to detect coho salmon adults. It's a shame, but deletion probably should (will) occur until we can confirm adults in these rivers, which will be infrequent based on my experience.

(James Durst)Attached is a spreadsheet summarizing field and laboratory examinations of juvenile salmon in the Tanana River basin near Big Delta. In this reach, live juvenile coho salmon and Chinook salmon can be tricky to tell apart in the hand if using parr marks, dorsal fin shading, or anal fin shading or shape. The definitive external characteristic turned out to be adipose fin pigmentation.

(Robert Karlen) Reports he has no reason to doubt the validity of the fish species identifications, does not recall any difficulty or issues w/identification. Streams added were 334-40-11000-2661 - added with Chinook & coho salmon rearing, nom # 04-479 334-40-11000-2665 - added with Chinook & coho salmon rearing nom# 04-473, (OHMP)

Consideration of removal of coho salmon AWC documentation in Yukon River systems.

Streams under consideration for revision w/SF AB & CF/AB

334-45-11000-2325 - John Burr, John Linderman
334-45-11000-2325-3013 - John Burr, John Linderman
334-45-11000-2325-3017 - John Burr, John Linderman
334-45-11000-2325-3021 - John Burr, John Linderman
334-45-11000-2325-3021-4006 - John Burr, John Linderman
334-45-11000-2501 - John Burr, John Linderman
334-40-11000-2661 – John Burr, John Linderman
334-40-11000-2665 – John Burr, John Linderman
334-40-11000-2681- John Burr, John Linderman

334-45-11000-2325 – Kandik River is documented in AWC w/Chinook salmon rearing to the US-Canada border and coho salmon present to the mouth of 334-45-11000-2325-3021, revision would not affect the extent of AWC documentation in the Kandik River, only result would be deletion of single species (coho salmon). Since no documentation can be located to substantiate coho salmon observations, recommend deleting coho salmon present from stream.

334-45-11000-2325-3013 – Delete coho salmon rearing due to lack of substantiating occurrence observations.

334-45-11000-2325-3017 - Delete coho salmon rearing due to lack of substantiating occurrence observations.

334-45-11000-2325-3021 – Delete coho salmon rearing due to lack of substantiating occurrence observations.

334-45-11000-2325-3021-4006 - Delete coho salmon rearing due to lack of substantiating occurrence observations.

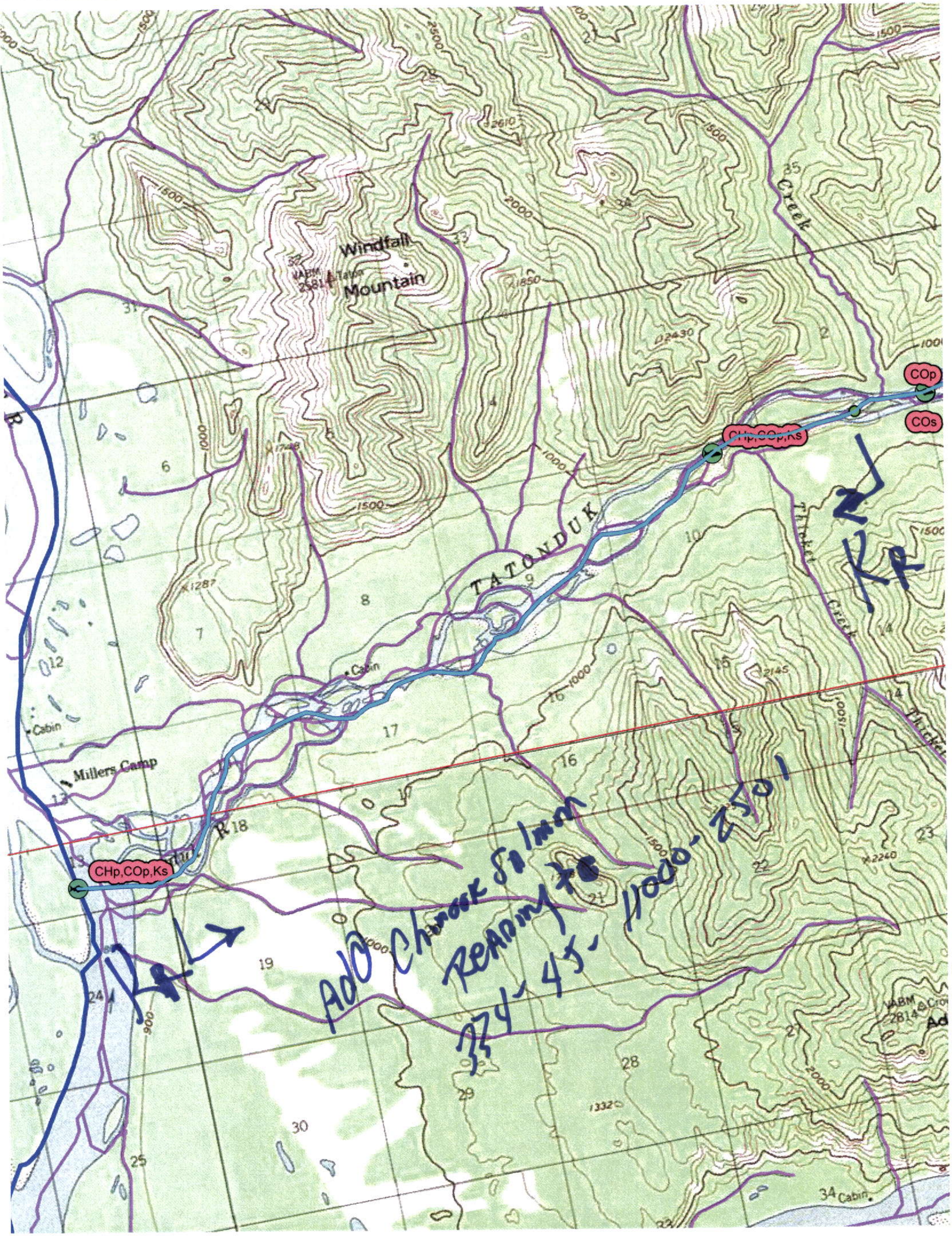
334-45-11000-2501 – Delete coho salmon present & spawning due to lack of substantiating occurrence observations.

334-40-11000-2661 – Observers are confident in their identification of juvenile coho salmon, do not delete coho salmon rearing.

334-40-11000-2665 – Observers are confident in their identification of juvenile coho salmon, do not delete coho salmon rearing.

334-40-11000-2681- Observers are confident in their identification of juvenile coho salmon, do not delete coho salmon rearing or present.


COs
COp
Ks
CHp,COp,Ks
CHp,COs
CHp,COp,Ks
CHs,Kr
delete
coho salmon present/spawning
from
534-915-11000-2501


Windfall Mountain
TATONDUK
Millers Camp
Cabin
CHp,COp,Ks
COp
COs
Creek
Thicket Creek
Add Chinook Salmon Rearing to 334-45-11000-2501
KR
RL