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

Nomination Form
Anadromous Waters Catalog

Region: SOUTHEAST

USGS Quad(s): C-1 Skagway

Anadromous Waters Catalog Number of Waterway: WATERWAY FLOWS INTO #115-34-10230-2009 - 300

Name of Waterway: TAIYA RIVER SIDE CHANNEL

☐ USGS Name ☑ Local Name

☑ Addition ☐ Deletion ☐ Correction ☐ Backup Information

For Office Use

Nomination #	10-753	Fisheries Scientist	10/26/10 Date
Revision Year:	2011	Habitat Operations Manager	10/26/10 Date
Revision to:	Atlas ____ Catalog ____ Both X	AWC Project Biologist	9/10/10 Date
Revision Code:	A-2d	Cartographer	10/1/10 Date

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Present	Anadromous
COHO SALMON	8/9/2010; 8/27/10		X (10)		☑
DOLLY VARDEN	8/9/2010; 8/18/2010; 8/20/2010		X (50+)		☑
CHAR	8/27/2010				☐
SCULPIN SP.	8/27/2010			X	☐
					☐

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: SEE ADDITIONAL ATTACHMENTS

ALASKA DEPT. OF FISH & GAME SEP 9 2010

59.52960 N
135.34730 W
(NAD 27)

NAD83
-135.349130906
59.529473983

Add new stream less than 660ft w/ coho salmon and Dolly Varden rearing

Name of Observer (please print): ALEX CUBERLY

Signature: Alex Cuberly

Date: 9/7/2010

Agency: TAIYA INLET WATERSHED COUNCIL

Address: PO BOX 826
SKAGWAY, ALASKA 99840

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: _____ Revision

02/08

ALASKA DEPT. OF
FISH & GAME

SEP 9 2010

Taiya Side Channel Fish Survey Report
July-September 2010

Taiya Inlet Watershed Council
Alex Coberly

Background:

The Taiya Inlet Watershed Council (TIWC) is dedicated to ensuring the health and sustainability of rivers, steams, and wetlands in the Skagway and Taiya River Watersheds. An important part of this mission is to obtain a comprehensive understanding of the fish species that are present in local watersheds. Alaska Statute 16.05.871(a) dictates that all water bodies that support anadromous fish populations be listed in The Catalog of Waters Important for the Spawning, Rearing, or Migration of Anadromous Fishes (AWC) (ADF&G 2010). During a 2007 assessment of streams in the greater Skagway-Dyea area, the TIWC noted that several streams and stream reaches used by anadromous fishes are not currently listed under the AWC (TIWC 2007). This lack of recognition means that the unlisted streams are not afforded the appropriate protection that is provided by Alaska Statute 16.05.871.

One of these streams is the Taiya Side Channel (TSC), which is located at latitude 59.5298 and longitude -135.3473. This former side channel of the Taiya River originates from springs along the base of Yeatman Mountain and flows into West Creek immediately upstream of West Creek's confluence with the Taiya River. One of the TIWC's recommendations for the TSC is to conduct an in-depth sampling for anadromous fishes to determine if the creek should be nominated for the AWC. The TSC likely supports anadromous fishes because in May of 2006, twelve Dolly Varden char were captured in the creek. Adult salmon have also been anecdotally reported as migrating up the creek (TIWC 2007). In addition both the Taiya River (AWC #115-34-10230) and West Creek (AWC #115-34-10230-2009) are currently listed in the AWC. Both coho salmon and Dolly Varden char are listed as being present in these waterbodies (Johnson & Blanch 2010). Documented fish use of the greater Taiya River watershed includes rearing (coho salmon & Dolly Varden char), spawning (chum & pink salmon), as well as the presence of coho, pink, and chum salmon; Dolly Varden char; and eulachon (TIWC 2007). As a result of the Taiya

River's support of a wide variety of anadromous fishes, the TSC was considered a priority for anadromous fish sampling.

Study Site:

The TSC is accessed from West Creek road on the north side of the West Creek Bridge (Map 1). After crossing the bridge, the road forks left and right, and the stream runs under the right fork approximately 23 m from the north end of the bridge. Several rafting companies use the right fork to access the Taiya River. TSC runs underneath the road through two corrugated metal culverts (1.52 m by 9.14 m long). The culverts are in good condition for fish passage, but they are prone to blockage by fallen branches. Downstream of the culvert, approximately 30 m above the confluence with West Creek, there is a derelict "V" log structure that was likely installed in order to create a scour pool (Picture 1). The log that protrudes from the west bank is 4.73 m in length, and the one coming from the east bank is 3.54 m in length. The structure probably collapsed after the streambed material eroded away (TIWC 2007). On the east bank of the stream, the collapsed log has formed a .55 m deep pool. This pool contains large amounts of organic matter (leaves, branches, etc.), and extends to 1 m downstream of the collapsed log. Although a small amount of water flows over the "V" log, most (95%) of the stream flows under the structure. Since its collapse the stream has created a channel along the west bank that flows freely underneath the west side of the structure. The west bank log is no longer in contact with stream substrate or water (Picture 2). The portion of the stream under the west bank log has a gradual slope, and likely can facilitate the passage of both juvenile and adult salmonids.

Methods:

The TIWC applied for and was granted a Fish Resource Permit by the Alaska Department of Fish and Game (ADF&G). The permit allowed for fish-in-hand sampling through the use of minnow traps. The Natural Resources Department of the Klondike Gold Rush National Historic Park provided G-type (5.1-mm mesh size, 41 cm length, and 19 cm diameter) fish traps, and bait was donated by John Hudson of the US Fish and Wildlife Service. John Hudson (USFWS) and Richard Chappell (ADF&G) both provided tips and

recommendations for the best fish trapping methods. Traps were set a minimum of 3 m apart in pools and undercut banks (Bryant 2000). Traps were set in the most complex habitats available in order to ensure a higher probability of trapping success. Complex habitats included deeps pools with large amounts of woody debris, which provide suitable fish refugium (Bryant 2000). Before each sampling event a quarter-sized portion of shelf-stable salmon egg paste was placed in a perforated *Nasco* Whirl-Pak bag and added to each trap. All unattended traps were labeled with the permit number, name and phone number, and were securely fastened to the streambank. Pullen Creek in Skagway, Alaska was used to perfect trapping techniques and salmonid identification.

Fish identification was determined using *Field Identification of Coastal Juvenile Salmonids* by Pollard *et. al.* (1997). Juvenile coho salmon (*Oncorhynchus kisutch*) were identified by their sickle-shaped anal fin, the pale orange color of the caudal, anal and adipose fins, and the white-black coloration of the leading edges of the anal and dorsal fins (Pollard *et. al.* 1997). Juvenile Dolly Varden (*Salvelinus malma*) were identified by the irregular parr marks and the lack of fin spots (Pollard *et. al.* 1997). On occasion sculpins (Genus *Cottus*) were also caught; however, they were not identified to the level of species. Once the fish were captured, species, location, and life stage were recorded before the fish were returned alive to the site of capture.

A total of four trapping events occurred along the lower reach of the Taiya River Side Channel. Traps were allowed to sit for no less than 1.5 hours; however, actual trapping time varied during each event. No trapping event lasted longer than 24 hours, and traps were always removed in the same order in which they were set (Bryant 2000).

Nine specific locations along the lower reach of the TSC were examined for juvenile salmonids. The deep pool formed by the collapsed v-structure was trapped during each of the sampling events, and was noted as site 1. During one trapping event, a trap was placed in a pool at the side channel's confluence with West Creek (site 2). An undercut bank approximately 9 m downstream of the culvert and 4.5 m upstream of the v-structure, site 3, was also examined. The rest of the traps were placed at varying distances upstream of the double culvert. One pool was located approximately 9 m upstream of the culverts (site 4), and another was placed below an undercut bank located roughly 4.5 m further upstream of the site 4 pool (site 5). A total of four traps, on two different occasions, were placed

between 30 m and 90 m upstream of the double culvert (sites 6-9). There are a large number of fallen trees and shrubs in this reach of the stream, which create an abundance of suitable pools for juvenile fishes. Near the 90 m mark there was a very large side pool (approximately 2.5 m by 1.5) that branches off the west bank of the stream (site 9 & Picture 3).

The initial fish assessment of the TSC occurred on 9 August 2010. During this trapping event three traps were placed in the creek, one was at upstream site 4, and two were placed downstream of the culvert in the pools located above and below the v-structure, sites 3 & 1 respectively. The soak time was approximately four hours.

The second trapping event occurred 18 August 2010, one trap was set in site 1 and two others were placed at the site 4 and 5 locations upstream of the double culvert. This event lasted approximately three hours.

On 20 August 2010, the traps were placed at the TSC for the third time. On this occasion one trap was set at site 1, one at site 2, and three others were set upstream of the culvert. The three upstream sites included one trap being placed at the bank undercut at site 5, and the other two were placed in sites 6 and 7 between the 30m and 37 m marks. The soak time for this event was one hour and thirty minutes.

The fourth and final trapping event occurred on 27 August 2010, and it lasted 21 hours. One trap was set again at site 1, and two others were set further upstream. One was in the large pool at site 9, and another was nearby in a pool at site 8. These traps were set at 16:00 on August 26th and were pulled at 13:00 on August 27th.

Results:

On 9 August, three juvenile coho salmon were captured at site 1; no fish were captured at the other sites on this date. A dead adult pink salmon was observed and photographed on the streambank between site 1 and site 3 (Picture 4).

On 18 August, the only trap that yielded any fish was the trap placed at site 1, near the v-log structure. In this trap four fish were caught in the trap, and three fish were positively identified as being juvenile Dolly Varden (Picture 5). The fourth fish escaped back into the pool before it could be appropriately identified.

The third trapping event (20 August) ended with similar results as the first two. After the traps were pulled, the only trap that was successful was one that was placed in the pool at site 1. This trap contained one juvenile Dolly Varden. The tail and caudal fin of an adult salmon were also present in the lower reach of the stream (between sites 1 and 2).

The fourth trapping event (26-27 August) was the most successful, and was the longest. The trap at the v-structure held at total of fourteen Dolly Varden and one unidentified sculpin species. The large pool at site 9 yielded one unidentified sculpin, five Dolly Varden, and three juvenile coho salmon. The third trap, at nearby site 8, produced twenty-one Dolly Varden and four coho salmon.

Discussion & Conclusion:

The four trapping events in the Taiya River Side Channel demonstrate that both coho salmon and Dolly Varden char are present in the stream. Over the course of the events a total of forty-four Dolly Varden and ten coho were positively identified. Dolly Varden and coho were found at various locations along the lower reach of the Taiya River Side Channel, and there did not seem to be any extensive barriers to their passage. In addition, it is probable that those sites that did not yield fish likely contain fish, but were not trapped for a significant enough duration of time. This is likely because the experimental results show that if the traps were allowed sufficient soak time, then they continually produced anadromous salmonids. The correlation between soak time and trapping success is expected because the probability of fish capture is ultimately dependent on the rate of fish encounter with the trap (Culp & Glozier 1989).

The collapsed v-structure located downstream of the culverts does not appear to inhibit the upstream passage of salmon. The presence of juvenile coho salmon 100 m upstream of the structure indicates that the structure does not prevent adults, and possibly juveniles, from passing upstream. Additionally, the gradual nature of the channel should allow for the movement of juvenile salmonids past the v-structure and along the length of stream surveyed in this study. The pool and channel that have formed since the collapse of the v-strucutre also promote habitat heterogeneity. Since it is not currently obstructing passage and has created a complex pool, the area would likely be best served if the v-structure were left in place.

Although the culverts are currently allow fish passage, the TIWC notes that they are susceptible to blockage due to fallen debris (TIWC 2007). In July 2010 John Hudson removed wood and leaf debris that blocked the culvert inlets. Blockage by debris during high flows could wash road material into important downstream fish habitat. Therefore, it is important to monitor these culverts in order to ensure they remain able to facilitate the passage of both adult and juvenile salmonids. Additionally, the culverts should be assessed to determine if replacement is necessary.

There have been anecdotal reports of a large beaver pond further upstream along the TSC; however, this pond was not trapped nor was it located during this project. As beaver ponds provide ideal habitat for rearing coho salmon, the pond should be located and sampled for the presence of fish (Pollock 2004). Continued trapping of the sites mentioned in this report as well as new work along the upper reach (past 100 m upstream) should provide supporting evidence for the presence of anadromous coho and char in the Taiya River Side Channel. No adult pink salmon were observed swimming or spawning in the stream, although on several occasions the remnants of salmon were seen in the very lowest reach of the TSC. It may be that some pinks use this stream, although it is possible that a human, or one of the many bears that frequent the area, are the cause of these deceased salmon. Finally, the stream should be monitored in September and October for the presence of migrating adult coho salmon.

The presence of juvenile coho and Dolly Varden dictates that it is important for the Taiya River Side Channel to be nominated for placement in the Alaska Department of Fish and Game's Anadromous Waters Catalog. This report will be included along with the other required information for nomination, with the hope that the report will aide in the nomination process.

Literature Cited:

ADF&G, Initials. (2010). *Anadromous waters catalog*. Retrieved from http://www.sf.adfg.state.ak.us/SARR/AWC/index.cfm/FA/main

Bryant, M.D. (2000). Estimating fish populations by removal methods with minnow traps in southeast alaska streams. *North American Journal of Fisheries Management, 20*, 923-930.

Culp, J.M., & Glozier, N.E. (1989). Experimental evaluation of a minnow trap for small lotic fish. *Hydrobiologia, 175*, 83-87.

Johnson, J., & Blanche, P. (2010). Southeastern Region, Effective June 1,2010. (2010). *Catalog of waters important for spawning, rearing, or migration of anadromous fishes.* Alaska Department of Fish and Game Divisions of Sport and Fish Habitat.

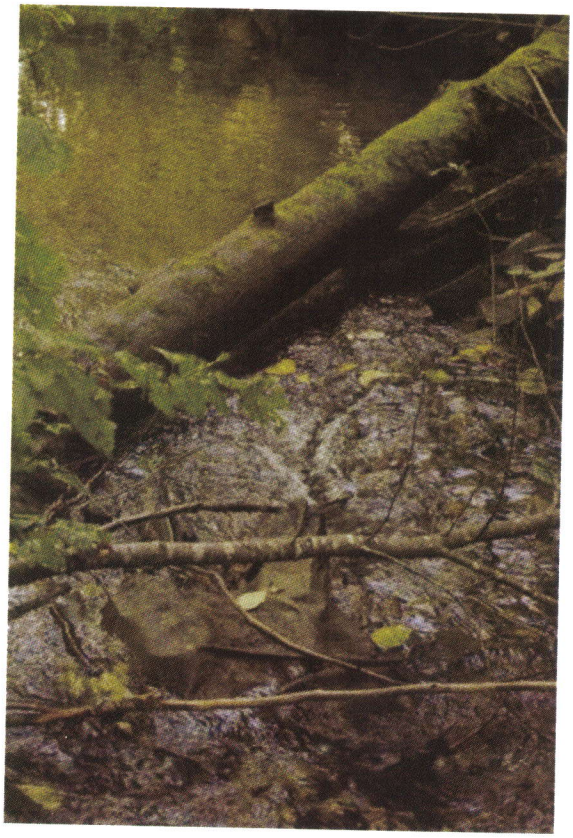
Pollard, W.R., Hartman, G.F., Groot, C., & Edgell, P. (1997). *Field identification of coastal juvenile salmonids.* Canada: Harbour Publishing.

Pollock, M.M., Pess, G.R., Beechie, T.J., Montgomery, D.R. (2004). The importance of beaver ponds to coho salmon production in the Stillaguamish River Basin, Washington USA. *North American Journal of Fisheries Management, 24, 749-760.*

Taiya Inlet Watershed Council. (2007). *Taiya Inlet Stream Condition Assessment.* Skagway, Alaska.

Pictures:

Picture 1: Site 1- Scour pool in front of collapsed v structure.

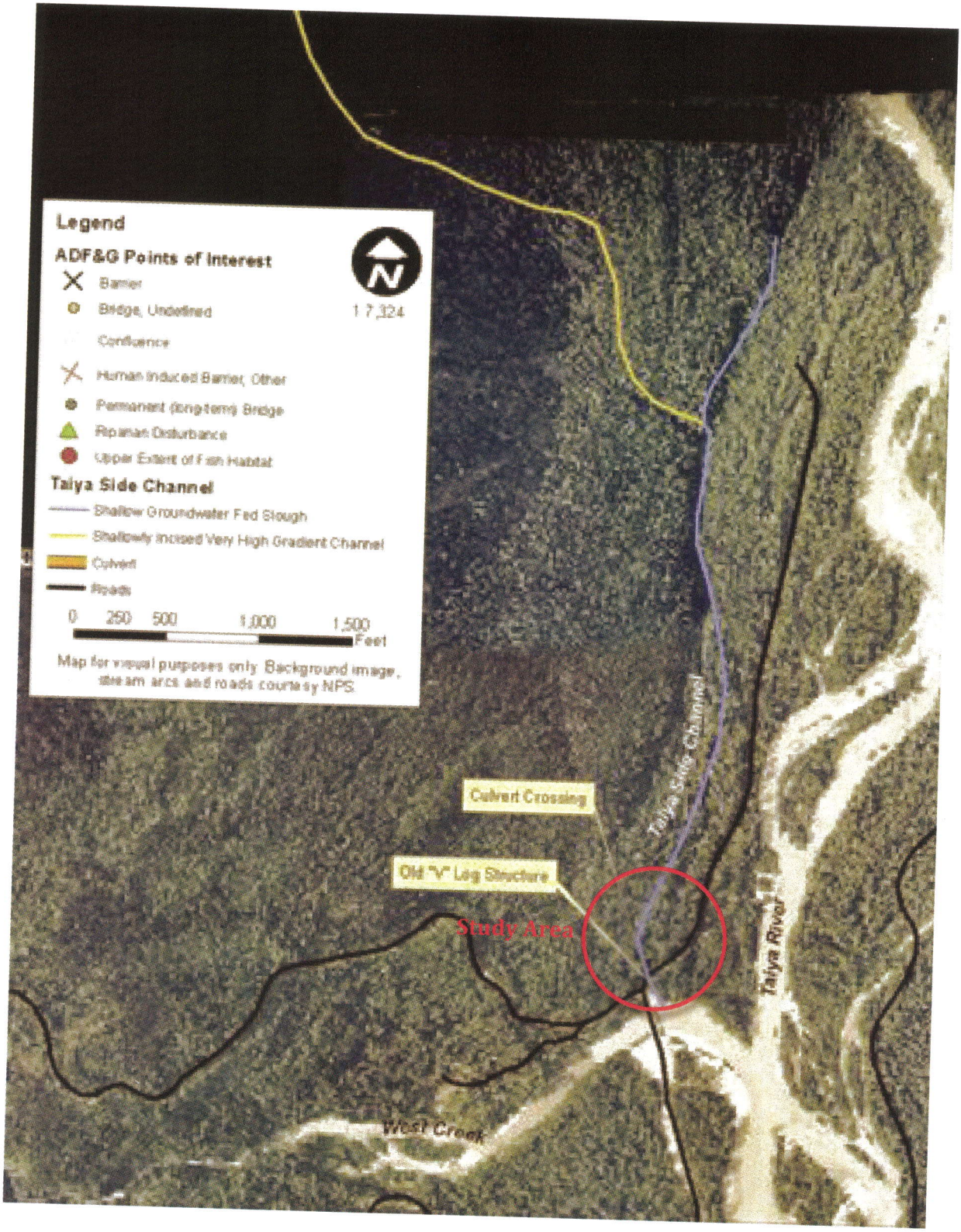


Picture 2: Water flowing along west bank and under v-structure

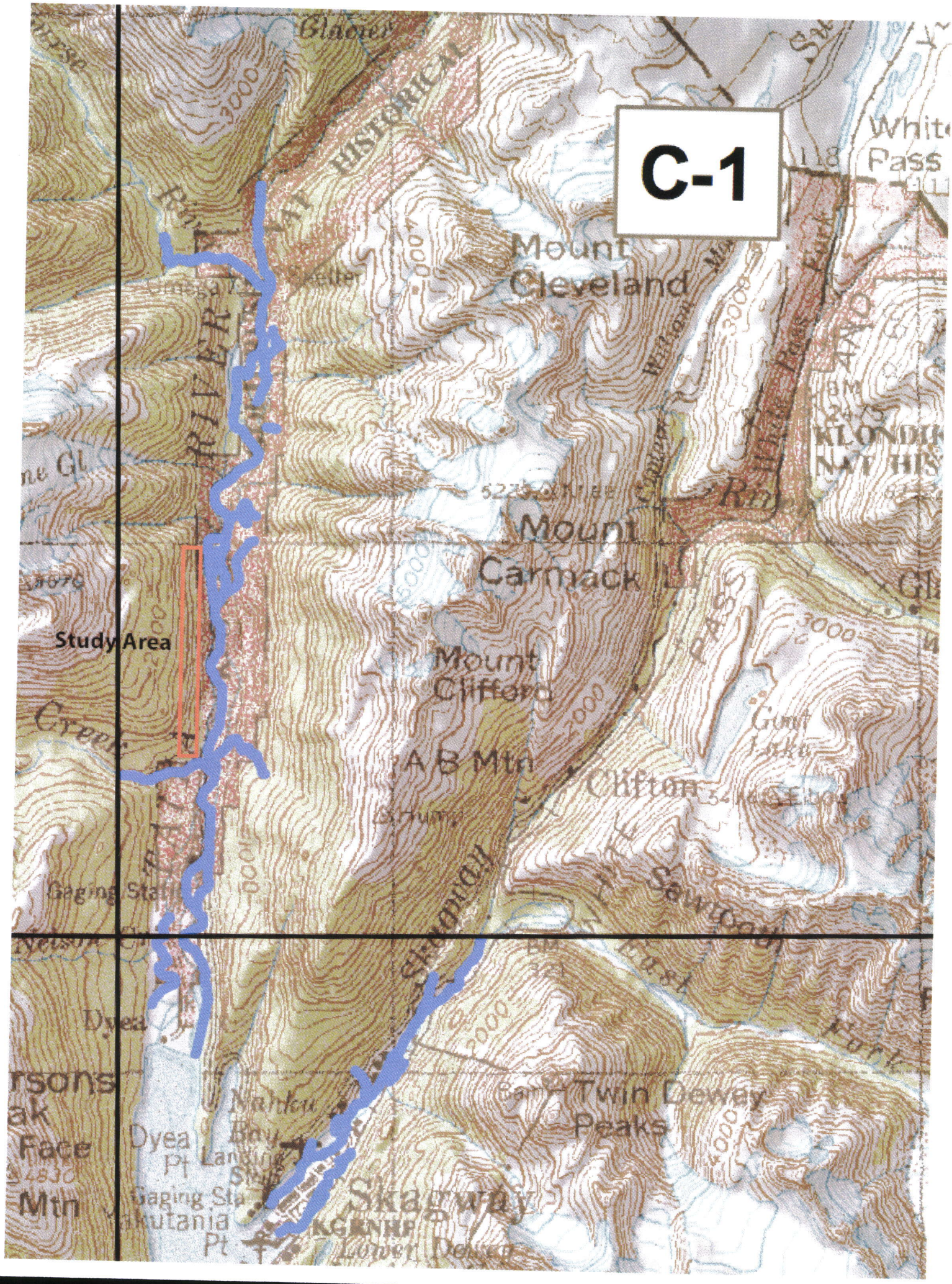
Picture 3: Site 9- 8x5 pool with trap

Picture 4: Observed pink salmon

Picture 5: Juvenile Dolly Varden



Map 1: Study Area (TIWC 2007)

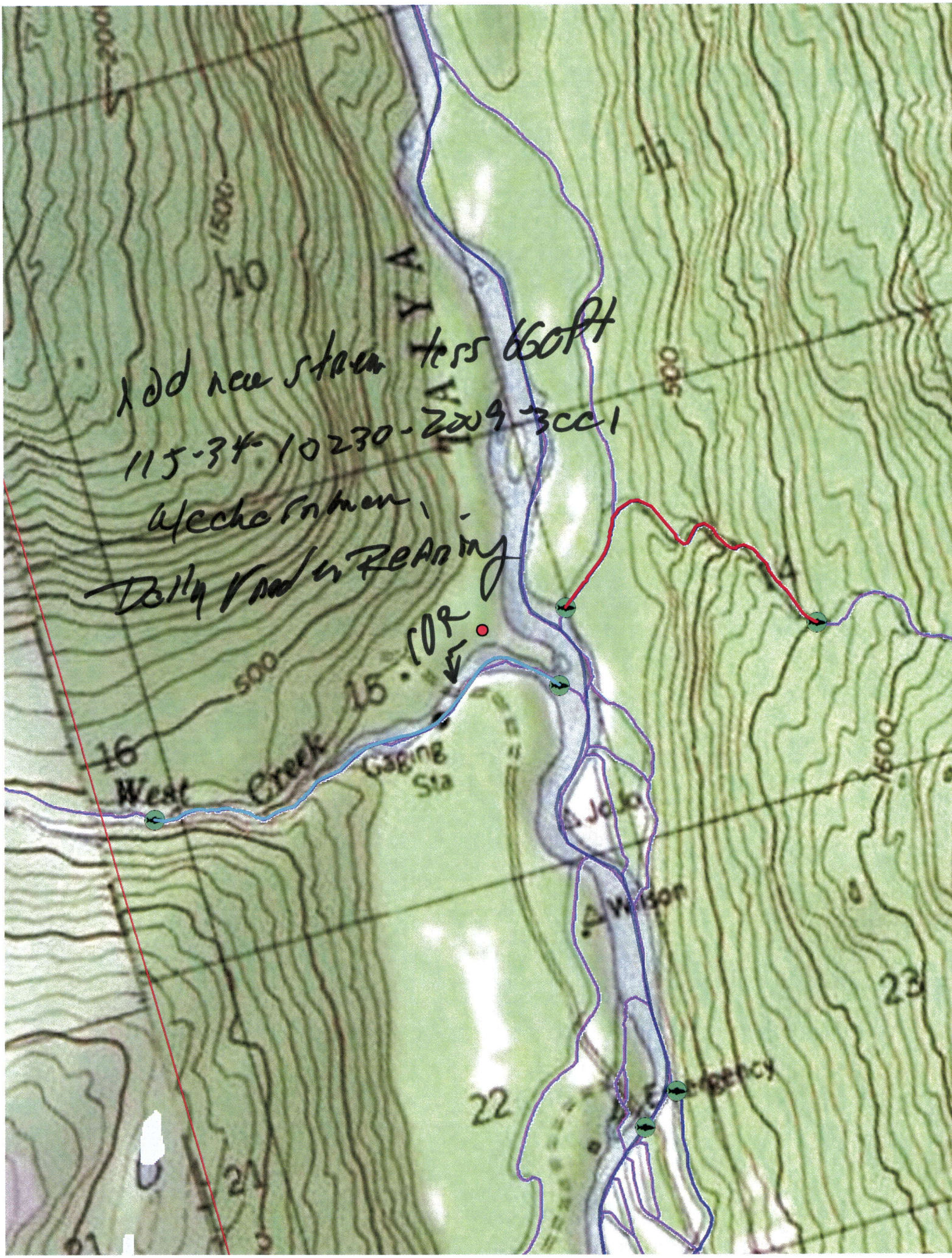

C-1
Study Area
Mount Cleveland
Mount Carmack
Mount Clifford
A B Mtn
Clifton
Twin Dewey Peaks
Skagway
Dyea
Gaging Sta
Glacier
White Pass
Gaging Sta
Dyea Pt
Face Mtn
Lower Dewey

ADF&G permit no. SF2010-243

Summary report of fish collection activity.

The area biologist was contacted on: 9:30 AM/8/3/10 & 8:48

Location ID (optional)	Latitude	Longitude	Datum	Coordinate determination method	Name of water body	Date	Observer name (first name, middle initial, last name)	Fish collection method	Species	Life stage	Length (mm) No estimates/ranges	Length method	Weight (g)	Sex	Age	Age method	ADF&G GCL	Additional count (1)	Disposition (1)	Additional count (2)	Disposition (2)	Comments
	59.52980	-135.34730	NAD27	GPS	Taiya Side Channel	8/9/2010	Alex B. Coberly	Minnow Trap	coho salmon	smolt				Unknown				3	ID'ed and released			
	59.52980	-135.34730	NAD27	GPS	Taiya Side Channel	8/18/2010	Alex B. Coberly	Minnow Trap	Dolly Varden	smolt				Unknown				3	ID'ed and released			One other unidentified fish that was much larger than the other three, escaped before positive identification could be made.
	59.52980	-135.34730	NAD27	GPS	Taiya Side Channel	8/20/2010	Alex B. Coberly	Minnow Trap	Dolly Varden	smolt				Unknown				1	ID'ed and released			
	59.52980	-135.34730	NAD27	GPS	Taiya Side Channel	8/27/2020	Alex B. Coberly	Minnow Trap	Dolly Varden	smolt				Unknown				40	ID'ed and released			
	59.52980	-135.34730	NAD27	GPS	Taiya Side Channel	8/27/2010	Alex B. Coberly	Minnow Trap	coho salmon	smolt				Unknown				7	ID'ed and released			
	59.52980	-135.34730	NAD27	GPS	Taiya Side Channel	8/27/2010	Alex B. Coberly	Minnow Trap	sculpin-unspecified	adult				Unknown				2	ID'ed and released			



Add new stream less 660ft
115-34-10230-2009-3CC1
Wechesnmen,
Dolly Vanden Rearing
TOR
West Creek
Gaging Sta
Wilson
Emergency
500
1500
1600
10
11
14
15
16
21
22
23