



JB

Region South west USGS Quad(s) Cold Bay A-1

Anadromous Waters Catalog Number of Waterway 283-34-11000

Name of Waterway Waterfall creek USGS Name Local Name - by HDR, Contractor to City of King Cove

Addition Deletion Correction Backup Information

For Office Use

Nomination # <u>02-1513</u>	_____	_____
Revision Year: <u>2010</u>	Fisheries Scientist	Date
Revision to: Atlas _____ Catalog _____	Habitat Operations Manager	Date <u>22 OCT 09</u>
Both _____	AWC Project Biologist	Date
Revision Code: <u>F-1</u>	Cartographer	Date

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Present	Anadromous
<u>Dolly Varden</u>	<u>7/21-22/2009</u>			<u>20</u>	<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>

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: Minnow trapping for presence of fish during one sampling event, July 21-22, 2009 at 4 sites. Details in attached "Waterfall Creek Minnow trapping of July 21-22, 2009" report, tabbed with Post-it's and highlighted.

Name of Observer (please print): Gayle Martin
 Nominator Signature: Gayle Martin Date: 10/15/09
 Agency: ADF & G - Habitat
 Address: Anchorage

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 _____

To: Bob Piorkowski Alaska Department of Fish & Game	
From: James Brady HDR – Alaska (907) 644-2011	Project: Waterfall Creek Minnow Trapping, July 21-22, 2009.
CC: Donn Tracy, Bert Lewis, Michael Daigneault	
Date: August 6., 2009	Job No: King Cove-Waterfall Creek Hydro

Waterfall Creek minnow trapping July 21-22, 2009

ADF&G Fish Resource Permit No. SF2009-227

Background

The City of King Cove has proposed to divert a small unnamed creek approximately 5 miles north of the city for hydro power generation. (See attached vicinity map) The entire project is located on lands owned by the King Cove Native Corporation. This creek is adjacent to and west of the existing hydroelectric project on Delta Creek that was constructed in 1995. The creek has a waterfall that is visible from the Delta Creek hydroelectric powerhouse. For the purposes of this project we refer to it as "Waterfall Creek".

From its confluence with Delta Creek, Waterfall Creek rises at an increasing gradient for about 960 meters before reaching the rock headwall that forms a 20 meter waterfall. The habitat in Waterfall Creek consists of relatively steep gradient cascades, pools, large boulders, and a mix of bedrock and coarse substrate material. Fisheries studies were conducted in 2006 and 2007 for the proposed hydroelectric Project. Two sites were investigated; the first "confluence site" was near the confluence of Waterfall Creek and Delta Creek and the second "upstream site" was approximately 0320 meters upstream where a "V" notch weir stream gage was established. (See attached project map) In 2007, adult pink salmon were observed in low numbers at the two sites (6 fish total) during an August sampling event. No salmon were observed in 2006.

Coho and chum salmon were not observed during any of the sampling events in 2006 or 2007 which spanned from late July through early November. Based on the general timing of spawning for these species, it is expected that adults would have been observed during the visual observation surveys if Waterfall Creek provided important spawning habitat for either species. Similarly, it appears the creek does not provide important rearing and/or overwintering habitat for coho salmon as none were captured during a February 2006 electro fishing sampling event.

Dolly Varden were observed at both study sites in 2006 and 2007. A total of 36 and 52 adult fish respectively were observed by foot surveys. Based on the sizes of fish observed and their presence in the stream year round, it is assumed that the Dolly Varden are resident fish and they use the stream for spawning, incubation, and rearing.

Study Purpose

The objective of this small sampling effort was to extend the upstream range of the 2006 and 2007 field studies above the "V" notch weir. Of particular interest was if species other than Dolly Varden were present, and to see if fish utilization of the habitat diminished with the increasing gradient above the "V" notch weir.

Methods

In a one day sampling event, minnow traps were fished in pools upstream of the "V" notch weir located at approximately N 55°07'28" W 162°16'32". An effort was made to find pools with relatively slow moving water resulting from poor-overs or eddies behind boulders. The traps were baited with "Pro Roe", a fresh frozen commercial salmon roe produced by the the Alaska Bait Company. Traps were set in the afternoon/evening of July 21, 2009, and retrieved on July 22, 2009. The average soak time was 21 hours 45 minutes.

Results

Four traps were set, with the first, WC-1, located a few meters below the "V" notch weir. This site lies within the upstream study area from the 2006 & 2007 study. The other three traps, WC-2, WC-3 & WC-4 were set at approximately 83, 160 and 216 meters up-stream from the "V" notch weir. GPS coordinates were taken at each trap location. All fish captured were identified by species, measured (total length) and returned alive to the water at the capture location. There were no known fish mortalities from trapping and handling.

Waterfall creek is densely vegetated throughout the reach sampled. The stream bed is composed of large boulders, bedrock, cobble and coarse gravel. The gradient increases as one moves upstream and the availability of pools diminishes. No traps were fished above WC-4 because the local "Bear Guard" who accompanied me on the sampling trip was unwilling to go further up the creek valley.

Capture results are presented in Table 1. Small numbers of juvenile Dolly Varden were captured in all but the upper most site, WC-4. No other species were captured. The number of fish captured at each station diminished as the sites progressed upstream (Figure 1) with no fish captured at the highest site. It appears from this work that the value of habitat for Dolly Varden progressively diminishes above the "V" notch weir. This is correlated with observed increasing stream gradient and flow velocities and diminished number of pools.

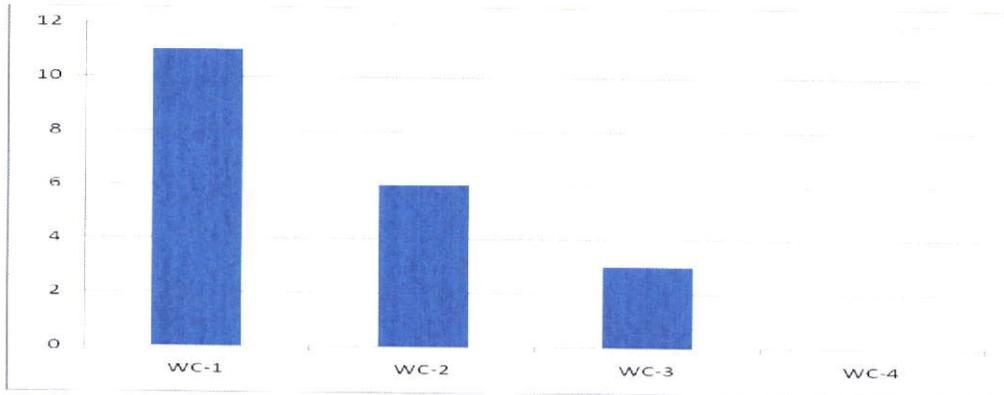


Figure 1. Number of juvenile Dolly Varden captured by trap location in Waterfall Creek, July 21-22, 2009..

Table 1. Waterfall Creek minnow trapping, July 21-22, 2009.

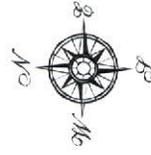
Investigator: James Brady, HDR Alaska
 ADF&G Fish Resource Permit No. SF2009-227
 GPS Datum: WGS 84
 Gear type: Standard minnow trap
 Bait: Commercial salmon roe - Alaska Roe Co. "Pro Roe"
 Avg soak time: 21 hrs 45 min.

Ref loc. Power Plant 55.12331 162.27209

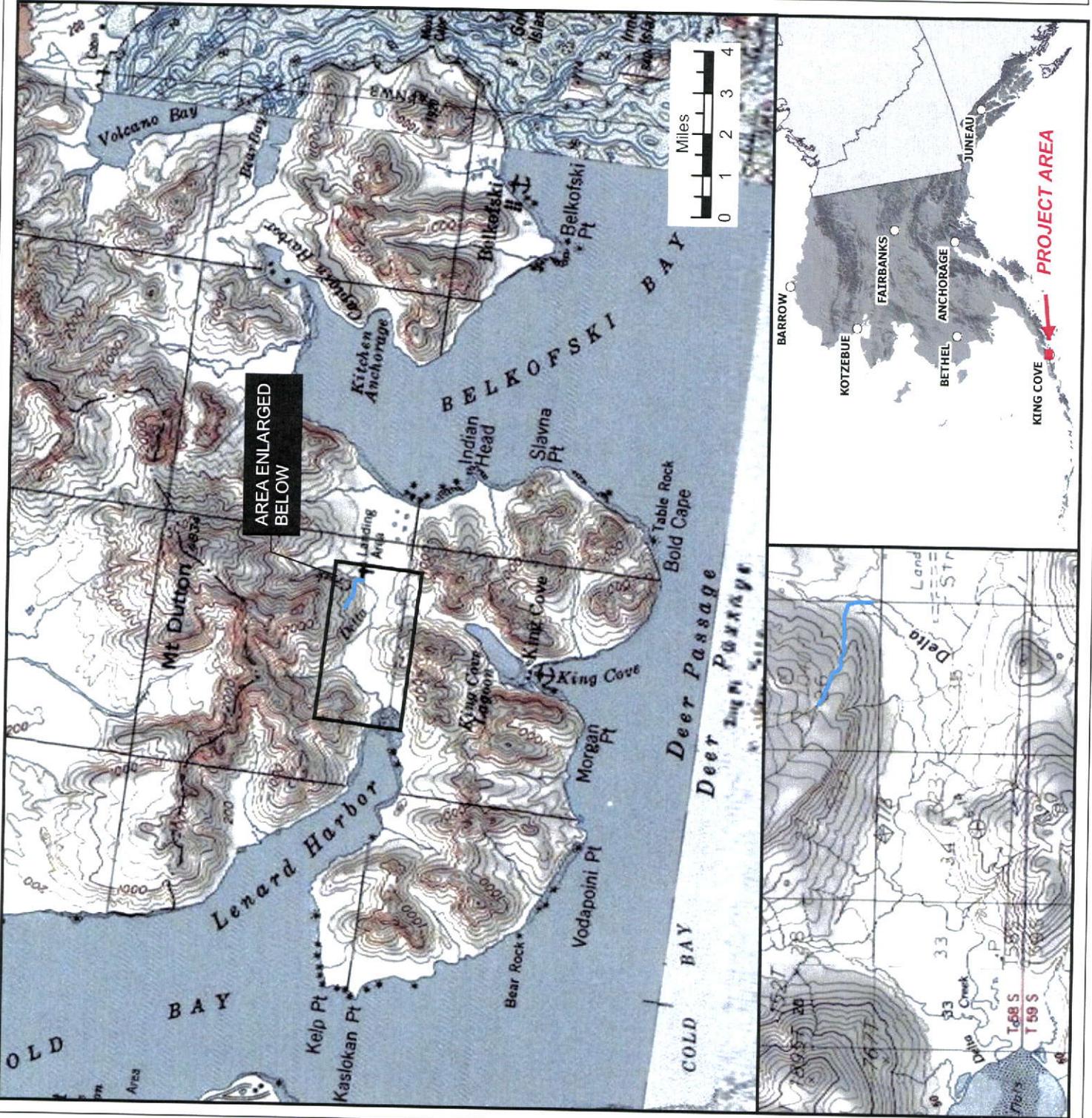
Station	Latitude	Longitude	Set Date	Time	Pull Date	Time	Distance upstream of WC-1 (meters)	Catch		Length (cm)	
								Dolly	Varden	Min.	Max.
WC-1	55.12447	162.27551	7/21/2009	15:50	7/22/2009	13:37	0:00	11		8.0	14.5
WC-2	55.12463	162.27684	7/21/2009	16:06	7/22/2009	13:52	83.5	6		9.5	16.0
WC-3	55.12461	162.27802	7/21/2009	16:18	7/22/2009	14:05	159.5	3		6.5	14.0
WC-4	55.1245	162.27885	7/21/2009	16:30	7/22/2009	14:17	216.4	0			

Waterfall Creek Hydroelectric Project

 Waterfall Creek

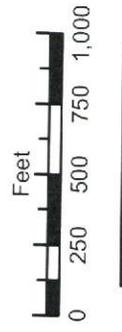
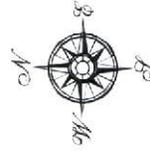


Datum: NAD 1983
 Coordinate System: Albers
 Sources: ESRI, USGS
 Author: HDR Alaska, Inc.
 Date: August 5, 2009



Waterfall Creek Hydroelectric Project

- 2009 Fish Trapping Sites
- 2006/2007 Fish Trapping Sites
- Streams



Sources: AeroMetric, HDR Alaska, Inc.
 Author: HDR Alaska
 Date: August 5, 2009

