State of Alaska
Department of Fish and Game
Habitat and Restoration Division

Nomination for Waters Important to Anadromous Fish

Region: SOUTHCENTRAL ▼ USGS Quad: Seward B-4

Anadromous Water Catalog Number of Waterway: 226-20-16080, 226-20-16080-0020, 16080-0010

Name of Waterway: Jackpot ☑ USGS Name ☐ Local Name

☑ Addition ☐ Deletion ☐ Correction ☐ Backup Information

For Office Use

Nomination #: 01 061			11/20/01
Revision Year: 2001	Regional Supervisor		Date
Revision to: Atlas X Catalog ___ Both ___	AWC Project Biologist		10/31/01 Date
Revision Code: B-1, B-2	Drafted		12/18/01 Date

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Present	Anadromous
Dolly Varden	7/9/2000, 9/2/2000	x	x	x	☐ x
Coho Salmon	7/18/2000-9/2/2000	x	x	x	☐ x
Cutthroat Trout	7/18/2000, 9/2/2000		x	x	☐ x
King Salmon	9/2/00	x			☐ 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:

Please see the attached document "Jackpot Basin New Lands Inventory " for supporting documentation.

Name of Observer (please print): William D. Frost

Signature: William D. Frost Date: 12/13/00

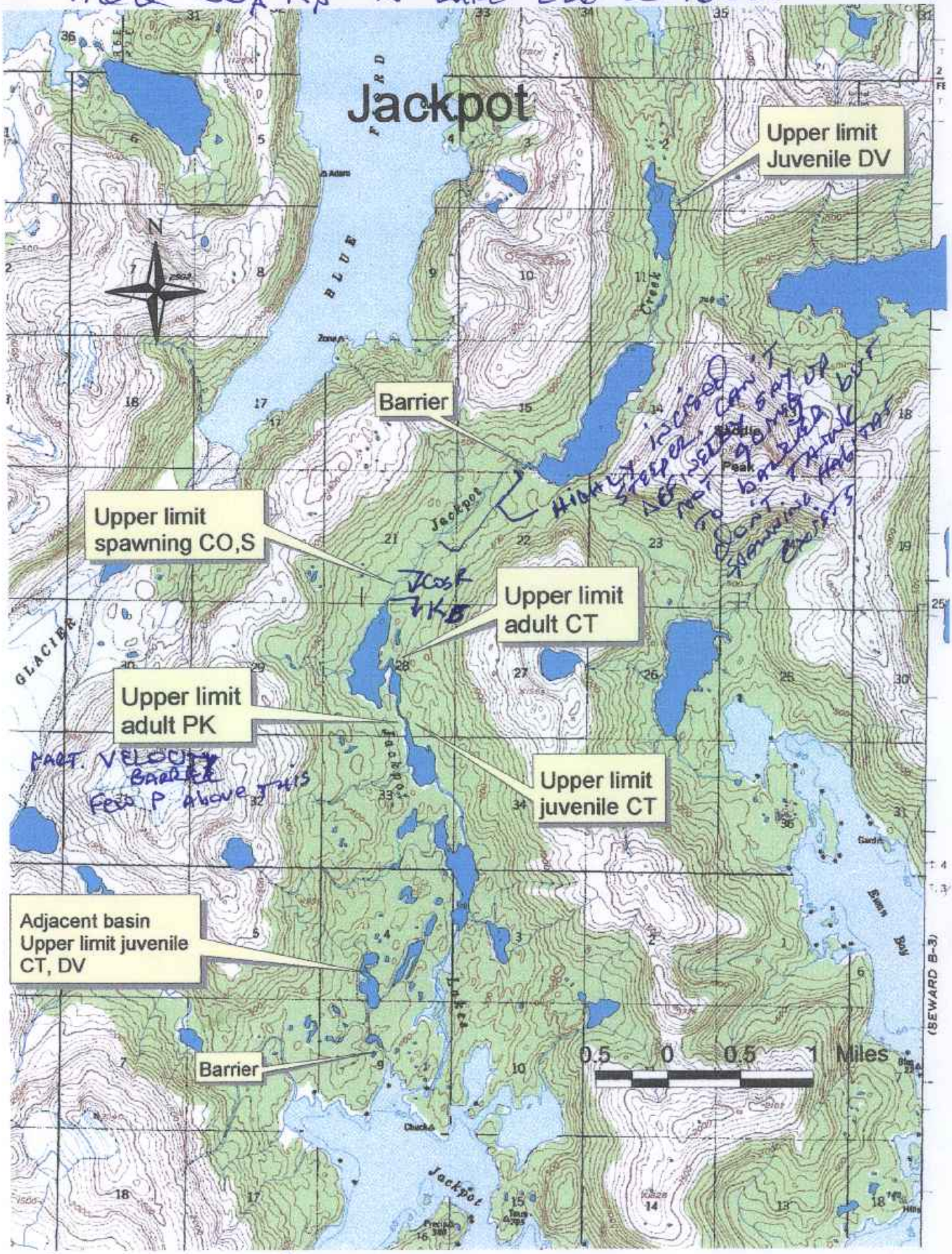
Address: P.O. Box 129
Girdwood, Alaska

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 Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes per AS 16.05.870.

Signature of Area Biologist: _____

ALASKA DEPT. OF FISH & GAME
JAN 31 2001
REGION II
HABITAT AND RESTORATION DIVISION

ADD K_S. ADD CO_{SR} per this nom. & 1994 nomination
94-135. Stream # 226-20-16080
ADD $CO_A K_P$ to Lake 226-20-16080-0020 & 0010



AIDN'T TRAP REACH 6

United States Department of Agriculture | Forest Service | Glacier Ranger District | P.O. Box 129 Forest Station Road Girdwood, AK 99587

File Code: 2620-3
Date: January 29, 2001

Edward W. Weiss
Habitat Biologist
Alaska Dept. of Fish and Game
333 Raspberry Rd.
Anchorage, AK 99518-1599

Dear Sir:

The Glacier Ranger District conducted stream surveys on 19 streams in Prince William Sound (PWS) during the 2000 field season. Of those systems sampled the survey identified undocumented fish species in two basins in Jackpot Bay (ADF&G 226-20-16080-0020,226-20-16090-999), three tributaries to Squaw Bay (ADF&G 222-30-12920, 222-30-199, and 222-30-199), one inlet to Nassau Fiord (ADF&G 226-20-194), one inlet stream to Port Wells (ADF&G 223-20-199), and two inlet streams to Puffin Cove (ADF&G 226-50-16106,226-50-16098). Methodology to surveys conducted included minnow trapping, snorkel counts and hook-line. The results of these surveys indicate that a number of streams surveyed hold species of both adult and juvenile salmon, trout and char that are either missing from the Anadromous Waters Catalog or have partial coverage within the system.

Specifically, those undocumented species trapped within the Jackpot system comprised 654 juvenile coho salmon, and 19 cutthroat trout. Within the upper portion of the basin 235 juvenile Dolly Varden char were found in a previously undocumented region. A total of 121 adult coho, 3 king salmon and 16 cutthroat trout were observed or sampled by hook and line. Sampling was conducted on a small, unnamed basin in Jackpot Bay. Results of minnow trapping resulted in nine juvenile Dolly Varden and 11 juvenile cutthroat trout.

Streams surveyed in Squaw Bay were snorkeled and the fish species identified included (ADF&G 222-30-12920) 143 cutthroat trout found throughout the system. Additionally, one adult cutthroat trout was caught by hook and line. Another unnamed stream snorkeled in squaw Bay (ADF&G 222-30-199) identified 5 juvenile coho salmon, one juvenile king and 5 juvenile cutthroat trout. The last stream in Squaw Bay was an unnamed stream (ADF&G 222-30-199) that was sampled by hook and line. A total of 15 adult cutthroat trout were identified in this system.

Trapping and snorkeling techniques were used on two streams in Puffin Cove. The first stream sampled (ADF&G 226-50-16106) using minnow traps caught 197 juvenile coho salmon and 55 Dolly Varden. Snorkeling produced 196 juvenile coho and 11 Dolly Varden. Adult red salmon totaling 67 fish were observed throughout the system. The second system sampled (ADF&G 226-50-16098) with minnow traps found 139 juvenile Dolly Varden, and snorkeling produced 836 Dolly Varden. A total of 6 adult Dolly Varden were sampled by hook and line.

One stream in Nassau Fiord was snorkeled and found 213 juvenile Dolly Varden and 1,760 juvenile coho salmon. Adult salmon totaling 2,000 pink and an undetermined amount of chum salmon were observed.

The last system sampled in PWS was an unnamed stream on the east side of Port Wells. Snorkel surveys indicated the presence of juvenile Dolly Varden.

If you have any questions please contact Rob Spangler, District Biologist at 754-2325.

Sincerely,

Susan B Paquet for

Deidre S. St.Louis
District Ranger

New Lands Inventory

Jackpot Basin Habitat Assessment

Western Prince William Sound

Final Report
FY 2000

United States Department of Agriculture
Forest Service
Chugach National Forest
Glacier Ranger District

November, 2000

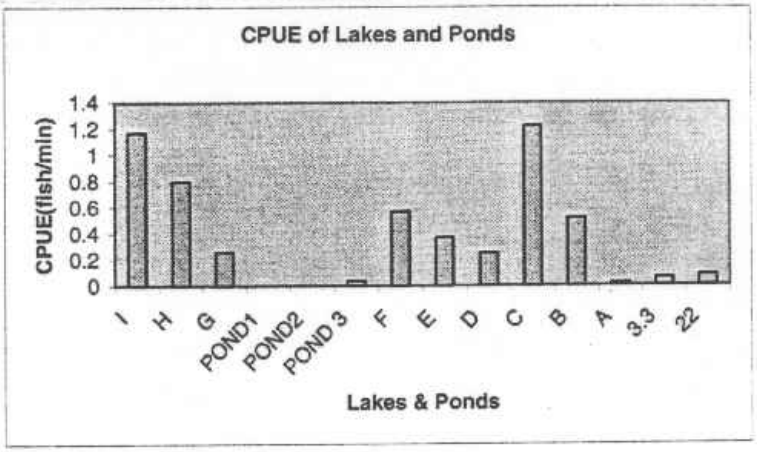


Figure 2. CPUE for lakes and ponds.

Dolly Varden *(Salvelinus malma)* was trapped in all regions within the drainage. Coho salmon *(Oncorhynchus kisutch)* were trapped in all regions of the main basin except for the upper two regions. Cutthroat trout *(Oncorhynchus clarki clarki)* were found in regions 4,5,7,9 and 10. Threespine Stickleback (*Gasterasteus aculeatus*) was found in lakes within the lower regions of the main basin. Adult sockeye *(O. nerka)*, chinook *(O. tshawytscha)* and pink *(O. gorbuscha)* salmon were found in all regions up to Lake G (Appendix. 5). Adult cutthroat were observed in the main basin and the sub-basin (Figure 3, 4). Hook and line data was combined for both lakes and streams. This data served as a general indicator of presence of species in the areas this method of sampling was conducted. Hook and Line sampling for Region 8 had a much higher CPUE than the other regions, though it should be noted that this region was more heavily sampled than the other regions (Figure. 5).

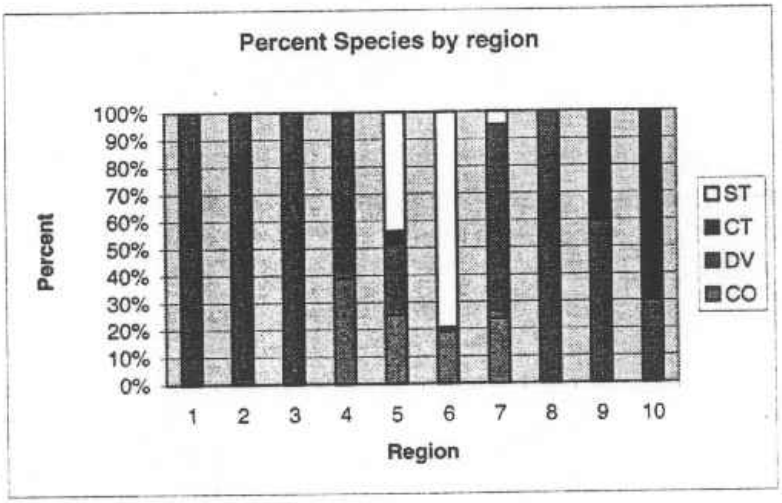


Figure 3. Percent species by region.

Table 6. Total CPUE by species.

Lake/Reach	Species	CPUE
H	DV	0.8
7	DV	4.07
34	DV	0.07
35	DV	0.13
36	DV	0.03
37	DV	0.05

Age structure of Dolly Varden in Lake H consisted predominantly of fish belonging to age classes 0 and 1. Age classes 2 and 3 were also found, but at lower levels. Dolly Varden was the only species caught in the stream section of region 2. Most individuals caught belonged to age classes 0 and 1, though age classes 2 and 3 were also caught in lower numbers (Figure 6).

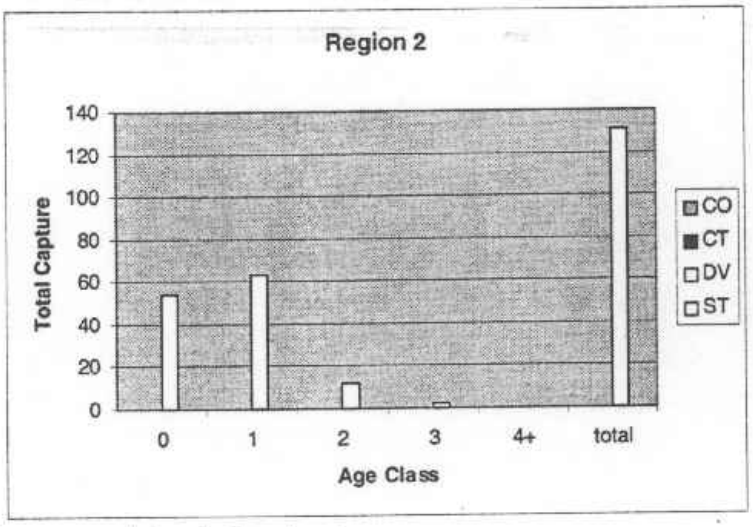


Figure 6. Species composition in Region 2.

Region 3

Region 3 was sampled during two periods: July 6-9, and August 17-Sept.2. Air temperatures ranged from a low of 10°C to a high of 17°C. Water temperatures remained lower during the first study period with a maximum stream temperature of 5.5°C and minimum of 3°C the water temperature in Lake G was 7°C. During the second sample period stream temperatures ranged from a high of 16°C in reach 31 and a low of 8°C in reach 36. Air temperatures ranged from a high of 22.5°C to a low of 8°C. Discharge was measured during the first study period. Discharge decreased from 3.25m^3/s for reach 6 to 2.4 m^3/s for reach 5.

Channel Morphology

Region 3 encompassed a greater proportion of the land area within the drainage than any other region. This region was heterogeneous in physical composition, with each reach belonging to a different channel process group. Region 3 was highly confined at its source and widens towards the outlet of Lake G. Reach 6 was deeply incised with a higher gradient and larger substrates. Reach 5 was wide, relatively unconfined and meanders through a series of muskeg meadows. Substrate was smaller and gradient lower in reach 5 than reach 6 (Table 7).

Table 7. Stream channel characteristics.

Reach	Chan. Type	Incision (m)	Flood Prone (m)	BF Width (m)	Entrench.(m)	Ave. Bed Width (m)	BF Depth (m)	Substrate	%Gradient
5	FP4	0.9	150	15.4	9.74	13.4	0.3	Gravel	<2
6	HC2	8	15	12.17	1.33	12.17	0.29	S. Cobb/Gravel	4
30	MC1	0.94	6.5	5.7	1.14	5.7	0.23	Cobb.	4
31	PA1	1.5	6	0.8	7.5	1	0.15	Fines	<2
32	MM1	2	20	3	6.7	2	0.1	Gravel	<2
33	MM1	3	20	1.5	13.3	1.35	0.06	Cobb/Gravel	<2

Physical Habitat Summary

Reach 5 contained a small percentage of pools in the main channel. The main habitat type for reach 6 was high gradient riffle, ending in two barriers (Table 8). The barriers are formed by a 1.5m waterfall followed by a 3m waterfall. Within reach 6 no pools were recorded. Pocket pools in this reach were estimated because of sampling difficulty due to high discharge. Spawning area was calculated as a percent of total area, in reach 5 at 60% and reach 6 at 20% and in reach 30 at 30%. No data was recorded for spawning area in reach 31, 32 and 33. Total spawning area was recorded in lake G at 5,243 m2. No data was recorded for pond 3.

Table 8. Physical habitat summary.

Reach	Total Length (m)	Pools/100m	LWD/100m	Residual. Pool Vol. M^3	Mean Max. Pool Depth (m)	% Pools	Width/Depth Ratio (m)
5	1475	6.3	0.1	117	0.97	1.5	56.6
6	1000	20	1.5	NA	NA	0	31
30	123.2	51.4	1.6	35.9	35.9	32.1	41.9
31	153.5	47.4	2	0.9	0.9	7.9	14.2
32	200.8	0.2	1	16	1.6	10.9	42.1
33	28.5	63	0	0.7	0.7	5.3	19.3

Fish Population Information

CPUE increased within the stream and lake portions of Region 5 from that of Region 4. CPUE for reach 5 was 7.65 fish/minute, reach 30 was 0.71 fish/minute and reach 31 was 0.05 fish/minute. Reaches 6, 32 and 33 were not trapped. Lake G and Pond 3 trapping yielded the lowest lake CPUE within the main drainage, 0.26 fish/minute and 0.04 fish/minute, respectively (Table 9).

Table 9. Total CPUE by species.

Lake/Reach	Species	CPUE
Pond 3	DV	0.04
G	DV	0.26
5	DV	3.89
5	CO	3.75
30	DV	0.71
31	DV	0.05

Lakes and ponds

No fish were caught in Ponds 1 and 2, though 4 Dolly Varden were caught in Pond 3. Most Dolly Varden in Lake G belonged to age class 0 while 1 year olds were the dominant age class in Pond 3. Adult fish sampled in lake G totaled

Streams

Both coho and Dolly Varden were found in the stream portion of region 3, though Dolly Varden made up 67% of all fish caught. Individuals of both species were found in age classes 0, 1, 2 and 3. The majority of both species belonged to age class 1 (Figure.8).

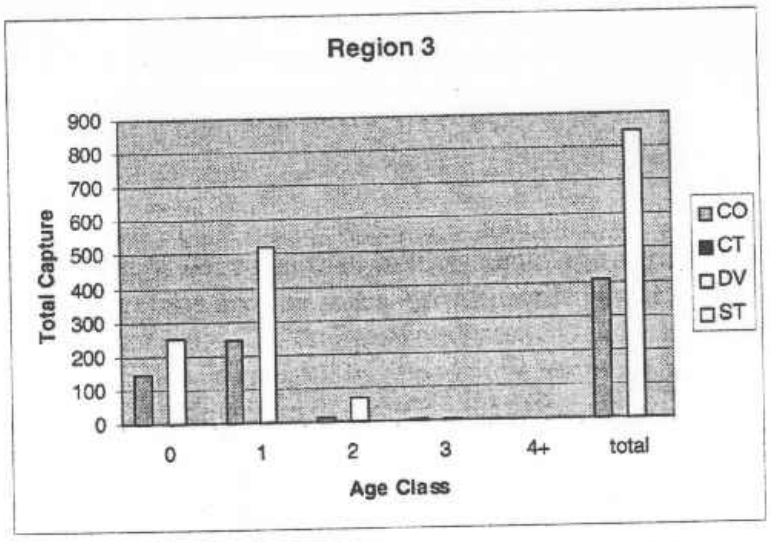


Figure 8. Species composition in Region 3.

Region 4

Region 4 was surveyed over two periods, July 9 and August 15-18. The temperature for reach 4 was taken during the first survey period, at 4°C for the water and an air temperature of 10°C. The low water temperature was due to lakes H and I being in a frozen state. Reach 26 had a maximum water temperature of 10.4°C, reach 27 was 10.5°C and reach 28 had a maximum temperature of 12.5°C, while lake F was 14°C. Air temperature over both study periods ranged from 10°C during the first period to14°C during the second period. Discharge was measured as 4.35m^3/s in reach 4 on July 9. Due to low water levels during the survey period discharge was not measured for the tributaries in this region.

Channel Morphology Characteristics

Reach 4 passes through a region of Jackpot drainage that is more confined than previous regions. Reach 4 was a large contained process with low entrenchment (Table.7). Substrate size was higher in this region and bankfull depth lower than previous channels. A potential velocity barrier, approximately 2m high, was located 220m from the beginning of the reach. Habitat measurements of the three tributaries in region 4 were taken during low flow. Reach 26 was dry in several sections and it was not possible to gather information on some variables.

Table7. Channel morphology characteristics.

Reach	Chan. Type	Incision (m)	Flood Prone (m)	BF Width (m)	Entrench. (m)	Ave. Bed Width (m)	BF Depth (m)	Substrate	%Gradient
4	LC2	15	25	19	1.32	19	0.3	Cobb.	3
26	MC2	10	10	2	5	1.5	0.03	Cobb/Boulder	4
27	MC2	15	6	4.5	1.33	3.5	0.2	Cobb/Boulder	3
28	PA1	2	32	2	16	1.5	0.1	Gravel	<2

Physical Habitat Summary

Percentage of pools in this region was low within the main channel. Reach 4 was characterized by long, wide stretches of low gradient riffle as reflected by the high width to depth ratio. Spawning area for reach 4 was recorded at 30% of the total area. Reach 26, 27, 28 were not recorded. Total spawning area in lake F was not recorded. Region 4 was more wooded than previous regions with a resulting higher number of large woody debris found in the stream (Table 8).

Table 8. Physical habitat summary.

Reach	Total Length (m)	Pools/100m	LWD/100m	Residual. Pool Vol. m^3	Mean Max. Pool Depth (m)	% Pools	Width/Depth Ratio (m)
4	398	4.5	0.3	293.7	1.59	15.8	51.8
26	158.9	68.5	15.1	0.4	0.4	10.8	38.6
27	137.2	61.7	0.7	6.4	6.4	30.2	48.8
28	175.8	44.1	3.4	2.1	2.1	34.2	23.7

Fish Population Information

CPUE in reach 4 totaled 1.99 fish/min, reach 27 0.53 fish/min, reach 28 0.82 fish/min and lake F totaled 0.57 fish/min. Total CPUE dropped in this region in both lake and stream portions from the CPUE of higher regions (Table 9). Reach 26 was not trapped due to insufficient water levels.

Table 9. Total CPUE by species.

Lake/Reach	Species	CPUE
F	DV	0.11
F	CO	0.40
F	ST	0.03
4	DV	1.31
4	CO	0.66
4	CT	0.02
27	DV	0.53
28	DV	0.50
28	CO	0.29
28	CT	0.04

Lakes

Coho, Dolly Varden and one stickleback species were caught in Lake F. Approximately 76% of fish caught were coho. Age class 0 was dominant for coho, while Dolly Varden juvenile were divided relatively evenly between age classes 0 and 1.

Streams

Dolly Varden, coho and cutthroat were caught in the stream portion of region 4. Unlike the lake portion of this region, sticklebacks were not found. Also, unlike the lake portion of this region the majority (70%) of fish caught in the stream were Dolly Varden. Most Dolly Varden belonged to age class 1 while coho were divided relatively evenly between age classes 0 and 1. Cutthroat trout were found in low numbers, in age classes 0, 1 and 2 (Figure.9).

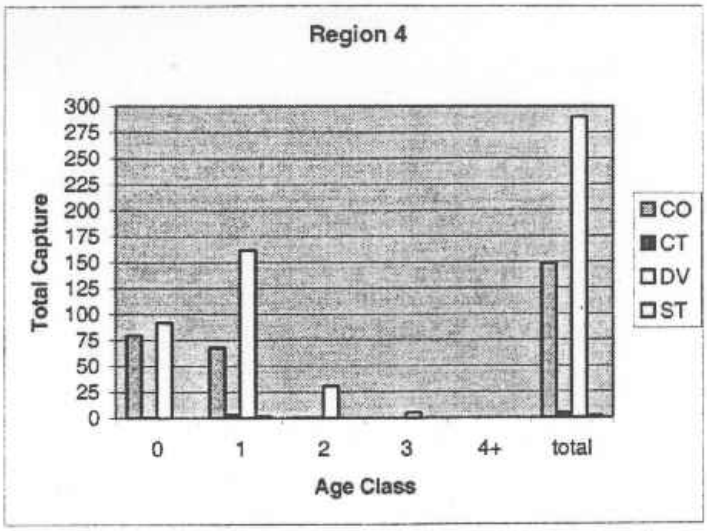


Figure 9. Species composition in Region 4.

Region 5

Region 5 was surveyed over two periods, July 20 and August 3-5. Lake E flows into Lake C through reach 20 and Lake D flows into Lake C via reach 21. Reach 22 ends in a 3m high barrier and all measurements for reach 23 were estimated. Air temperatures were relatively stable over the two study periods, ranging from a high of 15°C and a low of 12°C. Water temperature in reach 3 was 8°C, reach 20 and 21 was 10.5°C, reach 22 was 12°C and reach 24 was 10.5°C. Water temperature measured in lakes E, D and C were 8.5°C, 11°C and 9.5°C. Discharge was measured for reaches 3, 20 and 21 only. Reach 3 discharge rate was 3.22 m3/s, reach 20 was 0.62 m3/s and reach 21 0.44 m3/s.

Channel Morphology Characteristics

Reach 3 has morphological characteristics similar to those of reach 4, in region 4. Reach 3 is also a large contained process with low entrenchment and low gradient. Incision was not as deep in region 5 as in region 4, and substrate size decreased in the main channel (Table10).

Table 10. Channel morphology characteristics.

Reach	Chan. Type	Incision (m)	Flood Prone (m)	BF Width (m)	Entrench.(m)	Ave. Bed Width (m)	BF Depth (m)	Substrate	%Gradient
3	LC1	1.5	35	25	1.4	24	0.28	Gravel	<2
20	HC2	15	10	5	2	4	0.4	Cobb.	>6
21	HC2	3	10	4	2.5	4.5	0.3	Cobb.	>2
22	HC2	9	15	4	3.75	3.5	0.12	Cobb.	8
23	HC5	15	5	4	1.25	4	0.4	Boulder.	22
24	PA1	2	10	1	10	0.8	0.25	Fines	<2

Physical Habitat Summary

Reach 3 was characterized by long stretches of low gradient riffle with a high width to depth ratio. Residual pool volume was lower in reach 3 than reach 4 even though reach 3 was twice as long. Percentage of pools and residual pool volume were low in the main channel. Available spawning habitat for reach 3 and 25 was not taken. Spawning habitat measured in m2 were reaches 20 at 18m2, 21 at 30m2, 23 at 0m2 and 24 at 2m2. Reach 22 was calculated at 25% of total area. Available spawning habitat for lake C was calculated at 772 m2. Lakes D and E were not calculated. Large woody debris was high in the tributaries of this characteristically wooded region (Table11).

Table 11. Physical habitat summary.

Reach	Total Length (m)	Pools/100m	LWD/100m	Residual. Pool Vol. m3	Mean Max. Pool Depth (m)	% Pools	Width/Depth Ratio (m)
3	894	6.7	1.1	191.3	1	4.5	63.4
20	222	16.4	11.7	4.2	0.7	3.6	17.1
21	286	12	4.2	10.2	0.66	9.8	16.3
22	387.8	28.6	11.9	6	6	6.3	29.4
24	210.5	41.9	10.9	4.8	4.8	26.3	7
25	215	8.6	0	30	0.8	2.3	38.6

Fish Population Information

Total CPUE for this region was lower than CPUE in higher regions. However, due to high water flows at the time of the survey the main channel (reach 3) was not surveyed in this region, and only four tributaries contributed to the total CPUE. Lake C, the largest lake in this region, had the highest CPUE, 1.22 fish/minute, for the entire drainage (Table 12).

Table12. Total CPUE by species.

Lake/Reach	Species	CPUE
C	DV	0.06
C	CO	0.32
C	ST	0.83
D	CO	0.02
D	ST	0.22
E	DV	0.25
E	CO	0.13
20	DV	0.20
20	CT	0.07
21	DV	0.17
21	CO	0.04
21	CT	0.07
22	DV	0.04
22	CT	0.02
24	DV	0.23

Lakes

In Lakes C and D the majority of fish caught (66% and 90%, respectively) were stickleback, followed by coho. In Lake C Dolly Varden were also caught, though they were not found in Lake D. In Lake E only Dolly Varden and coho were caught, with Dolly Varden accounting for 67% of fish caught.

Age structure for each species varied amongst lakes in this region. In Lake C coho were found relatively evenly distributed in age classes 0 and 1. Dolly Varden were found at a slightly higher percentage in age class 1, but were also found in age classes 0 and 2.

In Lake D all coho caught belonged to age class 0; stickleback were assigned age Class 1. In Lake E the majority of coho belonged to age class 2, with individuals also found in age classes 0 and 1. Approximately the same number of Dolly Varden was found in age classes 0 and 1.

Streams

Dolly Varden, cutthroat and coho species were found in the stream portion of region 5. Approximately 71% of the individuals caught in region 5 were Dolly Varden followed by 20% cutthroat and 9% coho. All coho caught belonged to age class 0. Most Dolly Varden belonged to age classes 1 and 0, with age classes 2 and 3 found in lower numbers. The majority of cutthroat caught belonged to age class 1, with approximately equal numbers found in age classes 0 and 2 (Figure.10).