

STATE OF ALASKA

*Jay S. Hammond, Governor*



Annual Performance Report for

COLLECTION AND INTERPRETATION OF  
INFORMATION NEEDED TO SOLVE  
SPECIAL MANAGEMENT PROBLEMS

by

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(G-1-R Cont.)	Page
Lonieof Lake, Baranof Island	128
Red Lake, Prince of Wales Island	129
Salmon Bay Lake, Prince of Wales Island	130
Literature Cited	130
Job No. G-I-S Collection and Interpretation of Information Needed to Solve Special Management Problems By: Artwin E. Schmidt	
Abstract	133
Section I	135
Objective	135
Background	135
Recommendations	135
Techniques Used	136
Section II	136
Objective	136
Background	136
Recommendations	138
Techniques Used	138
Findings	138
Description of Greens Creek by Section	138
Section III	144
Objective	144
Background	144
Recommendations	147
Research	147
Management	147
Techniques Used	147
Findings	147
Physical and Chemical Considerations	147
Fish Species and Abundance	148
Recreational Analysis	148
Section IV	155
Objective	155
Background	155
Recommendations	156
Research	156
Management	156
Techniques Used	156
Findings	156
Literature Cited	161

## RESEARCH PROJECT SEGMENT

State: Alaska Name: Sport Fish Investigations of Alaska

Project No: F-9-11

Study No.: G-I Study Title: INVENTORY AND CATALOGING

Job No.: G-I-S Job Title: Collection and Interpretation of Information Needed to Solve Special Management Problems

Period Covered: July 1, 1978 to June 30, 1979

## ABSTRACT

Due to the specialized nature of the investigations being carried on under Job No. G-I-S, a separate section is devoted to each of the job objectives.

## Section I

Additional or new information was received and filed on several streams and lakes in Southeast Alaska (Figure 1). All stream information was refiled by anadromous stream number. Files were arranged by consecutively increasing stream numbers. A cross-reference of proper names and corresponding anadromous stream numbers was prepared for ready reference.

## Section II

The lower 6.4 kilometers (4 miles) of Greens Creek, Admiralty Island, were surveyed in June 1978. A map was drawn showing substrate, cover type, width, flood level, and fish spawning and rearing areas. Fry trapping showed that Dolly Varden, *Salvelinus malma* (Walbaum), was the only species present above a block 5.3 kilometers (3.3 miles) upstream. The lower 5.3 kilometers (3.3 miles) of stream is an important spawning and rearing area for anadromous fish. Coho salmon, *Oncorhynchus kisutch* (Walbaum), pink salmon, *O. gorbuscha* (Walbaum), and Dolly Varden utilize the area below the block.

## Section III

A limnological investigation was conducted on Cliff Lake from September 6 to 9, 1978. Cliff Lake is deep, 41.2-meter (135-foot) average depth, with low pH (5.7 to 6.2) and low conductivity (40 micromhos). Variable mesh gill nets caught 26 Dolly Varden, none longer than 243 millimeters (9.6 inches) fork length. Condition factor of Dolly Varden ranged from 0.86 to 1.25 with mean of 1.01 and standard deviation of 0.10.

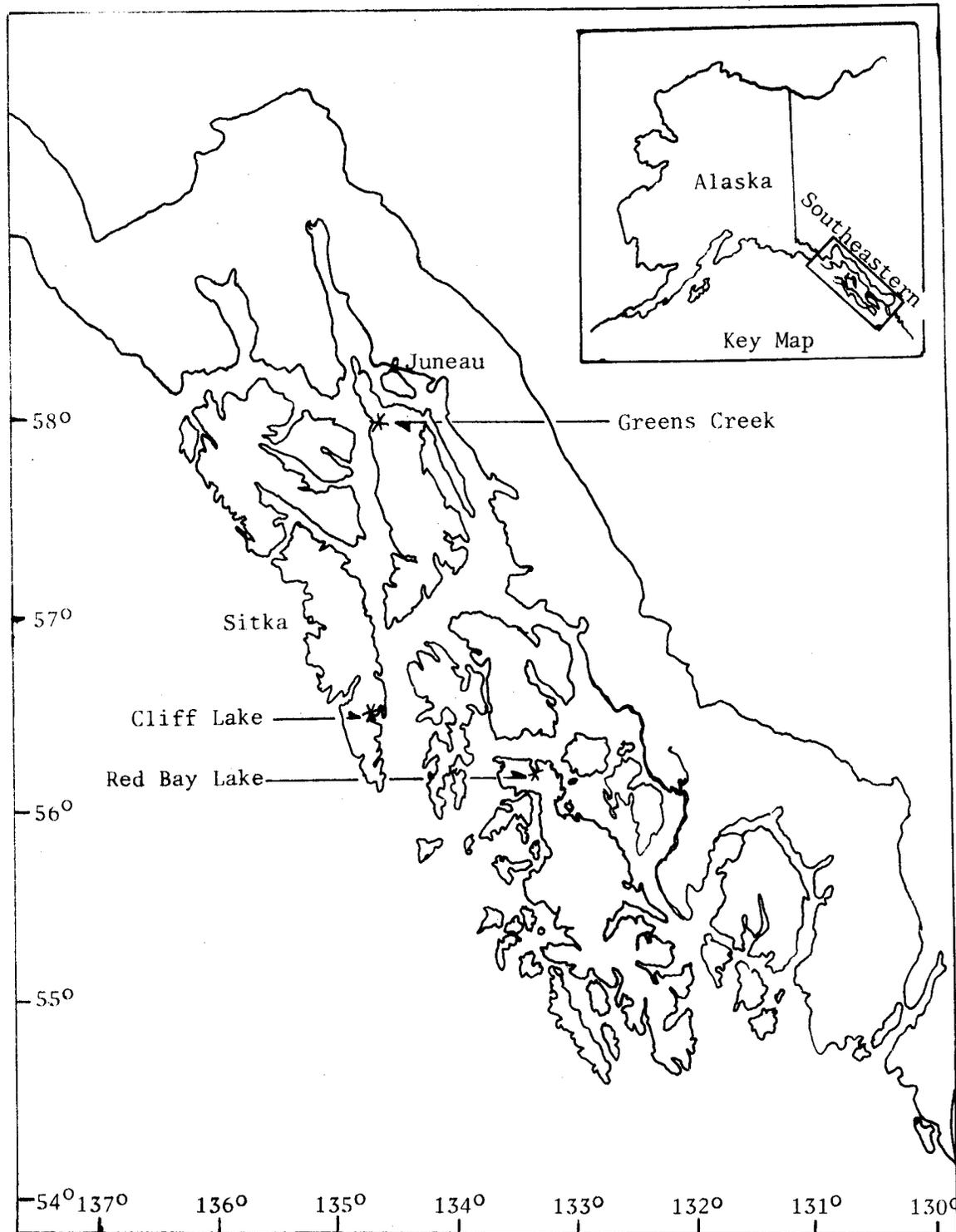


Fig. 1. Index map of Inventory and Cataloging operations, Southeast Alaska, 1978.

## Section IV

Resident cutthroat trout, *Salmo clarki* Richardson, in Red Lake were captured with various gear types and marked during the period June 12 to August 18, 1978. A Schumacher-Eshmeier estimation of the population indicates a N of 779. The estimate range at the 95 percent confidence level falls between 537 and 1,417 individuals. This estimate includes primarily those individuals over 150 millimeters (5.9 inches) in fork length.

## SECTION I

### OBJECTIVE

1. To continue collection, analysis, and organization of all available and new information on sport fish resources of individual lakes, streams and saltwater areas in Southeast Alaska.

### BACKGROUND

The Inventory and Catalog File was created to provide a library for the collection of reports of management actions, research data, development plans, and other information of interest for each aquatic system in Southeast Alaska. This file is maintained in duplicate in the Juneau Regional and Sitka Area Department of Fish and Game offices. It was organized in 1972 (Schmidt and Robards, 1973) to facilitate the dissemination of information to resource agency personnel and the interested public.

### RECOMMENDATIONS

1. The Inventory and Catalog File should be stored in the Regional office in Juneau and should be kept in a controlled access room. No file should be allowed to leave the room except for xeroxing and should be signed out before leaving the room. These measures are necessary to insure the continuity of the "central" file.
2. Those sections of the Inventory and Catalog central file which are applicable to the various management areas should be duplicated and kept in the respective management offices. The central file should not be used for routine perusal.
3. Each Sport Fish area management biologist should be assigned responsibility for compiling new resource information from his management area. Information should be collected from other agencies as well as the Alaska Department of Fish and Game. All information when compiled should be included in the area biologist's file and then forwarded to one "file keeper" who will be responsible for maintenance of the central file.

## TECHNIQUES USED

New and additional information was received and filed under the system described by Schmidt and Robards (1973). Other researchers were contacted and copies of their recent fieldwork were requested and received.

All stream information was refiled by anadromous stream number. Files were arranged by consecutively increasing stream numbers. Stream numbers used were taken from the Catalog of Waters Important for Spawning and Migration of Anadromous Fishes (Catalog) (1975). Any stream with a recommended number but not appearing in the catalog was noted with a suffix (U), indicating an unofficial number. Recognized names were noted on files after the stream numbers. A cross-reference of proper names and corresponding anadromous stream numbers was prepared for ready reference.

A set of U.S. Geological Survey quadrangle maps was prepared for Southeast Alaska showing physical location and anadromous stream number of all streams listed in the catalog. Any streams with recommended numbers but which did not appear in the catalog were noted with a suffix (U), indicating an unofficial number. These quadrangle maps are kept with the file for reference.

## SECTION II

### OBJECTIVE

2. To determine spawning and rearing areas of Greens Creek which could be adversely impacted by mine development.

### BACKGROUND

Noranda Explorations, Inc. have been exploring for minerals in the vicinity of Greens Creek, Admiralty Island, since 1974. In 1978 they established an exploration operation and camp at their mining claim at Greens Creek. Important minerals in the Greens Creek claim include silver, zinc, gold, lead, and copper.

Future development of this mining claim with the associated roads and mine waste could have an adverse impact on fish spawning and rearing areas of Greens Creek.

A listing of common and scientific names of fish species referred to is included in Table 1.

Table 1. List of common and scientific names and their abbreviations.

Common Name	Scientific Name & Author	Abbreviation
Dolly Varden	<i>Salvelinus malma</i> (Walbaum)	DV
Coho salmon	<i>Oncorhynchus kisutch</i> (Walbaum)	SS
Pink salmon	<i>Oncorhynchus gorbuscha</i> (Walbaum)	PS
Chum salmon	<i>Oncorhynchus keta</i> (Walbaum)	CS
Sockeye salmon	<i>Oncorhynchus nerka</i> (Walbaum)	RS
Cutthroat trout	<i>Salmo clarki</i> Richardson	CT
Sculpin	<i>Cottidae</i> sp.	CD

## RECOMMENDATIONS

No road development or mine waste should be allowed in the lower 5.3 km (3.3 mi) of Greens Creek. This area below the falls is important for anadromous fish.

## TECHNIQUES USED

The lower 6.4 km (4 mi) of Greens Creek were surveyed in June 1978. A map was drawn showing substrate, cover type, width, flood level, etc. Rearing areas were fry trapped to determine distribution and species of fish present.

## FINDINGS

The lower 6.4 km (4 mi) of Greens Creek (Fig. 2) were surveyed in June 1968. Fry trapping conducted throughout this area showed that Dolly Varden were the only species present above the block at 5.3 km (3.3 mi). Fry trapping below the block demonstrated the presence of both coho salmon and Dolly Varden (Table 2). Additional work done by the Commercial Fisheries Division showed that pink salmon were abundant throughout this lower section in late summer (Rick Reed, Habitat Section, Alaska Department of Fish and Game, pers. comm.). No survey to define coho salmon spawning distribution was completed due to weather.

A description of each creek section (see Fig. 2) follows:

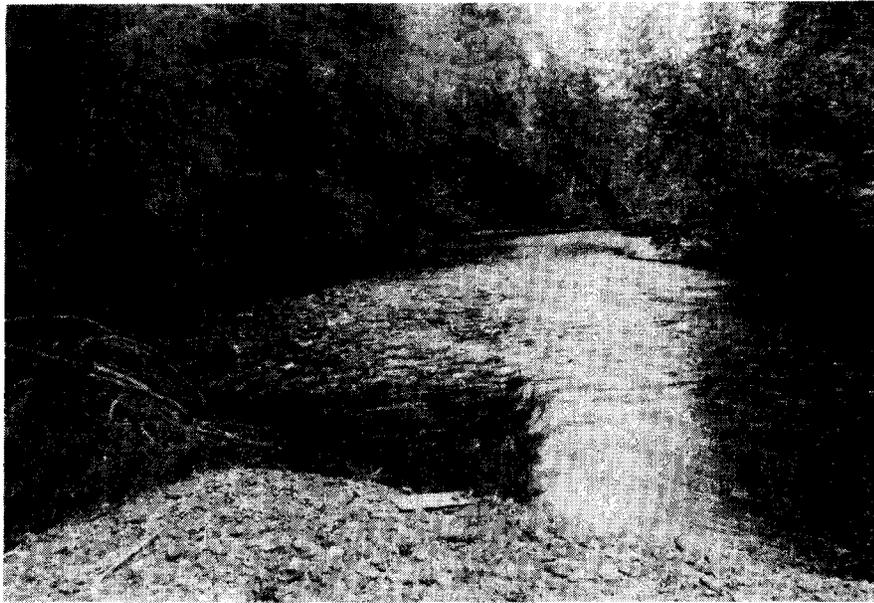
### Description of Greens Creek by Section

Section I: Hawk Inlet to 1.0 km (0.6 mi) upstream (Fig. 3).

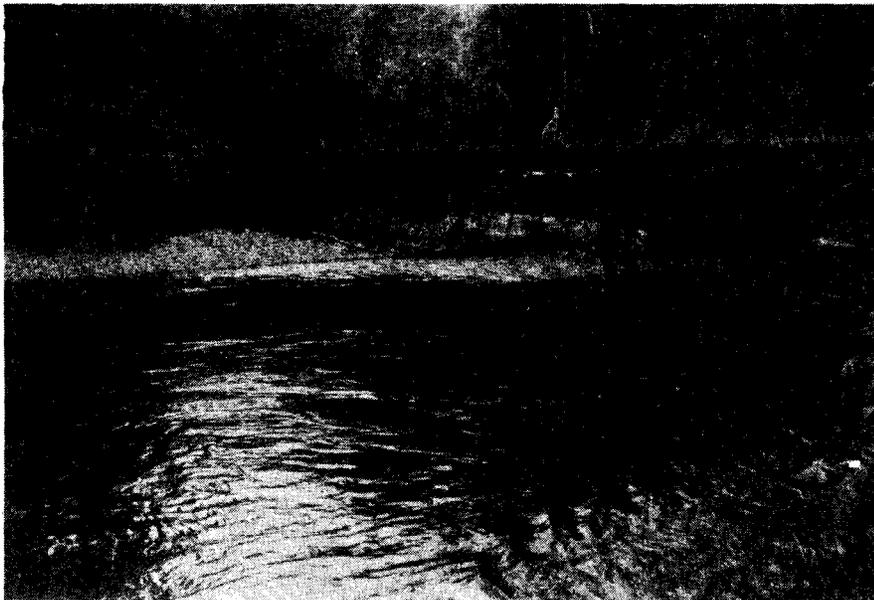
This section of stream is low gradient (2% to 3%) with a sand and gravel bottom. The river valley is broad and the river channel has changed several times. Logjams, braided channels, sand bars, and small instream islands are common. Stream width varies from 13.7 to 30.5 m (45 to 100 ft) with depth of 0.15 to 0.60 m (6 in to 2 ft). Pools are scarce in this lower section. Only three or four deep holding pools are present. This lower section of river is primarily a pink and chum salmon spawning area. No fry traps were set in this section. See Photographs 1 and 2 for representative stream sections.

Section II: 1.0 to 3.7 km (0.6 to 2.3 mi) (Fig. 3).

This section of stream has a low to moderate gradient (2% to 6%) with sand, gravel and rock bottom. The substrate is more gravel to 254-mm (10-in) rock than lower section. The stream channel is unstable with numerous logjams and associated 0.9- to 1.2-m (3- to 4-ft) drops. Although there are several old, dry channels, the amount of rearing area for coho salmon is limited. Stream width varies from 9.1 to 21.3 m (30 to 70 ft) with depth of 0.3 to 0.6 m (1 to 2 ft). Pools are scarce except for quiet water areas above or below logjams. Only one tributary enters this section from the north (unsurveyed).



Photograph 1. Lower section of Greens Creek showing slow-water gravel spawning area.



Photograph 2. Lower section of Greens Creek showing slow-water gravel spawning area.

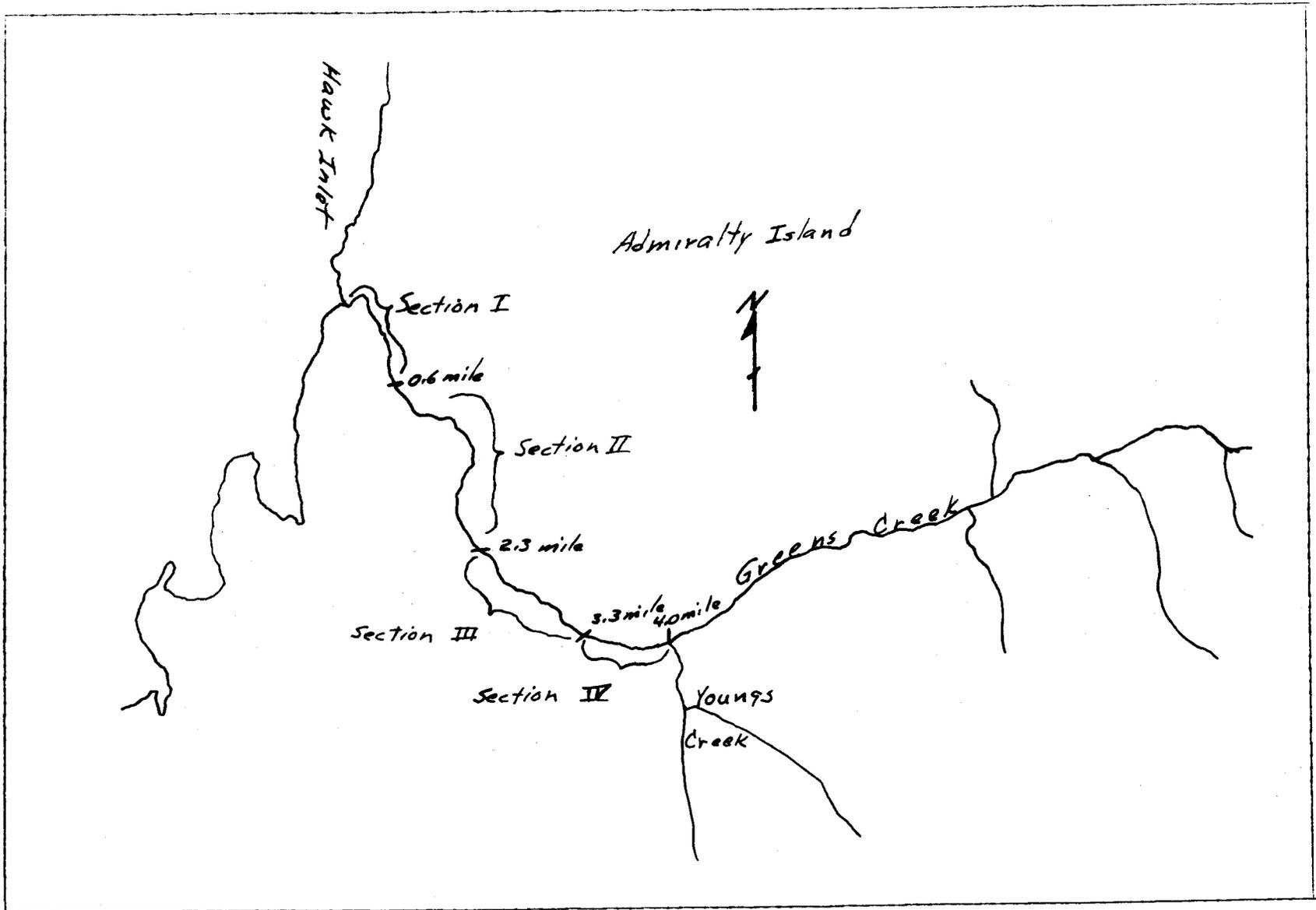


Fig. 2. Location map of Greens Creek showing sections.

Table 2. Summary of fry trap catches between 1.0 km (0.6 mile) and 6.4 km (4.0 mile), Greens Creek, June 29, 1978.

<u>Set Number</u>	<u>Set Time</u>	<u>Lift Time</u>	<u>Stream Section</u>	<u>Catch</u>
				<u>Species and Number</u>
1	840	1215	3	0 - below block
2	845	1207	3	0 - below block
3	912	1130	3	0 - below block
4	955	1112	4	DV - 2 - above block
5	1005	1110	4	0 - above block
6	1015	1103	4	0 - above block
7	1335	1350	2	DV - 3
8	1330	1435	2	SS - 3; DV - 17
9	1345	1445	2	DV - 16; SS - 3
10	1400	1455	2	DV - 15; SS - 1; CD - 1
11	1405	1505	2	SS - 8; DV - 32
12	1410	1515	2	0
13	1620	1710	2	SS - 3; DV - 15
14	1625	1715	2	DV - 23; SS - 3
15	1630	1730	2	SS - 3; DV - 13
16	1645	1735	2	0
17	1650	1740	2	SS - 10; DV - 5

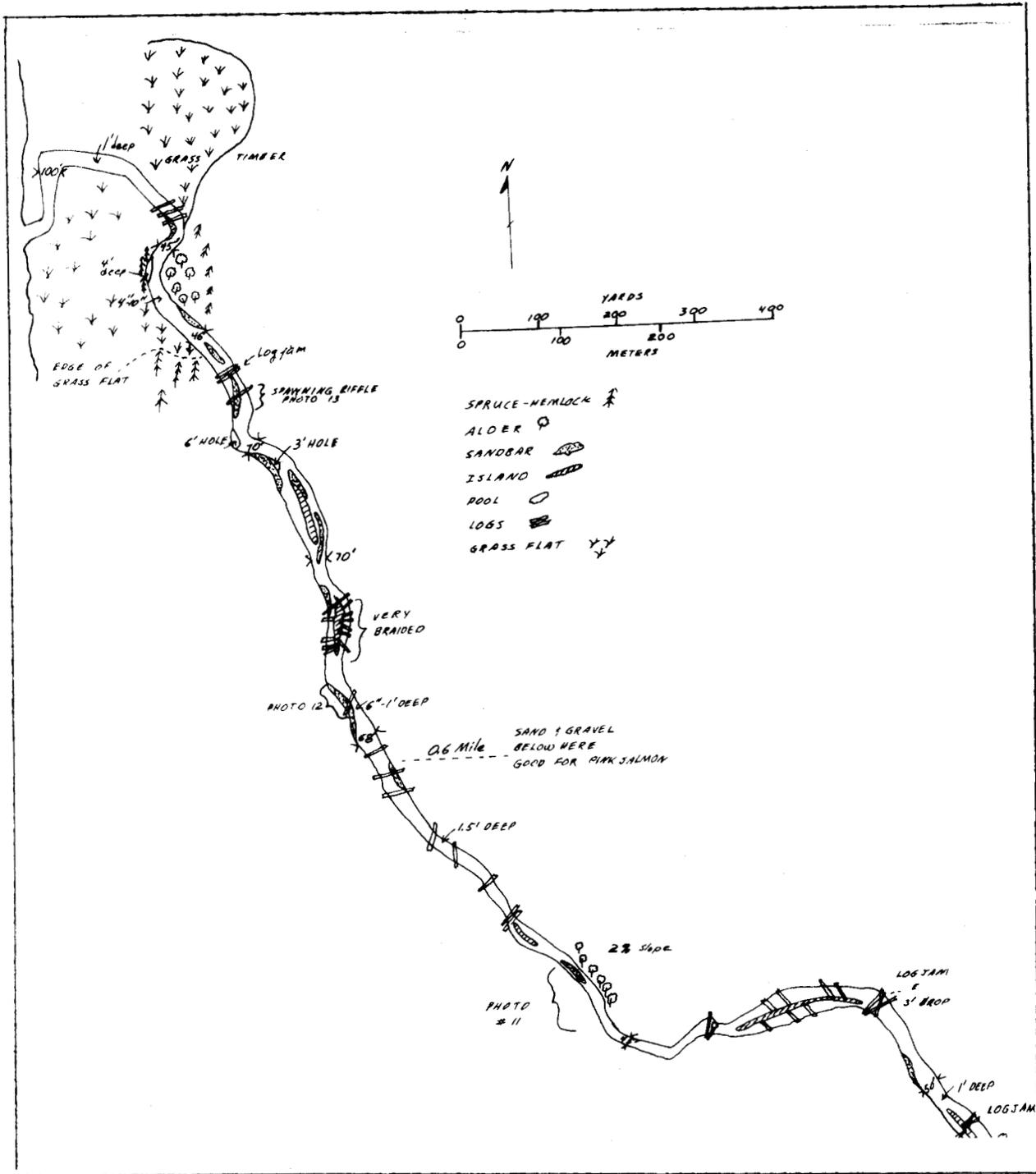


Fig. 3. Portion of Greens Creek important for salmon spawning and rearing (Sections 1 and 2).

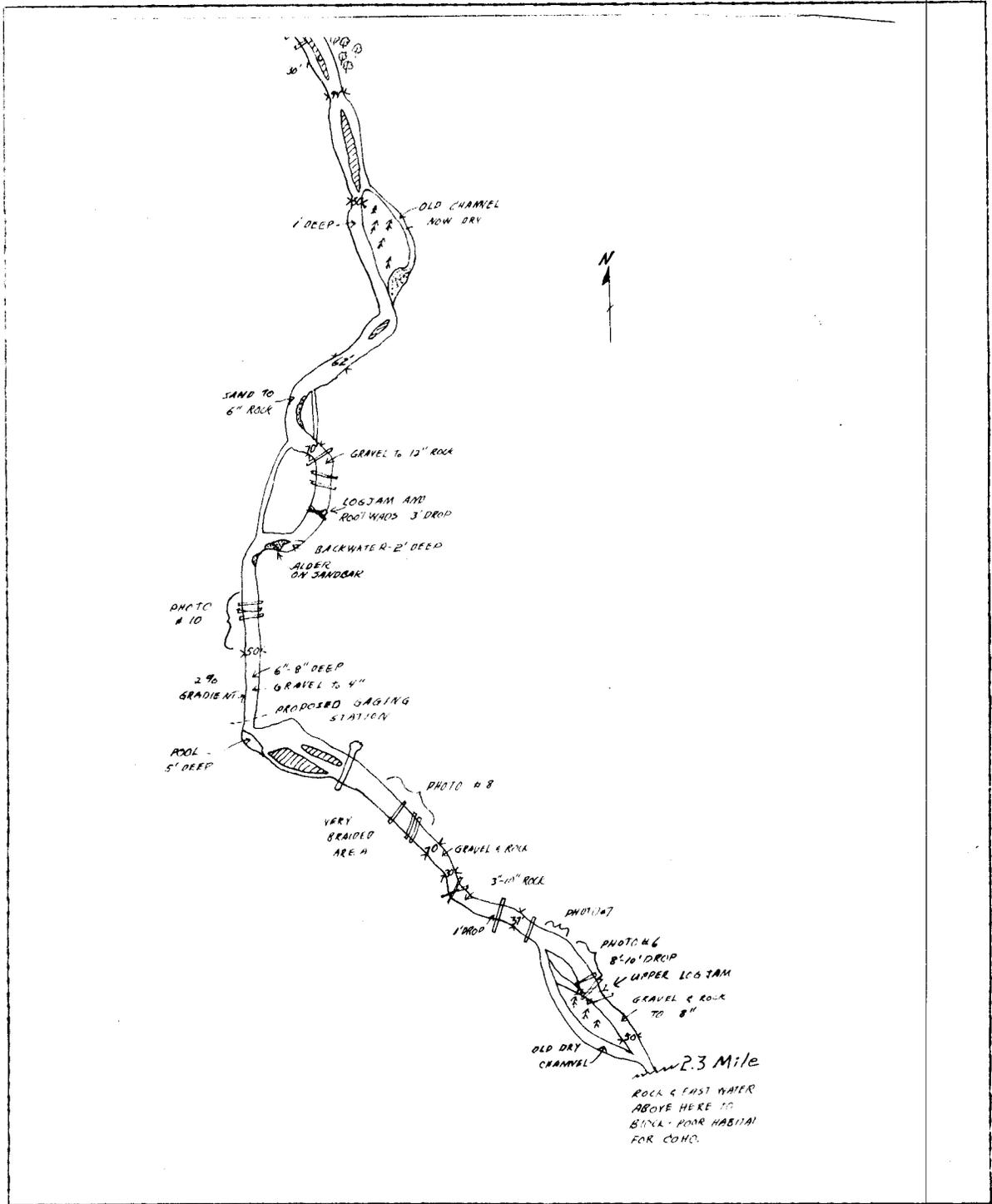


Fig. 3. (Cont.) Portion of Greens Creek important for salmon spawning and rearing (Sections 1 and 2).

Eleven fry traps were set in this section (Table 2). Trap time of 9.67 hours produced a catch of 142 Dolly Varden, 34 rearing coho salmon, and 1 sculpin. Recently emerged Dolly Varden fry were abundant in any back channels. Rearing coho salmon and Dolly Varden were seen above all logjams, indicating the absence of any total barriers.

Section III: 3.7 to 5.3 km (2.3 to 3.3 mi) not mapped.

This section is accessible to anadromous fish but may be less used because of large substrate, rapid flow, and no holding or rearing water. The channel is well defined and consists primarily of white water riffles with rock substrate. Photograph 3 shows typical view of this section. Three fry traps set in this section produced no catch.

The upper portion of this section terminates at a fish barrier composed of a 182-m (200-yd) velocity chute with several 1.5- to 3.0-m (5- to 10-ft) falls. The entire section is white water, allowing no possibility of fish passage (Photograph 4).

Section IV: 5.3 to 6.4 km (3.3 to 4.0 mi) fish barrier to Youngs Creek.

This section has steep gradient with gravel and boulder substrate (Photograph 5). On June 29 stream temperature was 5.5°C (42°F) and discharge was 100 cfs. Stream width in this area averages about 12.8 m (42 ft).

Resident Dolly Varden were the only fish found in this section. Three fry traps captured two Dolly Varden with fork lengths of 96 and 155 mm (3.8 and 6.1 in).

Section V: Upper Greens Creek.

The upper portion of Greens Creek was fry trapped by U.S. Fish and Wildlife Service. Three Dolly Varden were caught in fry traps about 10.4 km (6.5 mi) upstream.

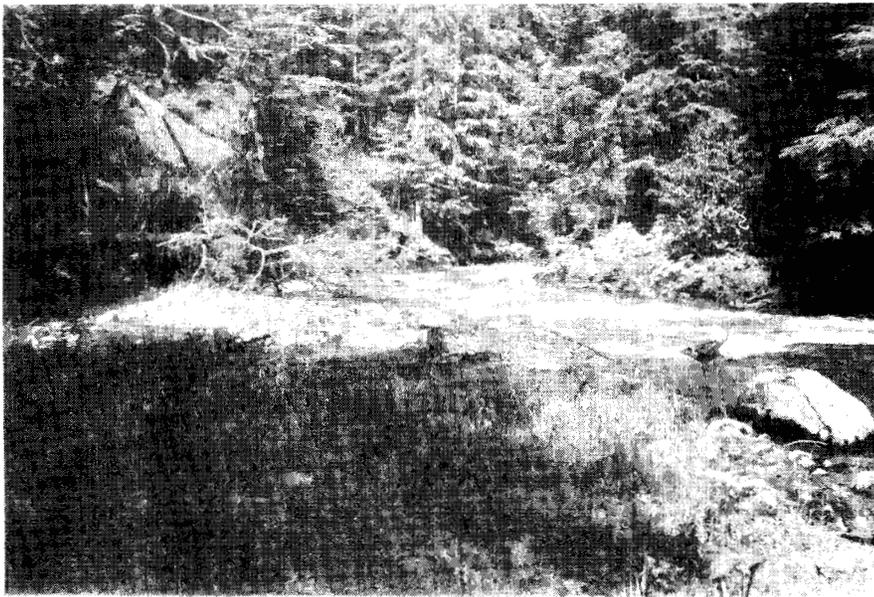
### SECTION III

#### OBJECTIVE

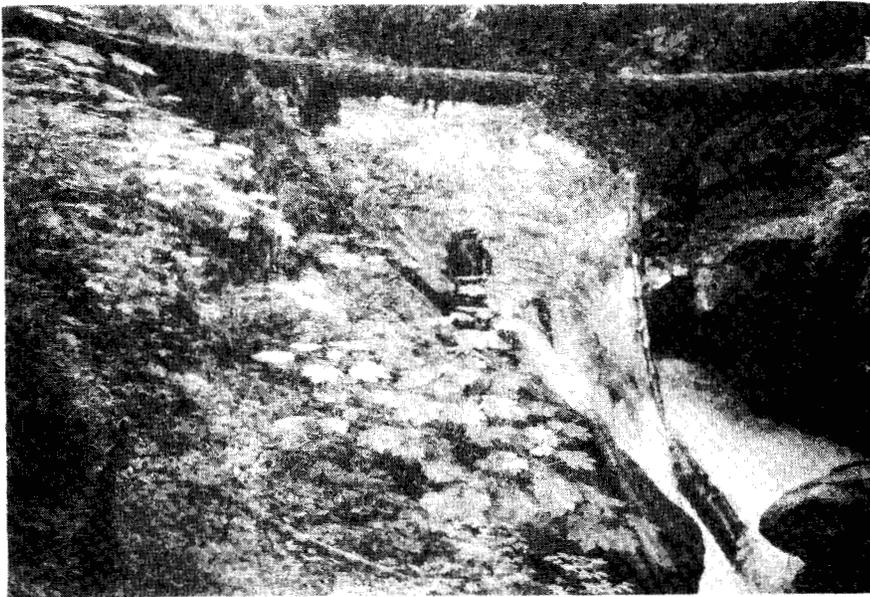
3. To evaluate the sport fishery potential of Cliff Lake, which is being considered for an aquaculture project.

#### BACKGROUND

Cliff Lake on Baranof Island has been considered as a possible aquaculture site for a private nonprofit hatchery. This lake is listed by Sport Fish Division as a cutthroat trout lake.



Photograph 3. Section of stream showing large boulder substrate and rapid water.



Photograph 4. Upper part of 200-m (656-foot) velocity chute and falls.



Photograph 5. Section of Greens Creek above fish barrier.

In order to make sound recommendations for use of this watershed it was necessary to conduct a basic limnological evaluation of the lake. A 3-day field investigation was conducted from September 6 to 8, 1978.

## RECOMMENDATIONS

### Research

Cliff Lake could be evaluated as an aquaculture site by other Divisions if they so desire.

### Management

Cliff Lake is not an important fishing lake at this time. Due to its remote location and limited potential no further analysis is warranted by Sport Fish Division.

## TECHNIQUES USED

A limnological investigation was conducted on Cliff Lake from September 6 to 9, 1978.

A bathymetric map was prepared. A recording fathometer was used to record depth contours on transects crossing the lake. The depth contours were transferred to a bathymetric map, and morphometric data were calculated from this map.

The main inlet to Cliff Lake was mapped and trapped for rearing fish.

A sampling station was established at approximately the deepest portion of the lake. Vertical profiles of temperature and specific conductance were recorded. Field chemical analyses, including alkalinity and dissolved oxygen titrations, were conducted according to Standard Methods (1971).

No plankton, stream drift organisms, or bottom fauna were collected due to lack of time and equipment breakdown.

The fish population was sampled with a variable mesh gill net and fry traps baited with salmon roe. Fish collected were identified, counted, and analyzed for growth rate, condition factor, and food habits.

## FINDINGS

### Physical and Chemical Considerations

The depth, size and shape of lakes strongly influence physical and chemical conditions which prevail in them. Since physical and chemical parameters limit species composition and abundance it is essential to document the

morphometric features of lakes. The bathymetric map (Fig. 4) and morphometric data (Table 3) show Cliff Lake to be steep sided and quite deep. Average depth is 41.2 m (135.1 ft).

Figure 5 shows the locations of all samples collected from Cliff Lake. The thermal profile of Cliff Lake (Fig. 6) shows a thermocline between 12 and 14 m (39 to 46 ft). Specific conductance ranged from 40 micromhos at the surface to 48 micromhos at 15 m (49.2 ft).

Water quality investigation showed that Cliff Lake is quite acid with pH of 5.75 to 6.2. Alkalinity is also low at 4 to 5 mg/l CaCO<sub>3</sub>. Dissolved oxygen ranged from 12 mg/l at surface to 11 mg/l at 70-m (229.6 ft) depth.

#### Fish Species and Abundance

Dolly Varden were the only fish captured in two overnight gill net sets and 22 fry trap sets (Fig. 5). The two overnight gill net sets employed a floating and a sinking gill net. Both were set off the main inlet. Gill net catch consisted of 26 Dolly Varden, none larger than 243 mm (9.6 in). The majority (21 fish) were caught in the deeper portions of the sinking gill net. Most of the fish captured were sexually mature.

Thirteen fry traps set in the inlet stream produced only three rearing Dolly Varden. The half mile of inlet stream mapped (Fig. 7) was clear, cold, and had no aquatic vegetation. The substrate was very poor for spawning, as it consisted of large rocks, 0.4-m (1.5-ft) diameters, to cobble with few areas of suitable spawning gravel. The stream did have a few nice pools, some as deep as 1.5 m (5 ft) and crystal clear. The stream flows underground immediately before entering the lake via underground channels. Water can be seen percolating along the shoreline near this inlet.

Nine fry traps set around the inlet end of the lake captured 68 Dolly Varden ranging from 50 to 158 mm (2.0 to 6.2 in).

The condition factor of Dolly Varden captured ranged from 0.86 to 1.25 with mean of 1.01 and standard deviation of 0.10. Age-length relationship of Dolly Varden is presented in Fig. 8. All fish sampled at age 4 had reached sexual maturity. One of the age 9 males showed no sign of gonadal development.

#### Recreational Analysis

Cliff Lake is located at the head of Deep Cove on the southeastern shore of Baranof Island. Access to the lake is by floatplane; but the lake can be reached by boat, mooring in Deep Cove and hiking into the lake. The hike is at an elevation of approximately 152 m (500 ft) but is fairly dangerous due to the steep, rocky terrain and the lack of any trail.

Cliff Lake is a moderately sized lake with a surface area of 79.1 ha (195.5 acres) and a shoreline length of 4,829 m (15,839 ft). It is

Table 3. Morphometry of Cliff Lake.

Water Area 79.2 ha or 195.5 acres

Area by Depth Zone

<u>Depth Zone (m)</u>	<u>Area (m<sup>2</sup>)</u>	<u>Percent of Total Area</u>
0-20	240,748	30.4
20-30	81,609	10.3
30-40	63,247	8.0
40-50	59,167	7.5
50-60	71,408	9.0
60-70	122,414	15.5
70-79.2	120,373	15.2
79.2+	32,644	4.1

Water Volume

Cubic Meters 32.6 x 10<sup>6</sup>

Acre Feet 26.4 x 10<sup>3</sup>

Volume by Depth Zone

<u>Depth Zone (m)</u>	<u>Volume (m<sup>3</sup>)</u>	<u>Percent of Total Volume</u>
0-20	13,352,176	41.0
20-30	5,095,126	15.6
30-40	4,372,481	13.4
40-50	3,760,343	11.6
50-60	3,104,499	9.5
60-70	2,112,473	6.5
70-79.2	794,651	2.4

Maximum Depth = 79.2 m

Mean Depth = 41.2 m

Shoreline Length = 4,829.4 m

Shoreline Development = 1.5

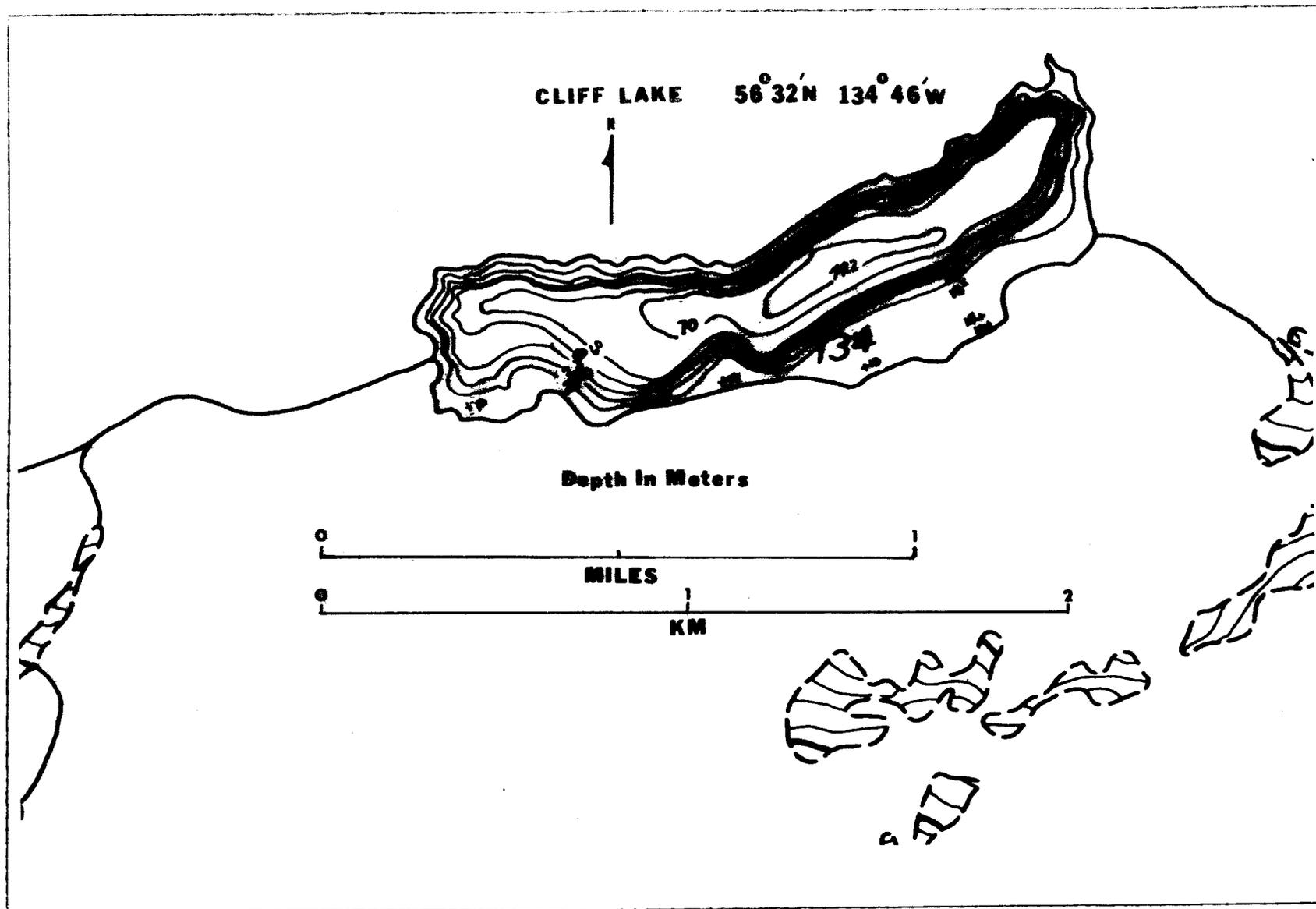


Fig. 4. Bathymetric map of Cliff Lake.

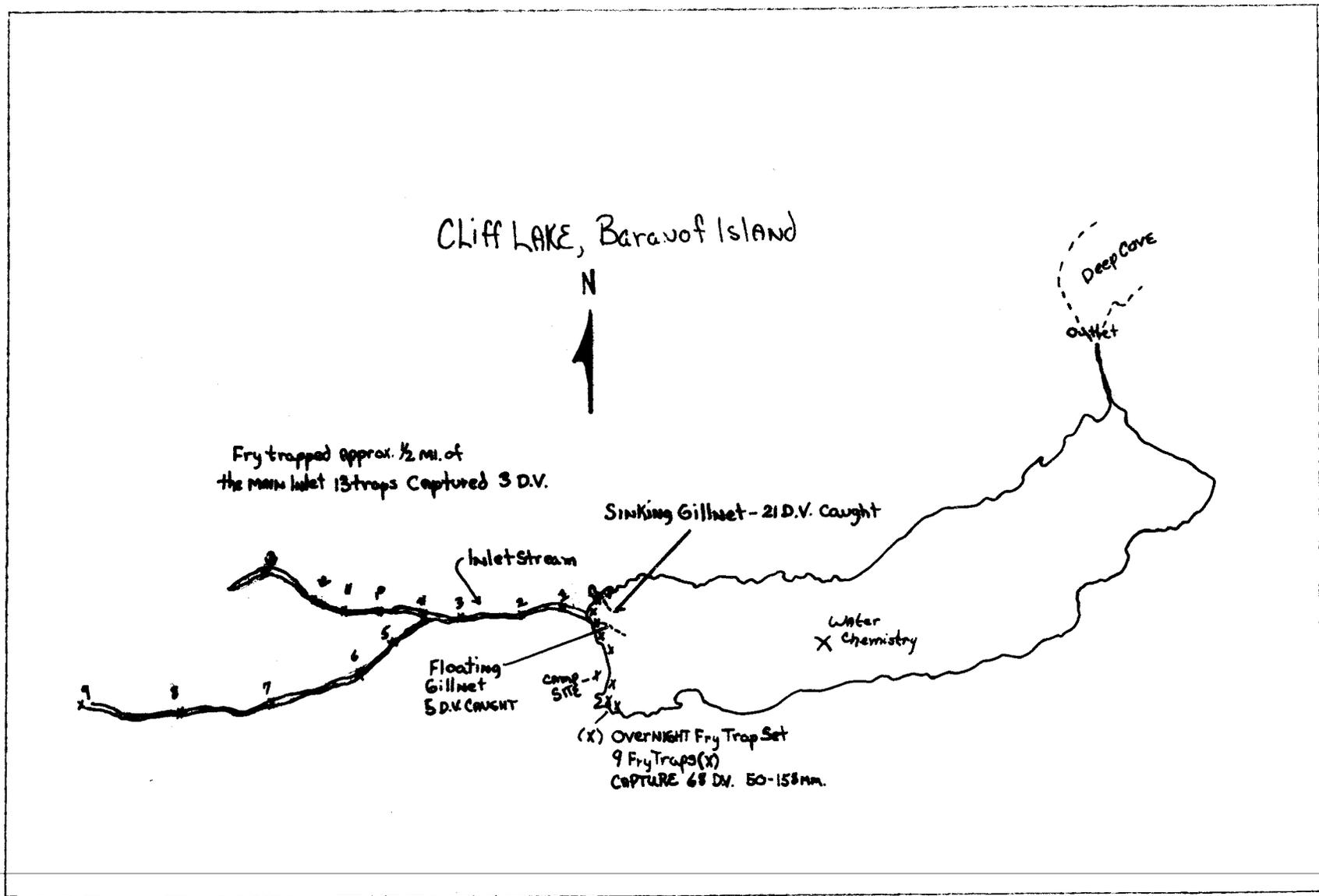


Fig. 5. Location of sampling stations, Cliff Lake, September 6-9, 1978.

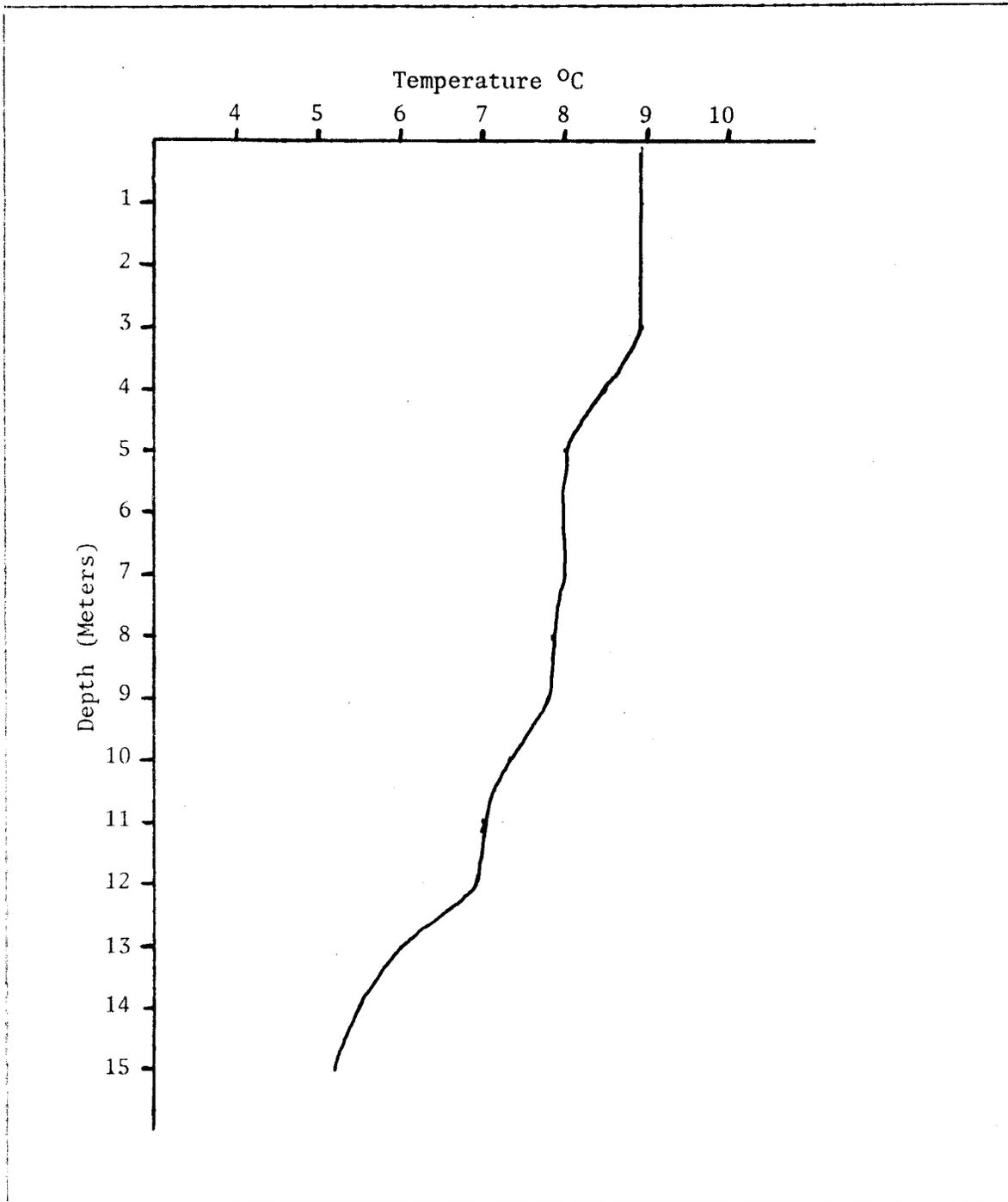


Fig. 6. Thermal profile of Cliff Lake, September 7, 1978.



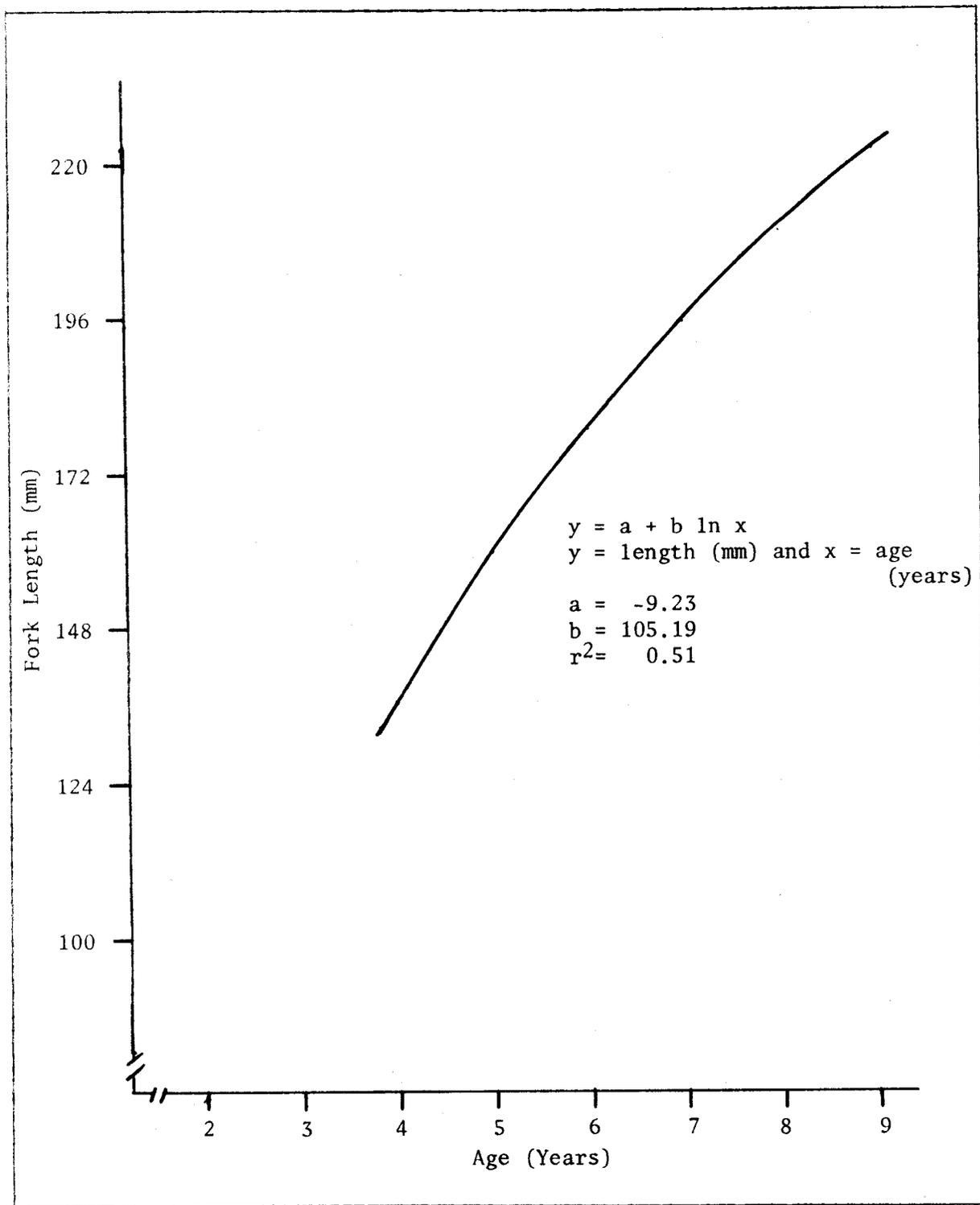


Fig. 8. Age and length of Dolly Varden from Cliff Lake, 1978.

clear and cold; we recorded temperatures at 8.9°C (48°F) on the surface to 5.2°C (41°F) at 15 m (49.2 ft). The lake receives most of its water from two inlet streams. The major inlet is at the far western shore, and a lesser inlet is found on the southeastern shore; both have their sources in small glaciers. The lake also receives a certain amount of water from runoff from the surrounding mountains. The maximum depth is 79.2 m (259.8 ft), and it has a mean depth of 41.2 m (135.1 ft).

The lake is fairly scenic, as it is surrounded by mountains except for a valley on the far western shore from which the main inlet flows. There are a couple of small glaciers at the head of the valley and a number of snowpacks are found on the southern shore. It provides a solitary setting for the lake. No camping facilities are in the area except for the possibility of an old cabin at the head of Deep Cove. Any over-nighting done on Cliff Lake must be done using a tent for shelter. Level areas for camping are limited to the western shore near the main inlet and a limited amount of area southeast of the outlet.

The only fish species present is Dolly Varden and they tend to be small. The largest Dolly Varden captured in the gill net was 243 mm (9.6 in) and it was 9 years old. Cliff Lake is not recommended to anyone interested in a quality fishing experience.

Wildlife observed included only a few ravens and squirrels; however, abundant fresh bear sign and deer tracks were seen along the lake shore and up the valley.

Cliff Lake is a glacial-fed lake low in both productivity and recreational benefits. The scenic beauty of the lake and surrounding mountains is the system's major highlight.

## SECTION IV

### OBJECTIVE

4. To determine the feasibility of estimating cutthroat trout populations in lakes.

### BACKGROUND

The size of cutthroat trout populations in Southeast Alaska lakes is poorly understood. These cutthroat trout usually consist of two population segments--anadromous and nonanadromous groups. An estimate of the anadromous portion of a population is possible through use of a weir, but no serious attempt has been made to estimate the nonanadromous portion of the population. In order to initiate more effective regulations the manager must know population numbers of the population he is trying to regulate.

## RECOMMENDATIONS

### Research

Any further attempts to estimate cutthroat trout population in lakes should employ fyke nets and hook and line as the main capture gear.

### Management

Resident cutthroat trout populations in lakes appear to be low. Intensive fishing pressure could definitely reduce population numbers.

## TECHNIQUES USED

The resident cutthroat trout population of Red Lake was estimated during the period June 12 to August 18, 1978. An assumption was made that all out-migrants had left the system prior to June 12 and few anadromous cutthroat trout entered the lake prior to August 18.

Fish were captured by fyke net, large and small fish traps, and hook and line (Fig. 9). Two fyke nets were used. The large net had a mesh pot 0.9 m (3 ft) by 0.9 m (3 ft) by 1.4 m (4.5 ft) with a 18.3-m (60-ft) lead and 9.1-m (30-ft) wings. The small net consisted of a large fry trap with 2-m (6.6-ft) wing nets. Bottom contours limited the location of sets. Hook and line sampling was conducted over the entire lake. Three gill nets were set on June 14-15 and two were set on August 16-17 to collect specimens for stomach analysis.

Fish were captured throughout the lake, marked with an upper caudal punch, and released. The ratios and number of marked and unmarked fish during subsequent recapture was used to derive Schnabel and Schumacher population estimates.

## FINDINGS

Resident cutthroat trout were captured and marked during the period June 12 to August 18, 1978 (Table 4). A Schumacher-Eshmeier (1943) estimation of the population using these data yields a N of 779 fish. The estimation range at the 95% confidence level falls between 537 and 1,417 individuals. This estimate includes primarily those individuals over 150 mm (5.9 in) in length. Length frequency distribution of fish captured during population estimation is shown in Fig. 10.

Catch and effort data showed that hook and line angling and fyke nets were the most efficient capture methods for mark and release experiments.

Trotting with a small red Pixie lure or Colorado spinner with trailing belly-bait was the most efficient angling method. Catch and effort by these gear types is presented in Table 5.

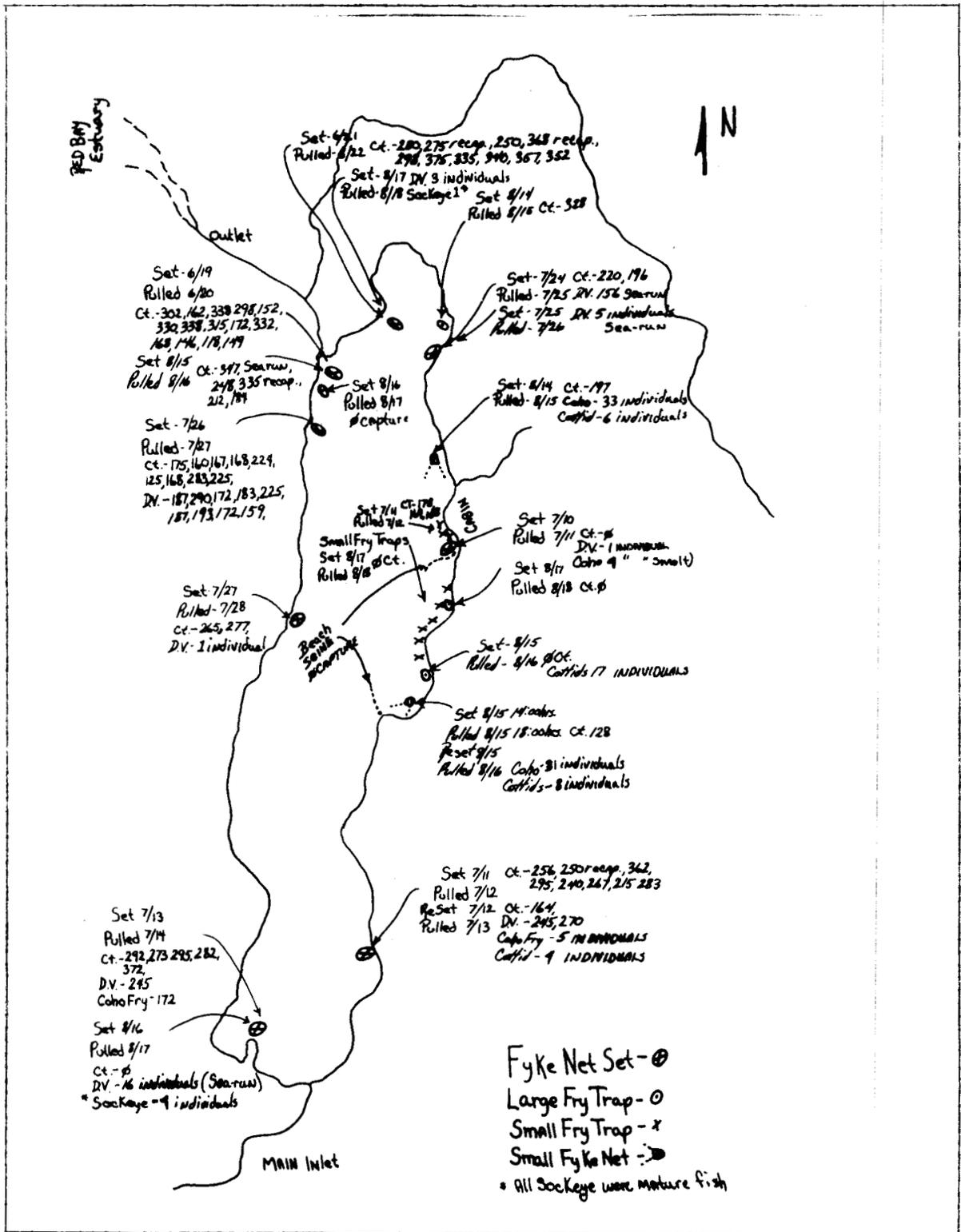


Fig. 9. Location of fyke net and fish trap sets, Red Lake, June 12, 1978, to August 18, 1978.

Table 4. Estimation of resident cutthroat trout population by Schnabel Method, Red Lake, 1978.

Date	$C_t$	$R_t$	M	$M_t$	R	$C_t M_t$	$\Sigma C_t M_t$	$N = \frac{\Sigma (C_t M_t)^{****}}{K}$
June 12	2	0	2	0	0	0	0	0
13	14	0	14	2	0	28	28	0
14	5	0	5	16	0	80	108	0
15	4	0	4	21	0	80	188	0
16	4	0	4	23*	0	92	280	0
20	17	0	17	27	0	459	739	0
21	2	0	2	44	0	88	827	0
22	29	4	25	46	4	1,334	2,161	540
23	9	1	8	71	5	639	2,800	560
July 11	7	4	3	79	9	553	3,353	373
12	15	1	14	82	10	1,230	4,583	458
13	10	0	10	96	10	960	5,543	554
14	16	1	15	106	11	1,696	7,239	658
24	2	0	2	121	11	242	7,481	680
25	6	1	5	123	12	738	8,219	685
26	3	1	2	128	13	384	8,603	662
27	11	0	11	130	13	1,430	10,033	772
28	4	2	2	141	15	564	10,597	706
Aug. 14	3	1	2	143	16	429	11,026	689
15	3	0	3	145	16	435	11,461	716
16	5	1	4	148	17	740	12,201	718
17	4**	0	4	152	17	608	12,809	753
18	2***	1	1	156	18	312	13,121	729

\*Two marked fish removed by gill net June 16, 1978--estimate adjusted.

\*\*Three fish in gill net.

\*\*\*One fish in gill net--recapture.

\*\*\*\* $M_t$  Total marked fish at large at the start of the 7th day (or other interval), i.e. the number previously marked less any accidentally killed at previous recaptures.

M  $\Sigma M_t$ , Total number marked.

$C_t$  Total sample taken on day  $t$ .

$R_t$  Number of recaptures in the sample  $C_t$ .

R  $\Sigma R_t$ , total recaptures during the experiment.

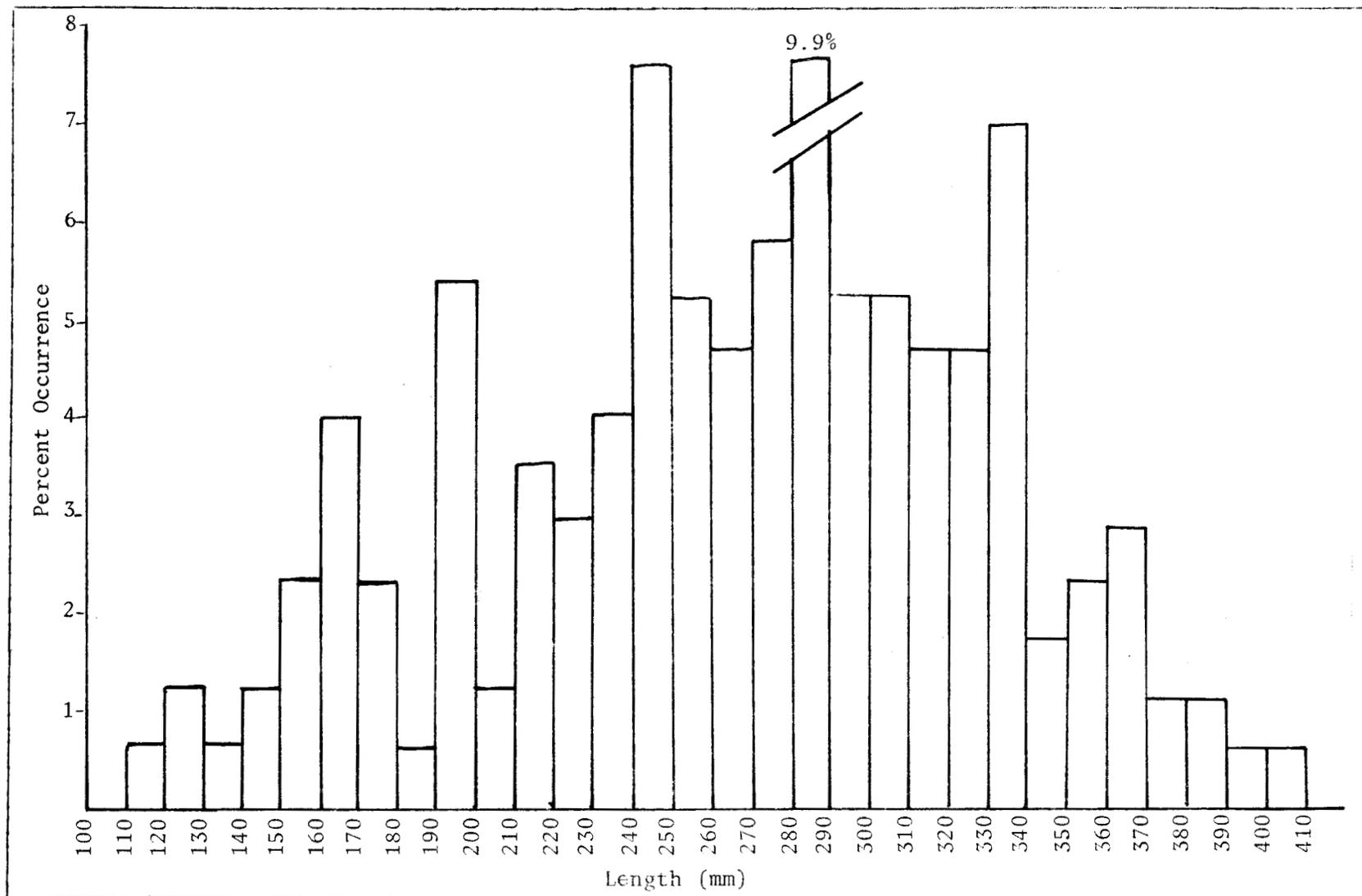


Fig.10. Length frequency of 172 cutthroat trout marked during population estimation, Red Lake, June 12, 1978, to August 18, 1978.

Table 5. Summary of effort and catch by gear type, Red Lake, June 12-August 18, 1978.

Date	Large Fyke Net						Hook and Line		Small Fyke Net				Large Fyke Trap				Small Fry Trap				
	Hours	Catch					Hours	Catch	Hours	CT	SS	CD	Hours	CT	SS	CD	Hours	CT	SS	CD	
June 12							4.00	2													
13							3.00	14													
14							6.00	5													
15							4.00	4													
16							2.00	4													
20	16.75	14					6.00	3													
21							4.00	2				23.00	17								
22	20.00	10					6.00	19				21.00	40								
23							2.00	9													
July 11	19.33	1	1	4			5.00	3										84.00	3		
12	26.00	8	2		1		4.00	7													
13	24.00	1	2	5		4	4.00	9													
14	18.00	5	1	1			2.00	11													
24							3.00	2													
25	17.50	2	1				3.00	4													
26	22.50		5				6.00	3													
27	19.00	10	9				5.00	2													
28	17.00	2	1				3.00	2													
August 14							2.50	3													
15							1.25					21.53	1	33	6	19.00	1				
16	24.50	5	19				3.75					14.42	1	31	8	18.50		17	120.00	14	
17	23.83	0	16	4			4.00	1								21.00	1				
18	19.17	0	3	1			3.25	1								25.25					
Totals	267.58	58	60	15	1	4	86.75	110				35.95	2	64	14	83.75	1	58	17	204.00	3

Baited fish traps proved very inefficient. Large fry traps were fished a total of 84 hours and caught one cutthroat trout. Small traps fished a total of 204 hours and caught three cutthroat trout.

The small fyke net, which was actually a large fry trap with wings, was fished a total of 36 hours and caught two cutthroat trout.

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