



REARING COHO SALMON (Oncorhynchus kisutch) SURVEYS OF 16  
SOUTHEASTERN ALASKA WATERSHEDS

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and

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July 1986

## ADF&G TECHNICAL DATA REPORTS

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Data presented in these reports is intended to be final, however, some revisions may occasionally be necessary. Minor revision will be made via errata sheets. Major revisions will be made in the form of revised reports.

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OF 16 SOUTHEASTERN ALASKA WATERSHEDS

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## ABSTRACT

Summer surveys of 16 watersheds in Southeastern Alaska were conducted over a five-year period (1970-1975) to evaluate coho salmon rearing habitat and important areas of production for coho salmon. The 16 watersheds included Chilkat Lake, Chilkoot Lake, Berners River, and Windfall Lake on Lynn Canal, Yehring Creek and Johnson Creek on the Taku River, Pavlof River and Kadashan Creek on Chichagof Island, Plotnikof Lake on Baranof Island, Castle River on Kupreanof Island, Thorne River, Hatchery Creek (Sweetwater Lake), Sarkar Lake, and Staney Creek on Prince of Wales Island, Naha River on Behm Canal, and the Situk River near Yakutat. Baited minnow traps were used to capture rearing fish during float and foot surveys. Habitat descriptions and evaluations, including maps for each watershed, individual and mean trap catches by area, species, fish sizes and ages, trap soak times, and water temperatures are presented and discussed. Information on distribution and habitat preference, a general index of abundance, size and age composition of coho salmon juveniles, and interspecific relationships with other salmonids was determined for each watershed. Some areas of juvenile abundance located during these surveys were subsequently selected for fluorescent pigment and coded-wire tagging studies in recent years. Data gathered on the surveys has been useful in watershed protection plans during logging and other land use activities.

KEY WORDS: coho salmon, *Oncorhynchus kisutch*, rearing habitat evaluation, minnow traps, Southeastern Alaska.

## INTRODUCTION

Southeastern Alaska has over 2,500 anadromous fish streams containing rearing populations of coho salmon (*Oncorhynchus kisutch*), various other species of Pacific salmon (*Oncorhynchus*), trout (*Salmo*), and char (*Salvelinus*). Determining relative importance of these rearing systems is essential for commercial fishery management of coho salmon, as well as for developing guidelines for sport fishing regulations, and habitat protection and enhancement.

Direct coho salmon escapement enumeration is usually not possible in Southeastern Alaska because of heavy rainfall and high and murky water when most coho salmon ascend streams to spawn. Most stream systems are not singularly important enough to warrant expensive smolt enumeration, and the most important systems are too large to weir during spring flow conditions when smolt outmigration occur.

Summer surveys to evaluate coho salmon rearing areas throughout Southeastern Alaska have been conducted by the Alaska Department of Fish and Game (ADF&G) Coho Research Project since 1969, using a variety of techniques. Since 1970 baited minnow traps have been used to evaluate populations of rearing coho salmon and their habitat and to capture large numbers of fish for coded-wire tagging studies. Minnow traps have been used in Alaska, by numerous authors, for studies of salmonid distribution and rearing requirements, catalog and inventory work, age, growth, and food habits studies, logging and land use activities, population estimates, and tagging studies (see annotated bibliography in Gray et al. 1985, in press).

The objective of this report is to present information on distribution, abundance, size and age composition, habitat preferences and interspecific relationships of coho salmon juveniles and other salmonids, in each of the 16 watersheds that were surveyed. This report may be of the most interest to persons conducting further studies, such as coded-wire tagging, on one or more of the 16 watersheds, or land managers concerned with protection of important rearing or spawning areas from logging, mining, or other development.

No attempt was made in this report to present overall comparisons between the 16 individual watersheds that were surveyed or to summarize the collective observations. A second report, on the use of minnow traps to evaluate rearing coho salmon populations and habitat in Southeastern Alaska, presented an overall summary of the 16 watershed surveys and comparisons between them. A marking system based on the 16 summer surveys and others over a 15-year period (1969-1983), and an overall discussion of coho habitat was also presented (Gray et al. 1985, in press).

## METHODS AND MATERIALS

This report presents results of summer minnow trapping surveys conducted in Southeastern Alaska to evaluate coho salmon rearing habitat on individual streams or lakes (Figures 1 and 2). Selection of the 16 watersheds surveyed

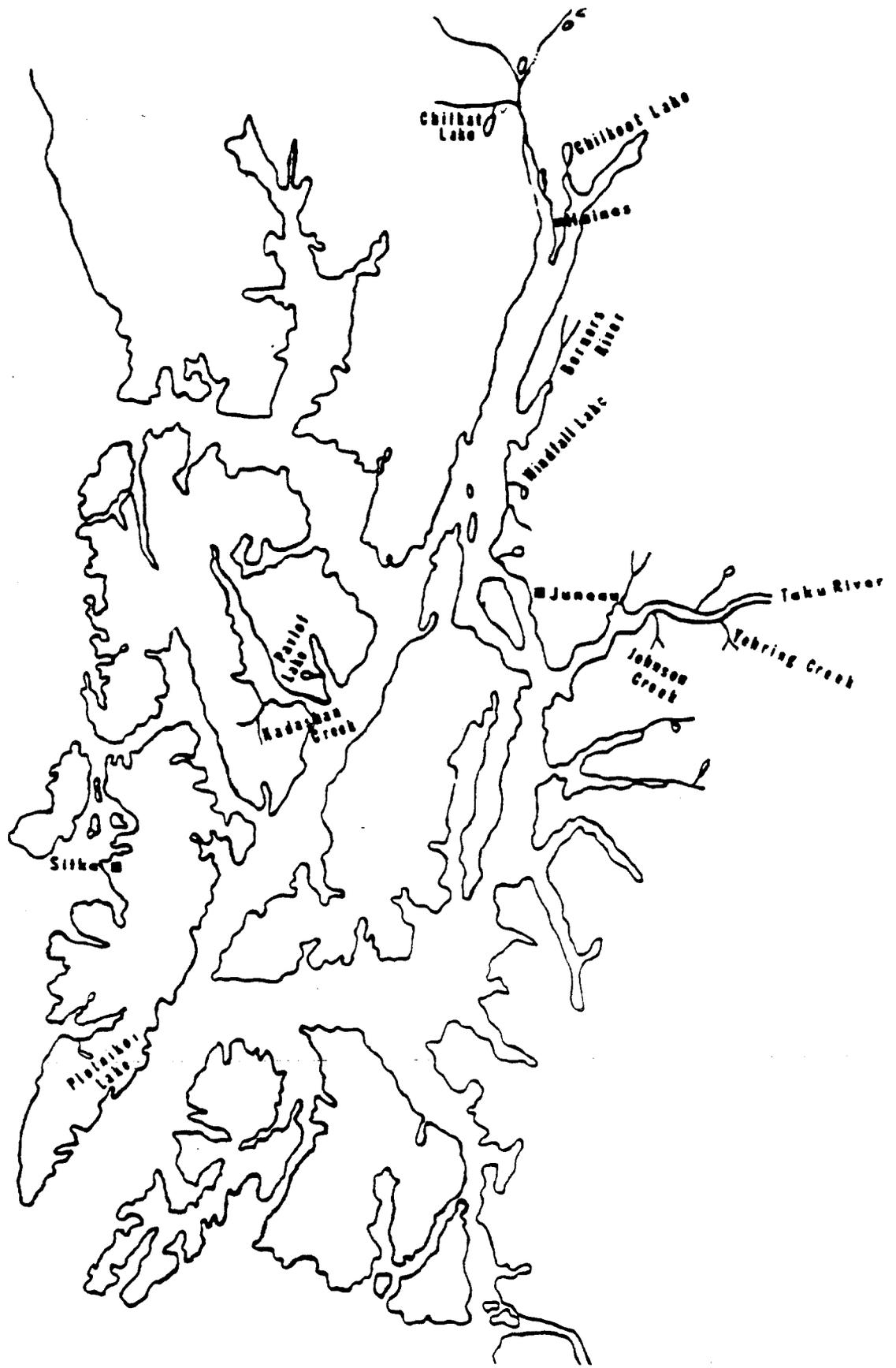


Figure 1. Study sites for summer surveys in northern Southeastern Alaska (1970-1975).



Figure 2. Study sites for summer surveys in southern Southeastern Alaska (1970-1975).

was from among those thought to be important contributors to the commercial fishery and recommended by fisheries management personnel. The surveys were conducted by traveling through the areas by boat or on foot, setting minnow traps, evaluating catches of coho juveniles and other salmonids, and describing the habitat.

### Access to Trapping Areas

Access to remote areas where summer surveys and juvenile tagging trips were conducted was usually by chartered, fixed-wing aircraft. Access to a few areas was by truck on state highways or by riverboat powered by outboard jet. Travel on lakes, ponds, and slow-moving streams in the survey and tagging areas was by inflatable boats and small outboard motors or oars. Avon<sup>1</sup> 12-foot (Redshank) and Avon 9-foot (Redcrest) boats powered by 4 and 7-1/2 horsepower outboard motors were used in most of the trapping operations. Tent camps were set up but were usually moved every day or two during the summer surveys. Tent camps for juvenile tagging trips usually remained in one location for two weeks.

### Equipment

Gee minnow traps were used exclusively for rearing fish surveys and tagging studies because they collapse into compact nesting halves and the durable 6 mm galvanized wire mesh construction provides sufficient weight to hold the trap down in most streamflow conditions. The traps were 44 cm long by 23 cm high and weighed 0.9 kg each. Up to 20 traps could be nested together for carrying.

Each trap had a 5 m hard, braided green nylon line of 90 kg test attached to the trap snap with a McMahon snap on the opposite end of the line. Hard braided nylon cord was used because it tangled less and lines could easily be stored by coiling in a series of loops and secured with a half hitch. A small seine cork (4 cm x 6 cm) painted fluorescent red was attached to each trap line by means of the snap when traps were used in ponds and lakes.

A backpack was used to carry ten or more minnow traps, bait, plastic dishpans, measuring board, notebook, scale envelopes, and other gear between trap sites during foot surveys.

### Bait

Locally obtained salmon eggs were used for bait. Chinook salmon (*O. tshawytscha*) eggs were usually used, but coho, sockeye (*O. nerka*), chum (*O. keta*), or pink salmon (*O. gorbuscha*) eggs were also used at times. Baits were prepared by splitting each ovary lengthwise into two halves and then cutting each half into large "strawberry-sized" pieces, leaving a piece of ovarian membrane attached to each bait. The baits were then thoroughly rolled in a pan of granular borax, separated into 20 piece lots, double wrapped in plastic baggies, and frozen

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<sup>1</sup> Use of trade names is not intended to connote endorsement by the Alaska Department of Fish and Game

until just prior to use. Thawed boraxed eggs have been used in temperatures from 10° to 20° for up to two weeks without spoiling.

#### Trap Location

Minnow trap surveys of major stream systems, were usually conducted during float trips. Usually three stops were made per day with eight to ten traps set in selected sites throughout each area for one to three-hour soak times. Traps were set facing into the current, and resting on the bottom in from 20 cm to 2 m of water. In streams, traps were set in the best rearing areas, such as on edges of aquatic vegetation, near undercut banks, behind rocks, beside logs and brush, and in shaded areas, rather than randomly. In lakes and ponds traps were usually set close to shorelines or near submerged aquatic vegetation, rocks, logs, brush, beaver lodges, lily pads, reeds, and shoal areas around inlets and outlets. The trap lines were usually tied to a shoreline tree branch or to a float and marked with fluorescent surveyor's flagging. In deeper lakes with steep sloping shorelines minnow traps were often tied to overhanging branches or logs and suspended 1.2 to 2 m (four to six ft) below the surface. The traps balance by the locking snaps and hang parallel to the water surface. During juvenile tagging trips, strings of up to 60 traps were set by two two-person crews for two-hour soaks, usually around lakeshores or along slow moving sloughs.

#### Duration of Set

During rearing fish surveys an effort was made to standardize on a one to three hour set, as most fish in the area were thought to be attracted during this length of time. Longer sets resulted in fish loss after the eggs were completely eaten. For rearing fish surveys it is recommended that a standard time period of one to three hours be used whenever possible and that trap catches not be converted to a catch-per-hour basis.

Length of trap sets for juvenile tagging studies were usually two hours and traps were commonly left out overnight (12 to 15 hrs) so they could be picked first thing in the morning.

#### Catch Processing

When a trap was pulled it was quickly opened and emptied into a small plastic dishpan of water. Two dark green plastic dishpans (37 x 30 x 13 cm) were used; one for holding fish, and one for anesthetizing them, a few at a time. One of these dishpans, half full of water, provided a 1:20,000 concentration of anesthetic when one-half of a one-quarter teaspoonful of MS-222 was added. The MS-222 was added in slightly less than the above amount and the reaction of the first fish noted, as the concentration needed to anesthetize the fish is dependent on water temperature. After fish were anesthetized they were sorted by species and measured, and scale smears were taken from fish representing the entire size range. Fish were handled with a small aquarium dipnet. Lengths were determined with the use of a small measuring board (with a 200 mm scale) which was built to fit across one end of the dishpan.

Scale smears (10 to 30 scales) were scraped off anesthetized fish with a solid blade scalpel and then spread out between a small folded (8 cm x 2 cm) sheet

of clear plastic (obtainable from photo stores and cut to size). Scales taken in this way can be read on a micro projector or microscope with no further processing. The plastic scale cards were stored in coin envelopes with relevant fish size and catch location data.

Before release, anesthetized fish were allowed to revive in a dishpan of fresh water to prevent molestation by larger uncaptured fish, predation by Dolly Varden, or displacement by the current. Fish were released in the area of capture to prevent displacement from their established territory.

## RESULTS AND DISCUSSION

### Summer Surveys

The 16 watersheds surveyed to evaluate rearing coho salmon habitat were distributed throughout Southeastern Alaska. Surveys were conducted over a five-year period (1970-1975). The majority of surveys were conducted during the summer months, hence the name summer surveys, but several took place in early to mid October. These particular areas were chosen for surveys to evaluate coho rearing habitat because they were reported by fishery management personnel to be important areas for the production of coho salmon. There was little or no information on rearing fish populations in these watersheds and logging operations were underway or proposed for some of them.

Results of findings on the 16 watersheds follow and include habitat descriptions and evaluation, mean trap catches by area, species, fish sizes and ages, trap soak times, and water temperatures. Some areas of juvenile abundance located during the surveys were selected for fluorescent pigment and coded-wire tagging studies in recent years. Data gathered on the surveys has been useful in watershed protection plans during logging and other land use activities.

#### Thorne River:

Prior to the 1970 ground survey, aerial surveys of the Thorne River (Figure 3) revealed what appeared to be exceptionally good salmonid rearing habitat, although it was not known if coho salmon were able to ascend falls into Snaky Lakes (also called North Thorne Lake), Thorne Lake, or Control Lake. The ground survey began with a base camp at Thorne Lake. A one day trip to Twin Lake and a one day trip to lower Snaky Lakes was also made from the base camp. Three days were spent on a survey of Thorne River below Thorne Lake, and one day was spent along the logging road sampling main tributaries from Control Lake outlet to Goose Creek. An additional two day survey was made of Snaky Lakes, and inlet streams in 1971.

The 1970 trip was our first major survey using minnow traps and techniques were not well developed. More traps should have been set at each site and fish measured and scale samples taken rather than preserving a few specimens, as was done. The size of this sample later proved to be inadequate and resulted in combining of age I and age II coho salmon juveniles (Table 1 and Appendix Tables 1 and 2). Catches of rearing coho salmon averaged 1.4 fish

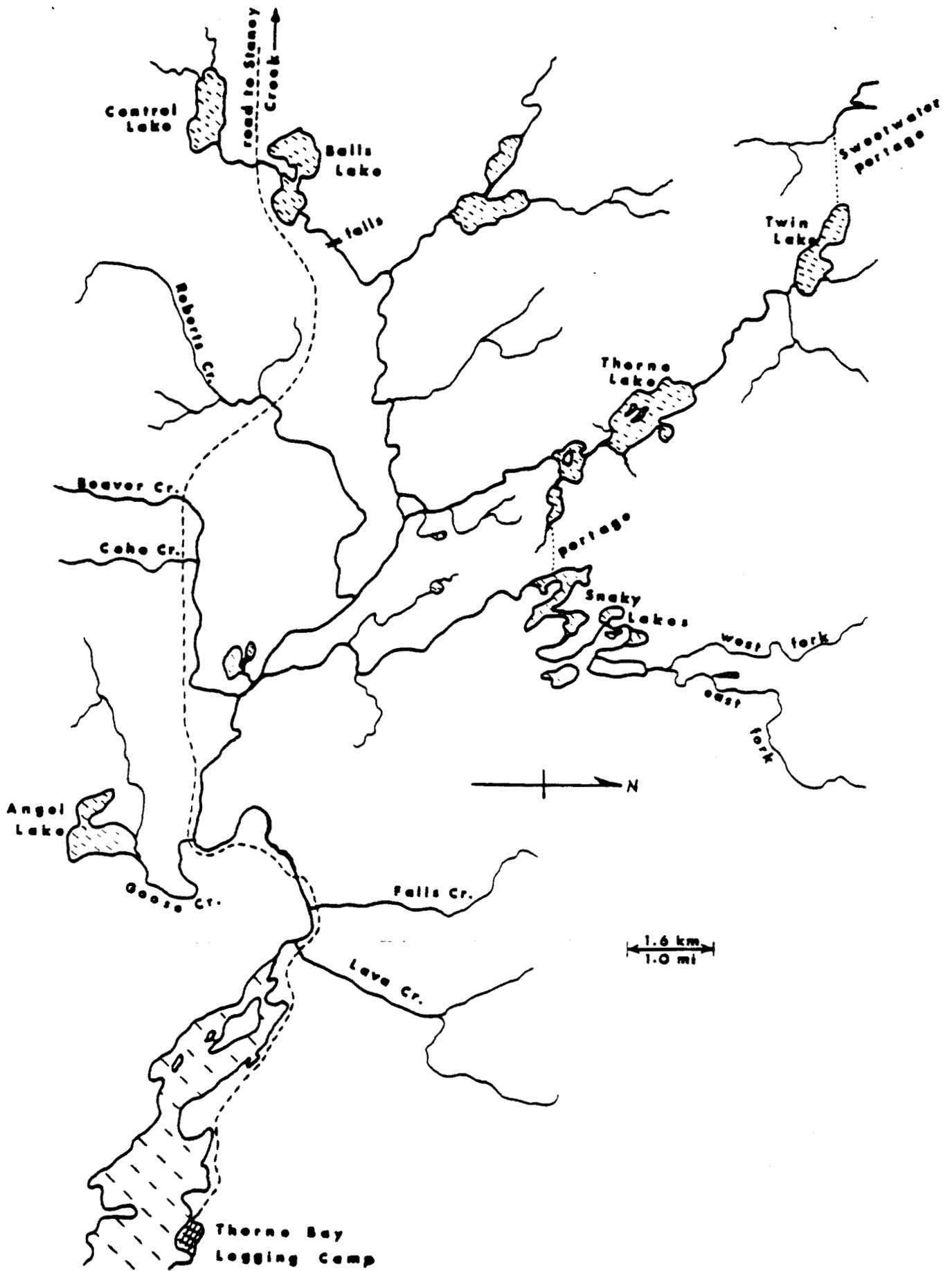


Figure 3. Thorne River and trapping locations.

Table 1. Summary of Thorne River rearing coho salmon surveys (7/17-22/70 and 6/26-27/71)<sup>1</sup>.

Thorne River (various areas) (7/17-22/70)	No. of Traps	SS <sup>2</sup> Age 0	SS Age I & II	DV	CT	RT	Other
Twin Lake outlet and outlet stream	6	0	1	0	2	0	CO
North Twin Lake inlet	3	4	1	0	0	0	---
South Twin Lake inlet	4	1	6	2	0	2	CO
Stream east of Twin Lake	4	3	2	0	0	0	CO
Thorne Lake shore	3	0	0	0	2	0	CO
Thorne Lake outlet stream	3	1	1	0	2	0	CO
Snaky Lakes outlet	3	5	0	0	0	62	---
West shore Snaky Lakes	3	32	1	0	0	0	SB
Thorne River by Control Lake junction	10	2	1	0	0	4	CO,SB
Snaky Lake outlet near Thorne River junction	6	4	6	0	2	11	CO,SB
Middle Thorne River and side ponds	5	3	2	1	8	1	CO,SB
Control Lake outlet	5	1	4	0	0	2	---
Balls Lake outlet	3	1	2	0	0	2	CO
Beaver Creek	3	0	2	2	0	20	---
Lower Goose Creek	5	6	1	0	0	20	---
Subtotal 1970 survey (mean catch per trap in parentheses)	66	63(1.0)	30(0.5)	5(0.1)	16(0.2)	124(1.9)	
Total coho salmon, all ages combined		93(1.4)					
Total salmonids, all species combined (SS, DV, CT, RT)		238(3.6)					

-Continued-

Table 1. Summary of Thorne River rearing coho salmon surveys (7/17-22/70 and 6/26-27/71)<sup>1</sup> (continued).

Thorne River (Snaky Lakes) (6/26-27/71)	No. of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	RT	Other
Lower channels	4	0	32	2	1	1	0	SB
Upper channels	10	1	28	4	1	2	1	CO,SB
Upper east fork	10	0	17	0	2	0	1	---
Upper west fork	10	0	52	3	25	0	26	---
Subtotal 1971 survey (mean catch per trap in parentheses)	34	1(0.0+)	129(3.8)	9(0.3)	29(0.9)	3(0.1)	28(0.8)	
Total coho salmon, all ages combined		139(4.1)						
Total salmonids, all species combined (SS, DV, CT, RT)		199(5.9)						
TOTAL 1970 & 1971 surveys combined (mean catch per trap in parenthesis)	100	64(0.6)	157(1.6)	11(0.1)	34(0.3)	19(0.2)	152(1.5)	
Total coho salmon, all ages combined		232(2.3)						
Total salmonids, all species combined (SS,DV,CT,RT)		437(4.4)						

<sup>1</sup>This table presents only a summary of trapping data for Thorne River. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Tables 1 and 2.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RT = rainbow trout, CO = sculpin, SB = stickleback.

per trap, and total rearing salmonids 3.6 fish per trap during the 1970 survey. More traps were set in each area and more scale samples taken during the 1971 boat survey of Snaky Lakes and the two inlet streams (Table 1 and Appendix Table 2). Catches of rearing coho salmon averaged 4.1 per trap, and total rearing salmonids 5.9 per trap in the Snaky Lakes area in 1971. The combined (both areas) average catch of coho salmon juveniles in the Thorne River was 2.3 per trap, and 4.4 per trap for all salmonids (Table 1).

These surveys indicated:

- (1) Rearing coho salmon were dispersed throughout the Thorne River including the lakes, and were present from headwaters areas to saltwater.
- (2) Densities of rearing coho salmon were much lower than expected, possibly due partly to competition with and predation by cutthroat trout (*Salmon clarkii*) or because most of the coho salmon population migrated as age I smolts and age 0 fish were not large enough to catch at the time of the survey. Adult scale analysis has shown that most Alaskan coho salmon migrate as age II smolts but most British Columbia, Washington, and Oregon coho salmon migrate as age I smolts (Gray et al. 1981).
- (3) Cutthroat trout were plentiful in the main river and lakes and rainbow trout (*S. gairdneri*) were plentiful in the faster tributaries.
- (4) An early run of adult coho salmon experienced high predation by black bears while schooled below the falls, located 1.6 km above the Control Lake outlet junction.
- (5) The heaviest densities of rearing coho salmon were found to be in the Snaky Lakes area and in the two inlet streams flowing into them. The inlet streams contained both excellent spawning and rearing areas.

Plotnikof Lake:

This large (305 hectare), deep (105 m), sterile-looking lake is located 64 km southeast of Sitka on the west coast of Baranof Island (Figure 4). It has received special attention from the Coho Research Project to determine reasons for its reported high returns of coho salmon. The outlet river below the lake is about 4 km long but descends 84 m to sea level in this distance and contains many falls passable to adult coho salmon and steelhead trout only under ideal water conditions. Several minnow trap surveys have been very useful in evaluating the rearing coho salmon population of this system.

The 1970 survey indicated:

- (1) \*The short access inlet streams at the northeast end of Plotnikof Lake were not important as coho salmon rearing areas (Table 2), however, the shoal area occupying the north end of the northeast

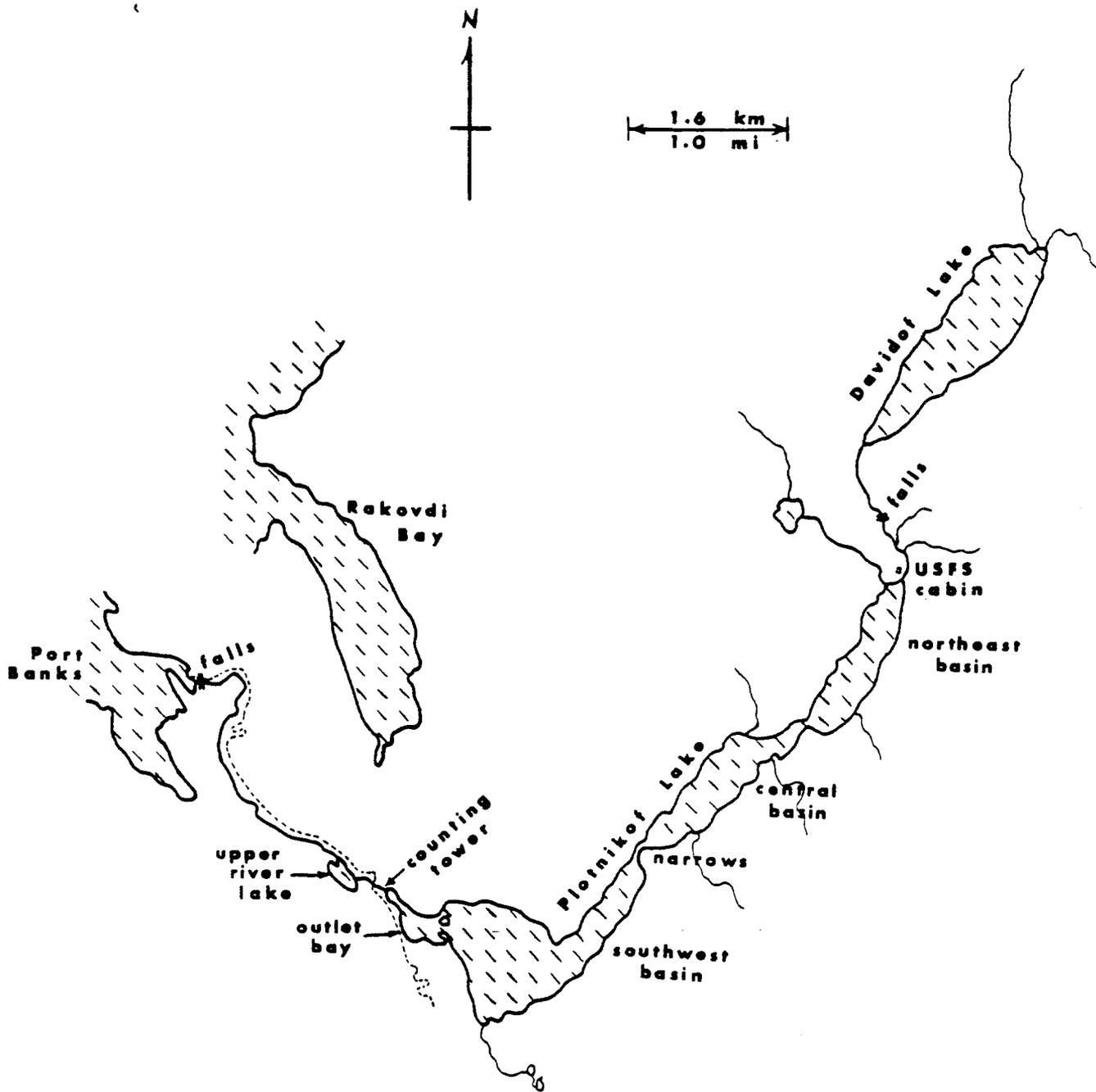


Figure 4. Plotnikof Lake and trapping locations.

Table 2. Summary of Plotnikof Lake rearing coho salmon surveys (10/6-9/70 and 8/11-14/71)<sup>1</sup>.

10/6-9/70	No. of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	RT	Other
Northeast tributaries	4	1	3	1	6	4	---
Northeast shore by cabin	4	0	125	16	0	0	---
Northeast basin shore	2	0	19	14	2	0	---
Central basin shore	3	0	2	1	0	0	---
Narrows	2	0	8	21	15	0	---
Southwest basin shores	3	0	4	55	30	2	---
Outlet bay and log jam	3	0	0	25	13	36	---
Upper river lake	4	26	24	0	19	8	---
Middle river	2	16	11	0	7	28	---
Lower river	2	1	6	0	1	51	---
Subtotal 1970 survey (mean catch per trap in parenthesis)	29	44(1.5)	202(7.0)	133(4.6)	95(3.3)	129(4.4)	
Total coho salmon, all ages combined		379(13.1)					
Total salmonids, all species combined (SS, DV, RT)		603(20.8)					

-Continued-

Table 2. Summary of Plotnikof Lake rearing coho salmon surveys (10/6-9/70 and 8/11-14/71)<sup>1</sup> (continued).

8/11-14/71	No. of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	RT	Other
Northwest shore by cabin	5	0	4	2	2	0	---
Northeast basin shore	6	0	46	16	5	0	---
Central basin shore	9	4	69	40	24	0	---
Narrows	2	0	2	19	7	0	---
Southwest basin shore	8	0	10	13	26	4	---
Outlet bay	2	0	4	10	13	0	---
Subtotal 1971 survey (mean catch per trap in parenthesis)	32	4(0.1)	135(4.2)	100(3.1)	77(2.4)	4(0.1)	
Total coho salmon, all ages combined		239(7.5)					
Total salmonids, all species combined (SS, DV, RT)		320(10.0)					
<hr/>							
TOTALS 1970 and 1971 (mean catch per trap in parentheses)	61	48(0.8)	337(5.5)	233(3.8)	172(2.8)	133(2.2)	
Total coho salmon, all ages combined		618(10.1)					
Total salmonids, all species combined (SS, DV, RT)		923(15.1)					

<sup>1</sup>This table presents only a summary of trapping data for Plotnikof Lake. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Tables 3 and 4.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, RT = rainbow trout.

basin produced good minnow trap catches of rearing coho salmon, with set #5 (Appendix Table 3) producing an exceptional catch (117 coho salmon).

- (2) Minnow traps set at 1, 2, 3, 4, 6, and 9 m in the inlet area demonstrated that rearing coho salmon could be taken at all depths to at least 9 m. There was a tendency for the larger and more robust coho salmon to be taken in the shallower sets (1 to 4 m) and the smaller coho salmon in the deeper sets (6 and 9 m). This may be related to territorialism or food preference by fish size. The age composition of the multi-depth sample was determined visually by size because scales were taken only from a few smaller fish to confirm that they were not fry.
- (3) Catches in the lake during the October 1970 trapping period (excluding the one very high trap catch) were very good, averaging 10.8 coho salmon per trap set. Overall mean trap catches were 13.1 for coho salmon and 20.7 for all salmonids, when all lake and river catches were combined.
- (4) Age composition of rearing coho salmon was considerably different in Plotnikof River than in Plotnikof Lake. Rearing coho salmon in Plotnikof River (including the small shallow upper river lake) were both younger and smaller for their age than in Plotnikof Lake (Table 3). Rearing area in the main river is confined to scattered pools.
- (5) A variable mesh gillnet set overnight near the lake outlet captured 21 juvenile coho salmon and one large rainbow trout. Although there was a slight size selection favoring larger fish, it was obvious that the gill net and minnow traps were sampling juvenile coho of the same age composition. Stomachs examined from several Plotnikof Lake coho salmon contained winged insect remains and large quantities of an unidentified red copepod.

The early 1971 survey indicated:

- (1) Twenty-two one hour minnow trap sets (not in table) made around the lake just after ice break-up in late June 1971, to a maximum depth of 15 m, captured only 22 juvenile coho in two traps set at the outlet.
- (2) Numerous resident Dolly Varden char were taken in many of the lake sets. Two overnight sets in the northeast basin of the lake, one in 21 m and another in 41 m of water, captured 57 Dolly Varden (80-162 mm), mean length 117 mm, and 83 Dolly Varden (82-149 mm), mean length 110 mm, respectively.
- (3) Based on the 1970 trapping survey results, catches of age I and age II coho salmon juveniles were considerably lower than expected.

Table 3. Plotnikof Lake rearing coho salmon age and size composition (10/6-9/70).

Age class	Minnow traps outlet stream	Minnow traps - lakeshore	Variable mesh gillnet - N.E. basin off inlet
Age 0	43% (60 mm) <sup>1</sup>	--	--
Age I	57% (86 mm)	89% (97 mm)	84% (109 mm)
Age II	--	11% (106 mm)	11% (109 mm)
Age III	--	--	5% (123 mm)
Sample size for aged fish	N = 56	N = 37	N = 19

<sup>1</sup>Mean length for each age class and area in parentheses.

The mid-August 1971 survey (Table 2) indicated:

- (1) Coho salmon minnow trap catches were composed of 2% age 0 fry, (58 mm mean length), 55% age I (86 mm mean length), and 43% age II (108 mm mean length) (Table 2 and Appendix Table 4).
- (2) The overall mean catch per trap for 32 traps set all around the lake was 7.5 coho salmon and 10.0 for all salmonids combined (coho salmon, Dolly Varden char, and rainbow trout).
- (3) Dolly Varden char were also numerous, averaging 2.4 fish per trap.
- (4) The absence of rearing coho salmon from most of the lake in June 1971 and good catches in August 1971 is not easily explained. Since only about 20 scattered traps were set in June and the lake had just broken up it is possible that rearing coho salmon could have been concentrated at certain locations in the lake that were not trapped. It is also possible that cooler temperatures in the lake in June made trapping ineffective, although this has not been the case in stream trapping.

Spawning ground surveys made in October 1969 and 1970 and adult escapement enumeration in 1970 and 1971 suggested the following:

- (1) The actual spawning escapement was probably 2,000-5,000 coho salmon, or about 10% of that estimated during aerial surveys of concentrated schools below the falls.
- (2) In 1971 the escapement was below average; and approximately 1,000 coho salmon appeared off the stream mouth in early August. Tower counts were made at the lake outlet from 26 July to 14 September, by which time no coho salmon were seen off the stream mouth, a calculated 54 adult coho salmon had entered the lake, and the remainder were still in the mainstream, possibly waiting for lower water levels to ascend various falls.
- (3) The only potential spawning observed in the lake was a sighting of less than 10 adults in the narrows in October 1970. A noticeable current exists in this area. No beach spawning areas have been located along the steep shoreline of the lake. It is possible that coho salmon spawn somewhere in the lake, either off upwelling areas or in the current of the narrows. Spawning probably occurs in the outlet and inlet streams later in the year.
- (4) The Plotnikof Lake coho salmon run is not subjected to a purse seine fishery or the "inside" gillnet fisheries, and therefore smolt-escapement rates may be higher than for many Southeastern Alaska coho runs. This stock is subjected to an intensive offshore troll fishery and occasional stream mouth sport fishing.

#### Hatchery Creek:

The Hatchery Creek survey was a continuation of the 1971 Thorne River (Snaky Lakes) survey. It began by inflatable boat at upper Honker Lake and continued through lower Honker Lake, Butterfly Lake, Hatchery Lake, and down to Sweetwater Lake (Figure 5). This system was much more difficult to traverse than it appeared from the air, resulting in fewer stops, less trap sets than desired, and lack of time to conduct rearing surveys on Sweetwater Lake.

This survey indicated:

- (1) Rearing coho salmon (mostly age I and age II fingerlings) were dispersed throughout the system from the Honker Lakes inlet streams to Sweetwater Lake, but not in the densities expected from this excellent appearing habitat. Minnow trap catches of rearing coho salmon and all salmonids (coho salmon, Dolly Varden, and cutthroat trout) averaged 1.9 fish and 2.7 fish per trap, respectively, for the Hatchery Creek survey (Table 4).
- (2) The best area appeared to be the east tributary of the Butterfly Lake-Hatchery Lake connecting stream. This tributary was 5.5° C colder than the connecting stream and contained good spawning gravel and good cover consisting of numerous windfalls and shade from old-growth forest.
- (3) Cutthroat trout were dispersed throughout the system and may be displacing or preying heavily on rearing coho salmon. Dolly Varden char were present in at least one area and one adult sockeye salmon (*Oncorhynchus nerka*) was found tangled in a minnow trap line in Butterfly Lake. An 8 to 10 foot falls located between Hatchery Lake and Sweetwater Lake was delaying a migration of adult sockeye salmon but was not a complete block.
- (4) Minnow trapping and beach seining in Sweetwater Lake (conducted late in June 1973) indicated that this large saline lagoon with a thin overlay of freshwater is not a significant rearing area for coho salmon.

#### Sarkar Lake:

The Sarkar Lake system is known to be a significant coho salmon producing area, with several thousand adults occasionally seen at Deweyville. The system contains five major freshwater lakes, several smaller lakes and interconnecting ponds, and Sarkar Lake, which is a saline lagoon with a thin overlay of freshwater (Figure 6). The ground surveys began at the northeast lake, proceeded by means of an inflatable boat to the central lake, then to the southeast lake, back to the central lake, and finally to Sarkar Lake, where sets were made in the northwest and south lake tributaries. Most of the lake inlet streams surveyed were too shallow to float with an inflatable boat.

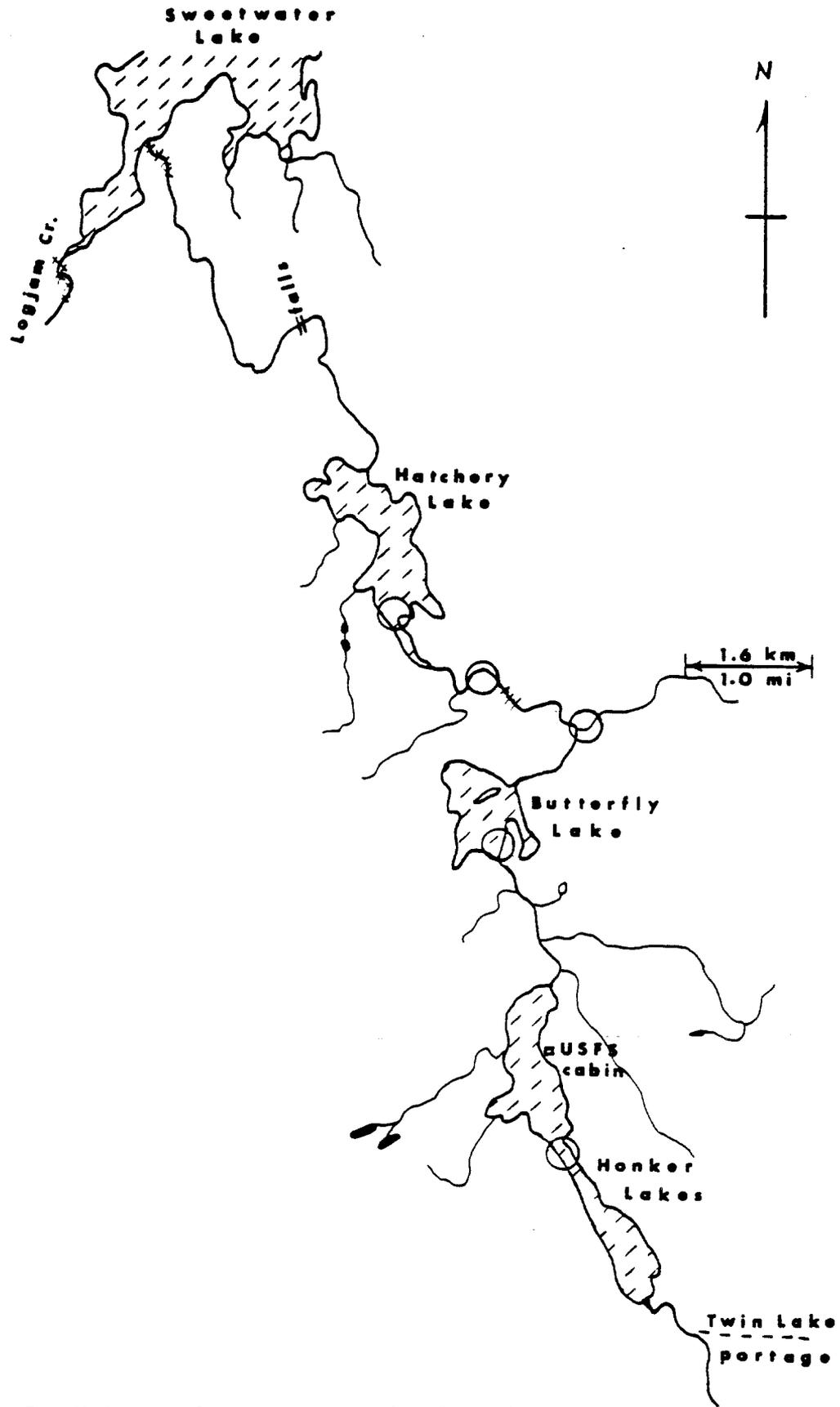


Figure 5. Hatchery Creek and trapping locations.

Table 4. Summary of Hatchery Creek (part of Sweetwater Lake system) rearing coho salmon survey (6/29-7/1/71)<sup>1</sup>.

Location	No. of traps set	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	Other
Honker Lake narrows	5	0	8	7	0	0	CO
Butterfly Lake inlet and south shore	10	1	16	2	0	5	CO
East tributary of Butterfly - Hatchery Lake stream	10	0	16	3	4	15	CO
South shore and inlet of Hatchery Lake	10	0	11	2	0	4	CO, adult RS
Totals (mean catch per trap in parentheses)	35	1(0.0+)	51(1.5)	14(0.4)	4(0.1)	24(0.7)	
Total coho salmon, all ages combined		66(1.9)					
Total salmonids, all species combined (SS, DV, CT)		94(2.7)					

<sup>1</sup>This table presents only a summary of trapping data for Hatchery Creek. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 5.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RS = sockeye salmon, CO = sculpin

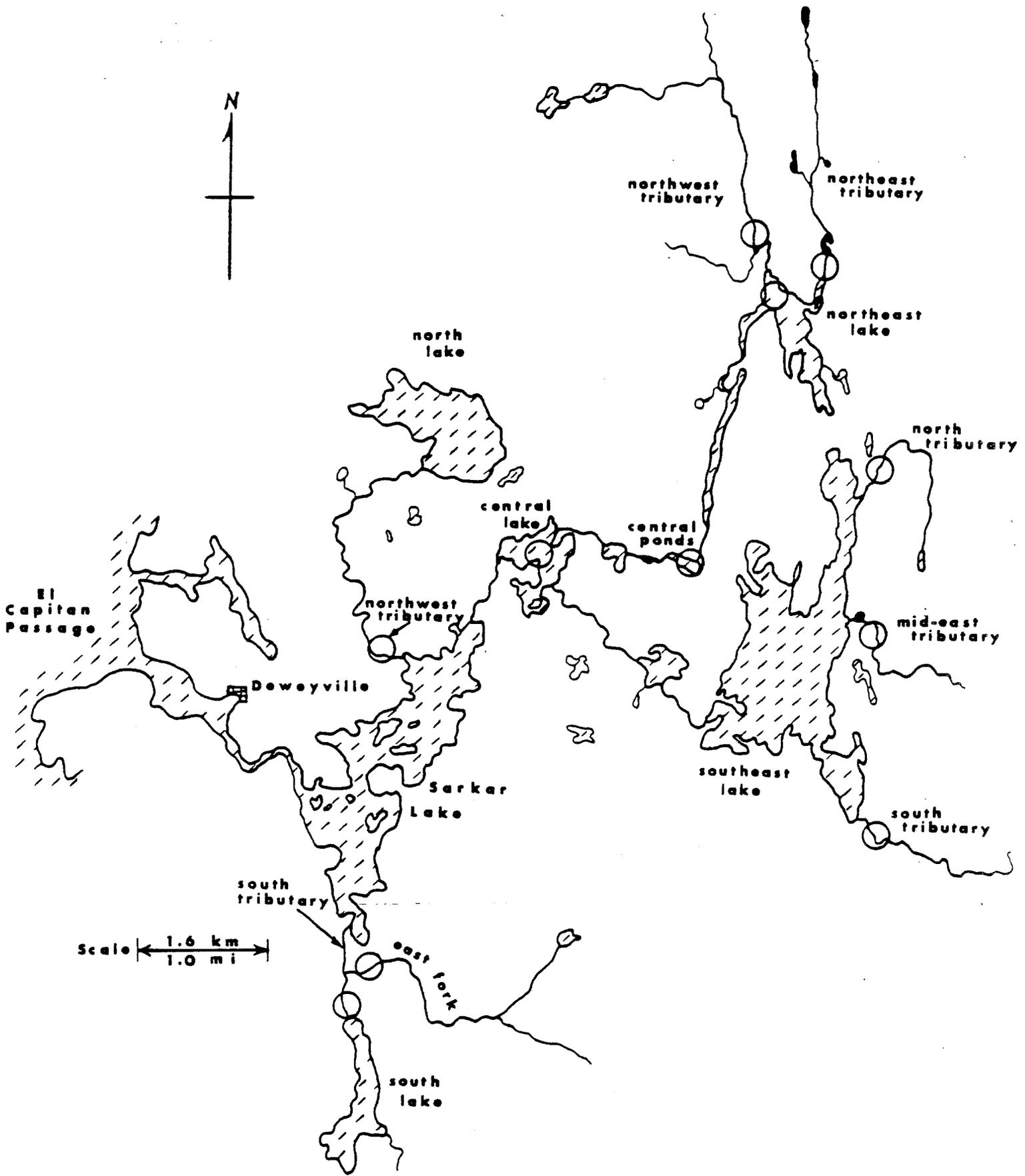


Figure 6. Sarkar Lake and trapping locations.

This survey indicated:

- (1) Good populations of rearing coho salmon were distributed throughout the system with higher catches being found in tributary streams than along lake shores. Minnow trap catches of rearing coho salmon and all salmonids combined (coho salmon, Dolly Varden char, and cutthroat trout) were good and averaged 6.2 and 7.7 fish per trap, respectively, for the whole Sarkar Lakes survey (Table 5).
- (2) The tributary streams, particularly the two north tributaries of the northeast lake and the three tributaries of the southeast lake are major spawning and rearing areas for the system. They are small in size and could be easily damaged by logging or road building.
- (3) Some of the smallest tributaries had the highest densities of rearing coho salmon. The tributaries appear particularly susceptible to damage if future logging is allowed in the area.
- (4) Catch composition of overwintering juvenile coho salmon from the entire Sarkar system was 79.9% age I (77 mm mean length) and 16.9% age II fish (109 mm mean length). The percentage of age 0 fish (53 mm mean length) was 3.2% (Table 5). This survey was probably conducted too early to provide representative age 0 catches because many of the fish were too small to trap.
- (5) Cutthroat trout and Dolly Varden char catches were fair (0.7 and 0.7 fish per trap, respectively).
- (6) Although adult sockeye salmon were seen jumping off the south tributary of the southeast lake, the south tributary to the central lake, and the northwest tributary to Sark Lake, no juvenile sockeye salmon were captured during this survey.

#### Berners River:

The Berners River (Figure 7) is one of the best single producers of coho salmon in Southeastern Alaska, producing a run which contributes significantly to the Icy Straits and lower Lynn Canal fisheries (Gray, et al. 1978). The major spawning ground for this system is the headwater area of the west fork, above the glacial tributaries. A few coho salmon also spawn near the east fork lake and in small tributaries nearby. The west fork headwaters spawning area of the Berners River can be reached by helicopter with all but 5 km of the upper river deep enough to float down with a 4 m inflatable boat. Accurate aerial counts are highly dependent upon enumerating adult coho salmon before they disperse into headwater tributaries. Since 1968, peak aerial counts have varied between 2,500 and 10,000 coho salmon spawners which should be considered minimum estimates. Ground surveys have ranged between 3,000 and 9,800 spawners, in the west fork but a small number were undoubtedly missed in the east fork which has deep, dark colored water.

The 7-9 July 1971 minnow trap survey was conducted by helicopter drop-off in the headwaters of the west fork, crossing to the east fork lake, continuing

Table 5. Summary of Sarkar Lake rearing coho salmon survey (7/3-9/71).<sup>1</sup>

Location	No. of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	Other
<u>Northeast Lake</u>							
Northeast tributary	10	0	53	22	4	6	SB,CO
Northwest tributary	5	0	57	0	0	0	CO
North shore of lake	5	0	1	0	0	0	SB,CO
<u>Central Ponds</u>	5	4	27	1	0	1	SB,CO
<u>Southeast Lake</u>							
Mid-east tributary	10	3	62	24	3	4	SB,CO,TP
North tributary	10	1	20	8	1	1	SB,CO
South tributary	10	1	78	7	17	4	CO
<u>Central Lake</u>	5	0	9	10	0	1	CO
<u>Sarkar Lake</u>							
Northwest tributary	5	3	19	0	0	16	CO
South tributary (lake fork)	6	3	8	5	0	4	CO
South tributary (non-lake east fork)	4	0	40	2	31	19	CO
TOTALS (mean catch per trap in parentheses)	75	15(0.2)	374(5.0)	79(1.1)	56(0.7)	56(0.7)	
Total coho salmon, all ages combined		468(6.2)					
Total salmonids, all species combined (SS, DV, CT)		580(7.7)					

<sup>1</sup>This table presents only a summary of trapping data for Sarkar Lake. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 6.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, SB = stickleback, CO = sculpin, TP = tadpole.

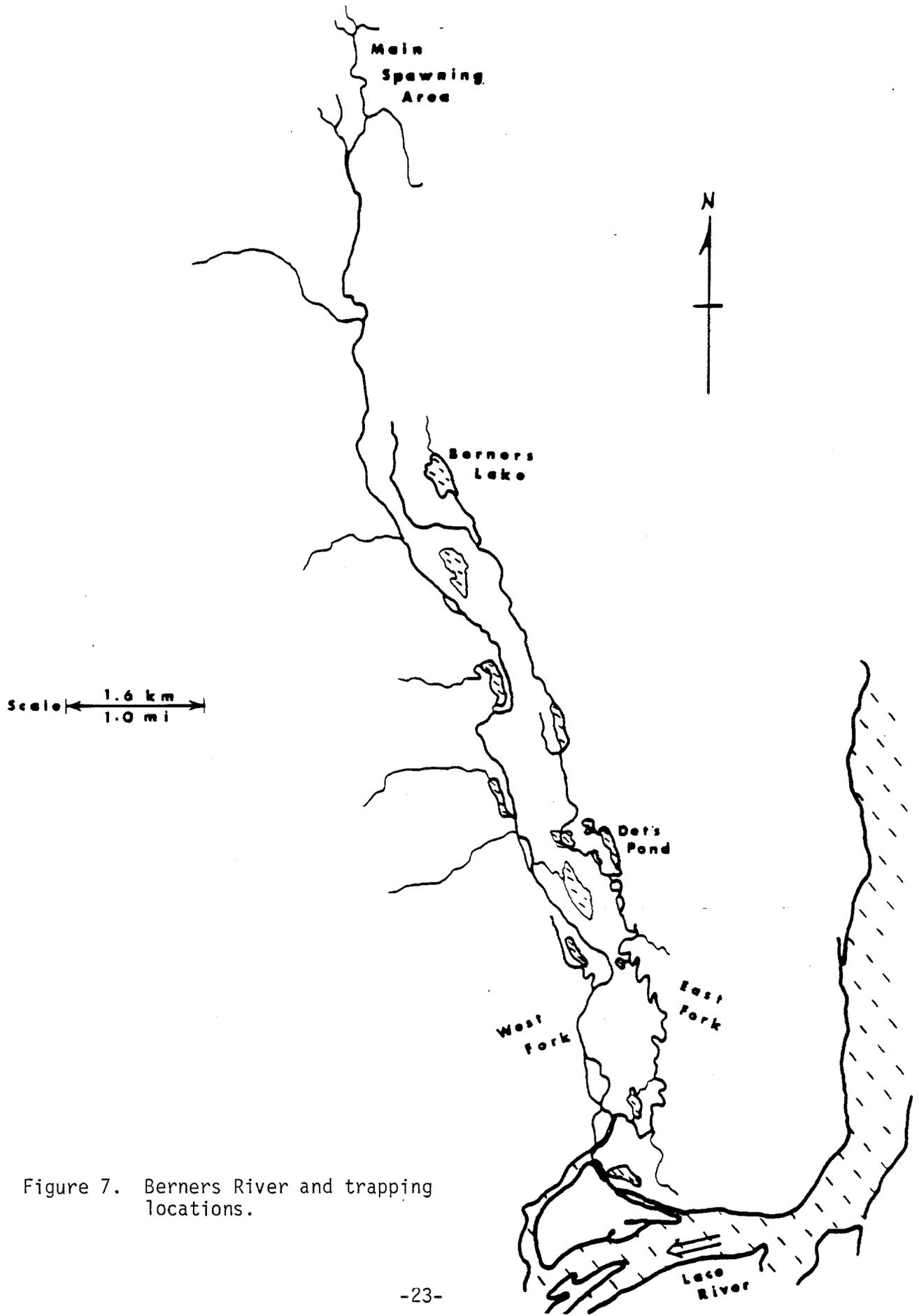


Figure 7. Berners River and trapping locations.

down the west fork to the junction and using an inflatable boat and small outboard to survey 5 km up the east fork. Helicopter pick-up was made at tidewater.

Minnow trap surveys indicated:

- (1) Rearing coho salmon did not utilize the glacial west fork, but were found mostly in the non-glacial east fork. Mean catches for the west fork (11 traps) were only 0.4 coho salmon per trap, while 13.4 coho salmon per trap (26 traps) were taken in the east fork (Table 6). The total mean trap catch for all areas combined was 9.5 for coho salmon and 11.8 for all salmonids (coho salmon, Dolly Varden, and cutthroat trout).
- (2) Observations during 1971 also verified that large numbers of fry were schooling off pond tributaries of the west fork, apparently being attracted by warmer water, but were not remaining there to rear.
- (3) During a mid July 1972 marking project, 8,100 age I or older coho salmon fingerlings were marked in the east fork. At the end of the 9 days of trapping less than 25% of the pond catches were marked, though nearly 50% of the main east fork catches were marked. These recapture ratios were made too soon after marking to be reliable, but suggest that despite its small size, the shallow, reedy upper pond (Det's Pond) was an important rearing area, as was the excellent extensive habitat of the lower 5 km of the east fork.
- (4) No coho salmon fry were seen or captured in the upper half of the east fork including the pond. Upstream movement of marked fish sometimes exceeded 0.8 km per day. This indicated that most coho salmon spawners were utilizing the upper west fork and the fry drifted downstream and ascended the slower east fork and reared there. The excellent habitat produces robust smolts that support the main Berners River coho salmon run. In October 1974, 19 marked adult coho salmon were recaptured (expanded to 2.7% of the escape-ment of 4,124) in the headwaters of the west fork. These adults from age I or older juveniles marked in the east fork in July 1972 conclusively prove that Berners River coho salmon return to the area of spawning rather than the area of rearing.

Castle River:

This large river on Kupreanof Island is a known coho salmon producer, particularly from sport fish catches near the U.S. Forest Service cabin at the mouth of the river (Figure 8). The entire Castle River system is stabilized by climax forest cover and is unusual in having no lakes or large ponds. Rearing area is extensive and nearly the whole river has excellent spawning gravel (except the lower 4 km of slow, deeper water) and excellent shade and cover from large spruce and hemlock).

Table 6. Summary of Berners River rearing coho salmon survey (7/7-9/71)<sup>1</sup>.

Location	No. of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	Other
<b>West Fork</b>							
Glacial upper channels	4	1	1	0	10	0	CO
Rusty slough	4	0	0	0	0	0	---
Glacial undercut banks	3	0	1	1	19	0	---
Subtotal (mean catch per trap in parentheses)	11	1(0.1)	2(0.2)	1(0.1)	29(2.6)	0	
Total coho salmon, all ages combined		4(0.4)					
Total salmonids, all species combined (SS, DV, CT)		33(3.0)					
<b>East Fork</b>							
Sandy old channel	3	1	9	2	30	0	SB, CO
Beaver pond	1	0	0	0	0	0	---
Lakeshore	3	0	27	1	4	3	---
Shallow marsh	2	10	17	0	0	0	---
Clear side pond	3	2	52	0	5	0	SB
Upper east fork - muskeg waters	6	0	14	3	4	0	SB
Side pond	1	0	8	1	0	0	SB
Lower east fork - deep and grassy bottom	7	0	170	32	5	2	SB
Subtotal (mean catch per trap in parentheses)	26	13(0.5)	297(11.4)	39(1.5)	48(1.8)	5(0.2)	
Total coho salmon, all ages combined		349(13.4)					
Total salmonids, all species combined (SS, DV, CT)		402(15.5)					
<b>TOTALS</b> (mean catch per trap in parentheses)	37	14(0.4)	299(8.1)	40(1.1)	77(2.1)	5(0.1)	
Total coho salmon, all ages combined		353(9.5)					
Total salmonids, all species combined (SS, DV, CT)		435(11.8)					

<sup>1</sup>This table presents only a summary of trapping data for Berners River. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 7.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin, SB = stickleback.

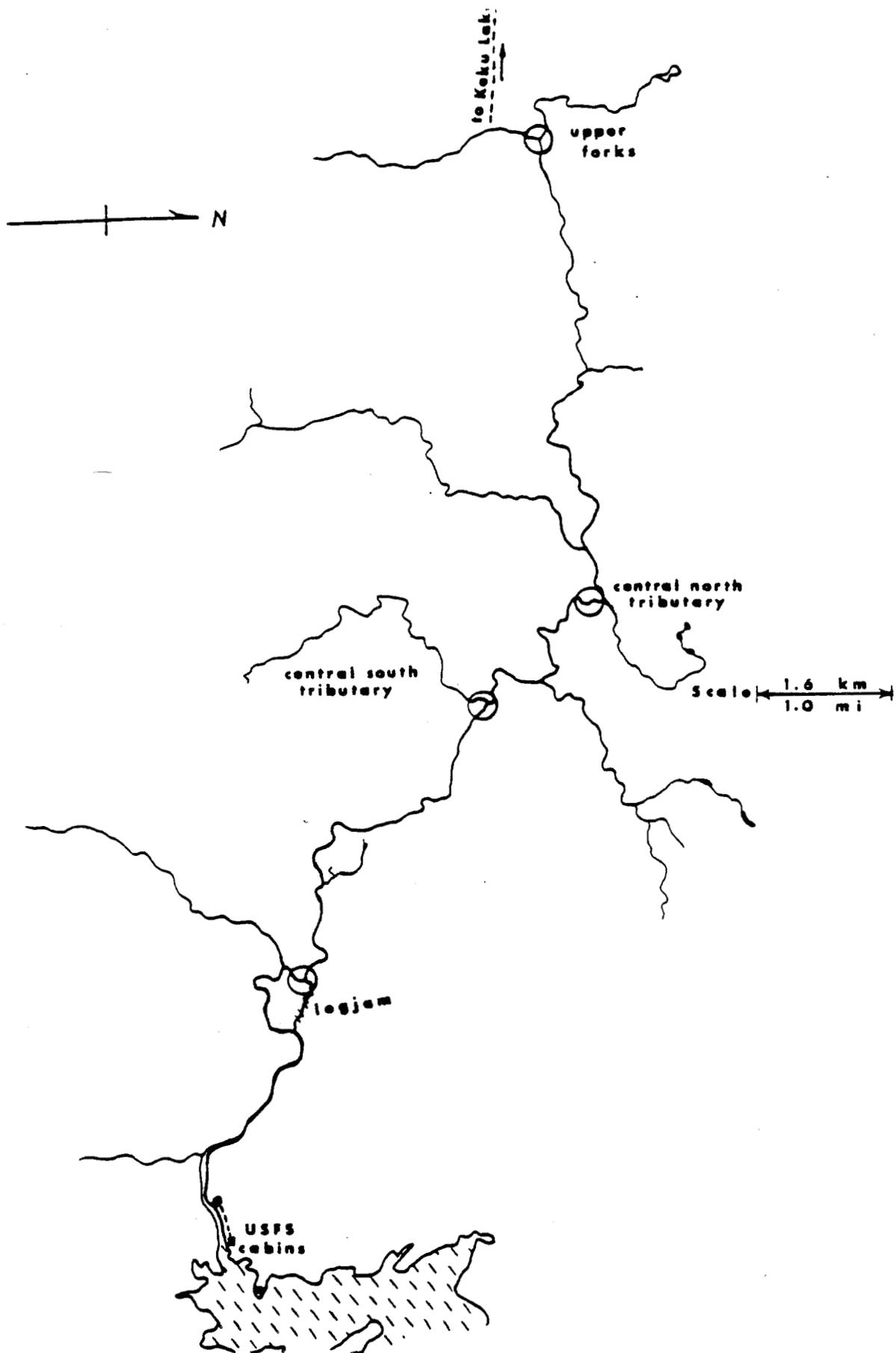


Figure 8. Castle River and trapping locations.

The one-man foot survey of this system began at the upper forks, reached by hiking overland 3 km from Keku Lake, and continued downstream to tidewater.

This survey indicated that:

- (1) The catch of rearing coho salmon was good, averaged 8.1 per trap, and consisted of 4.3% fry (mean length 50 mm), 83.3% age I (mean length 80 mm), and 12.3% age II (mean length 93 mm) (Table 7).
- (2) This survey was probably conducted too early to obtain representative catches of coho salmon fry because many were too small to be attracted to the bait or to be retained by the 6 mm trap mesh.
- (3) Catches of cutthroat trout were very good (3.0 per trap) and catches of Dolly Varden char were fair (0.6 per trap).
- (4) In addition to good density, most fish were robust and displayed unusually vivid coloration.
- (5) Several major tributaries were not walked due to a shortage of time but the entire Castle River system appeared to be an outstanding spawning and rearing area for coho salmon, cutthroat trout, and Dolly Varden char.

Chilkoot Lake:

Despite its glacial water, Chilkoot Lake (Figure 9) is reported by ADF&G Sport Fish Division personnel to contribute more to the sport fish harvest of coho salmon in the Haines area than any other system. This is probably due to the concentration of coho salmon adults near the outlet recreation area in early October. The Chilkoot system appears to contribute fewer coho salmon than the Chilkat River system to the Lynn Canal gillnet fishery, which concentrates most of its effort on the west side of the Chilkat Peninsula to take advantage of the Chilkat River chum salmon run. A coho salmon escapement count of 1,740 fish through 12 November 1983, with an estimated total escapement of 2,000 fish, was recorded at the ADF&G weir on Chilkoot Lake outlet. Sport fish creel census surveys estimated the harvest of adult coho salmon above the weir at more than 500 fish in 1976.

A minnow trap survey was conducted 13 and 14 July 1971, beginning in the upper Chilkoot River about 6.5 km above the lake. The survey did not go above Bear Creek as the river was very swift and contained no rearing habitat except that found in the side channels such as Bear Creek and Glory Hole.

These surveys indicated:

- (1) Trap catches of rearing coho salmon were fair in Chilkoot River side areas above the lake and consisted mainly of fry (age 0) and a few age I fish, averaging 1.6 coho salmon per trap (Table 8). These areas appeared to be good spawning habitat.
- (2) Catches along the shore of Chilkoot Lake were good, but varied considerably and were best near the outlet, with an average of 8.9 coho

Table 7. Summary of Castle River rearing coho salmon survey (7/10-13/71)<sup>1</sup>.

Location	No. of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	Other
Upper forks	5	1	16	7	11	21	---
Central north tributary	5	1	35	8	1	22	CO
Central south tributary	5	5	59	1	1	9	CO
Log jam 4 km upstream from stream mouth	5	0	25	4	0	8	CO
TOTALS (mean catch per trap in parentheses)	20	7(0.4)	135(6.8)	20(1.0)	13(0.6)	60(3.0)	
Total coho salmon, all ages combined		162(8.1)					
Total salmonids, all species combined (SS, DV, CT)		235(11.8)					

<sup>1</sup>This table presents only a summary of trapping data for Castle River. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 8.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpins

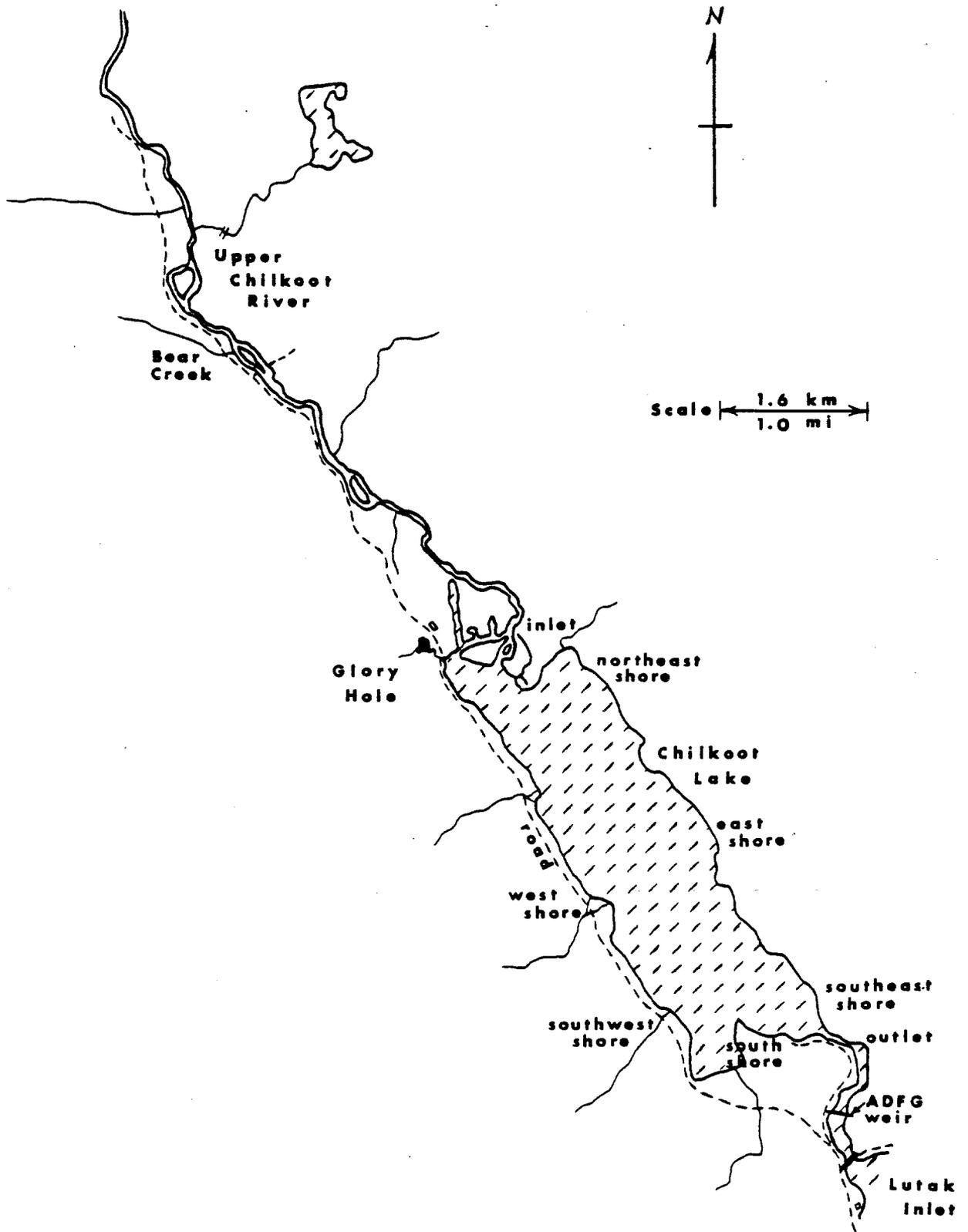


Figure 9. Chilkoote Lake and trapping locations.

Table 8. Summary of Chilkoote Lake rearing coho salmon survey (7/13-14/71)<sup>1</sup>.

Location	No. of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	Other
<u>Chilkoote River</u>						
Upper Chilkoote Lake inlet	2	3	0	0	0	---
Lower Chilkoote Lake inlet	9	7	8	0	5	1RS
Subtotal Chilkoote River (mean catch per trap in parentheses)	11	10(0.9)	8(0.7)	0	5(0.5)	1RS
Total coho salmon, all ages combined		18(1.6)				
Total salmonids, all species combined (SS, DV, RS)		24(2.2)				
<u>Chilkoote Lake</u>						
West shore of lake	3	0	14	0	2	CO,SB
Southeast corner of lake near outlet	6	4	112	1	6	1CT,5RS,CO,SB
Northeast corner of lake	6	0	2	1	0	CO
Subtotal Chilkoote Lake (mean catch per trap in parentheses)	15	4(0.3)	128(8.5)	2(0.1)	8(0.5)	1CT,5RS
Total coho salmon, all ages combined		134(8.9)				
Total salmonids, all species combined (SS, DV, CT, RS)		148(9.9)				
TOTALS (Chilkoote River and lake) (mean catch per trap in parentheses)	26	14(0.5)	136(5.2)	2(0.1)	13(0.5)	1CT,6RS
Total coho salmon, all ages combined		152(5.8)				
Total salmonids, all species combined (SS, DV, CT, RS)		172(6.6)				

<sup>1</sup>This table presents only a summary of trapping data for Chilkoote Lake. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 9.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RS = sockeye salmon, CO = sculpin, SB = stickleback.

salmon per trap for the lake. Outboard motor trouble necessitated an overnight set for some traps and did not allow sets to be made in the southwest bay or along the steep eastern shoreline. These areas in more recent years proved to be good trapping areas.

- (3) Age composition of rearing coho salmon was 3.0% age 0, 95.5% age I, and 1.5% age II in the lake and 55.6% age 0 and 44.4% age I in Chilkoot River above the lake.
- (4) Additional minnow trapping in mid-September 1972 in the south bay of Chilkoot Lake produced only 30 coho salmon fry from 14 traps set for 1 hour. Catches were poor along the east shore but good along the upper Chilkoot Lake outlet. Only 116 coho fingerlings (age I or older) were captured in 1-1/2 days of trapping and attempts to mark this population in 1972 were discontinued.
- (5) Trapping in Chilkoot Lake in 1976, 1977, and 1981 produced 1,503, 3,084, and 5,359 (age I or older) coho salmon juveniles, respectively, and catches ranged from fair to good. Some areas along the lakeshore, notably the southeast corner of the lake near the outlet, the south and southwest shoreline, and the east shoreline halfway up the lake were the best trapping areas, usually under overhanging trees, bushes or around logs and rocks. Rearing coho salmon were found completely around the shoreline of Chilkoot Lake but windswept areas and areas with steep shorelines were much poorer trapping. Weather conditions were also important in trapping success. Windy days with wave action were much poorer trapping than calm days.

#### Chilkat Lake:

This system (Figure 10) is thought to be one of the major contributors to the Chilkat River coho salmon run and is known to have escapements of over 1,000 spawners. The 1981 lake outlet weir count through 22 October was 1,150 coho salmon, with an estimated total escapement of 2,500 - 3,000. Coho salmon are known to spawn in the main inlet stream on the south end of Chilkat Lake and probably in small streams on the northwest end, the east side stream by the island, and in streams near the lake narrows where they were observed in October 1975. Chilkat Lake is a large, mostly deep lake with barren rocky shorelines. The few good coho salmon rearing areas located during numerous trapping surveys are shallower, weedy areas near the outlet, the narrows, the south end of the lake near the inlet, and a few other scattered spots.

These surveys indicated:

- (1) During the 15-16 July 1971 minnow trap surveys the catch of rearing coho salmon were fair, averaging 2.9 fish per trap, but were considerably lower than expected (Table 9). The mean trap catch for all salmonids combined (coho salmon, Dolly Varden, and cutthroat) was 3.8 fish per trap. Stormy weather during this survey was thought to have affected catches and prevented the taking of a multi-depth series of trap sets.

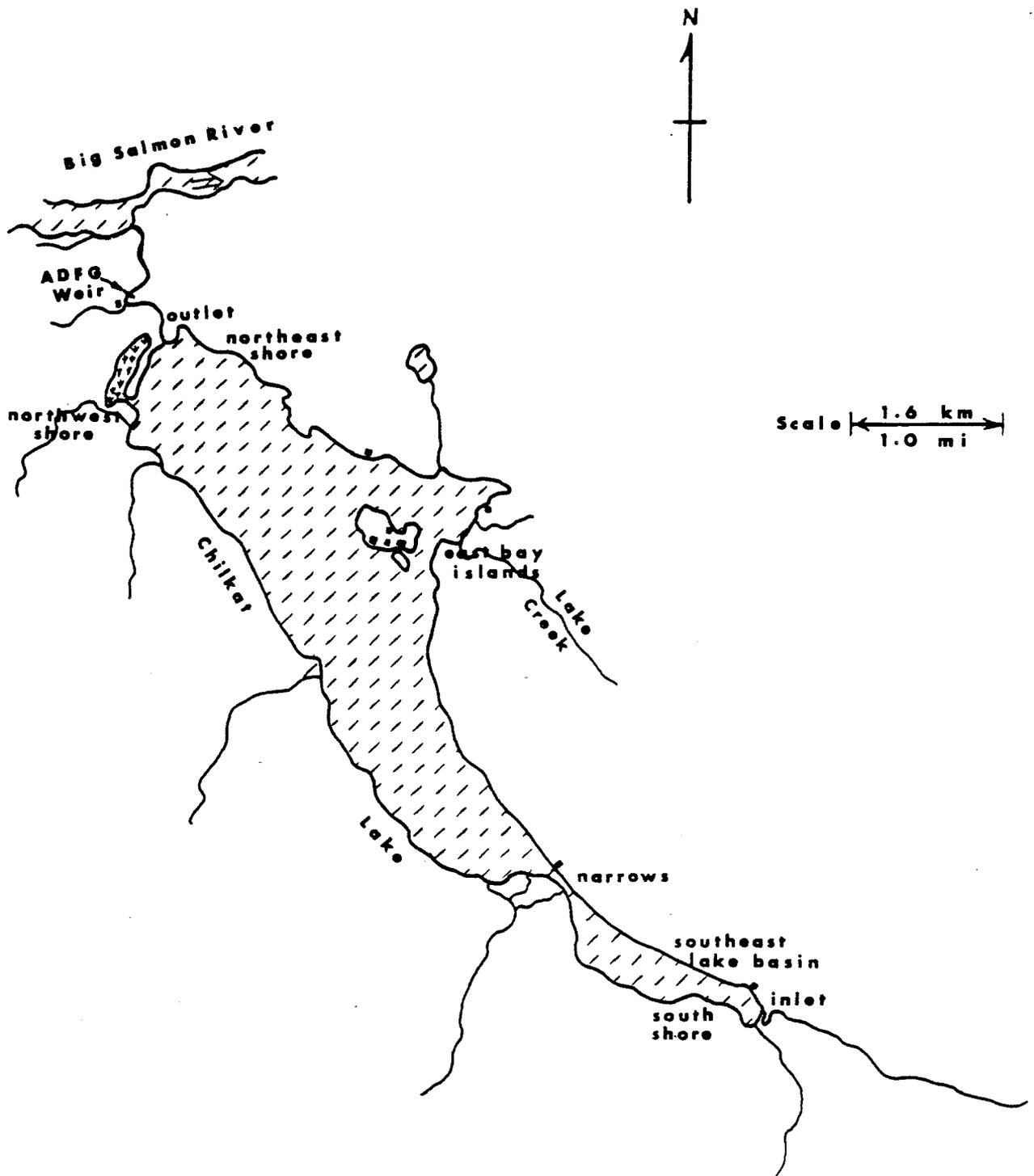


Figure 10. Chilkat Lake and trapping locations.

Table 9. Summary of Chilkat Lake rearing coho salmon survey (7/15-16/71)<sup>1</sup>.

Location	Number of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	Other
Shore of southeast lake basin	9	1	39	1	0	3	SB,CO
South shore	9	0	34	3	8	2	CO
Northeast shore	9	0	13	1	0	1	SB,CO
Northwest shore	9	0	21	1	2	1	SB,CO
East bay islands & Lake Creek	9	2	15	0	16	8	SB,CO
TOTALS (mean catch per trap in parentheses)	45	3(0.1)	122(2.7)	6(0.1)	26(0.6)	15(0.3)	
Total coho salmon, all ages combined		131(2.9)					
Total salmonids, all species combined (SS, DV, CT)		172(3.8)					

<sup>1</sup>This table presents only a summary of trapping data for Chilkat Lake. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 10.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin, SB = stickleback.

- (2) The age composition of rearing coho salmon was 2.3% age 0 (60 mm mean length), 93.1% age I (96 mm mean length), and 4.6% age II (116 mm mean length).
- (3) Minnow trapping and tagging studies on Chilkat Lake in 1972, 1976, 1977, and 1981 encountered rearing coho salmon distribution and abundance similar to the 1971 surveys. Although the size of rearing coho salmon was quite large, concentrations of fish were seldom encountered. In 1972, 1976, 1977, and 1981, 902 (85-150 mm), 2,985 (mean length 95 mm, range 80-150 mm), 2,284 (mean length 95 mm, range 80-150 mm), and 2,603 (mean length 95 mm, range 66-143 mm) rearing coho salmon were tagged, respectively. Trapping and tagging with 4-person crews was conducted 5 days in 1972 and 10 days in 1976, 1977, and 1981. Trapping was considerably better during calm weather than during windy weather.

#### Lower Taku River Tributaries:

The two best-known coho salmon producing tributaries of the lower Taku River are Yehring Creek and Johnson Creek (Figures 11 and 12).

Aerial and ground surveys of Yehring Creek have produced counts of 700 to 2,100 spawners. The ground count in 1971 was just under 1,000 adults, most of which were observed in three or four large schools in the main creek below the spawning riffles. A sample of 50 adult coho salmon seined from lower Yehring Creek on October 1971 were all 4-year-old fish from age II smolts. Johnson Creek spawning ground counts have ranged from 200 to 500 fish. The 1971 Johnson Creek ground count was only 175 coho salmon, although one area could not be counted. The mile-long outlet side channel of the Taku River was extremely shallow and may have held some fish that could not be seen. Access to Yehring and Johnson Creek for the 1971 juvenile surveys was by float-plane and inflatable boats.

These surveys indicated:

- (1) Catches of rearing coho salmon was very good in Yehring Creek and exceptional in Johnson Creek during the August 1971 surveys (10.5 and 28.9 per trap, respectively) (Table 10).
- (2) Age composition of rearing coho salmon consisted mainly of age I fish (75 to 81%) which probably migrated as age II smolts and was similar for Yehring and Johnson Creeks (Table 11).
- (3) Nearly all coho salmon rearing in the Yehring Creek system takes place in warmer water side beaver ponds (only two of which were sampled during the 1971 survey). A tagging study conducted on Yehring Creek for three weeks in 1972 clearly showed that the 1971 survey was biased toward less productive areas when most traps were set in the mainstream. The mainstream of Yehring Creek is glacially fed from the Swineford Lakes and has summer temperatures of 8 to 9° C. Two of the beaver ponds contained fewer rearing coho salmon in 1972, but during 11-1/2 days of trapping, seven major side ponds produced over 6,700 coho salmon juveniles, mostly age I.

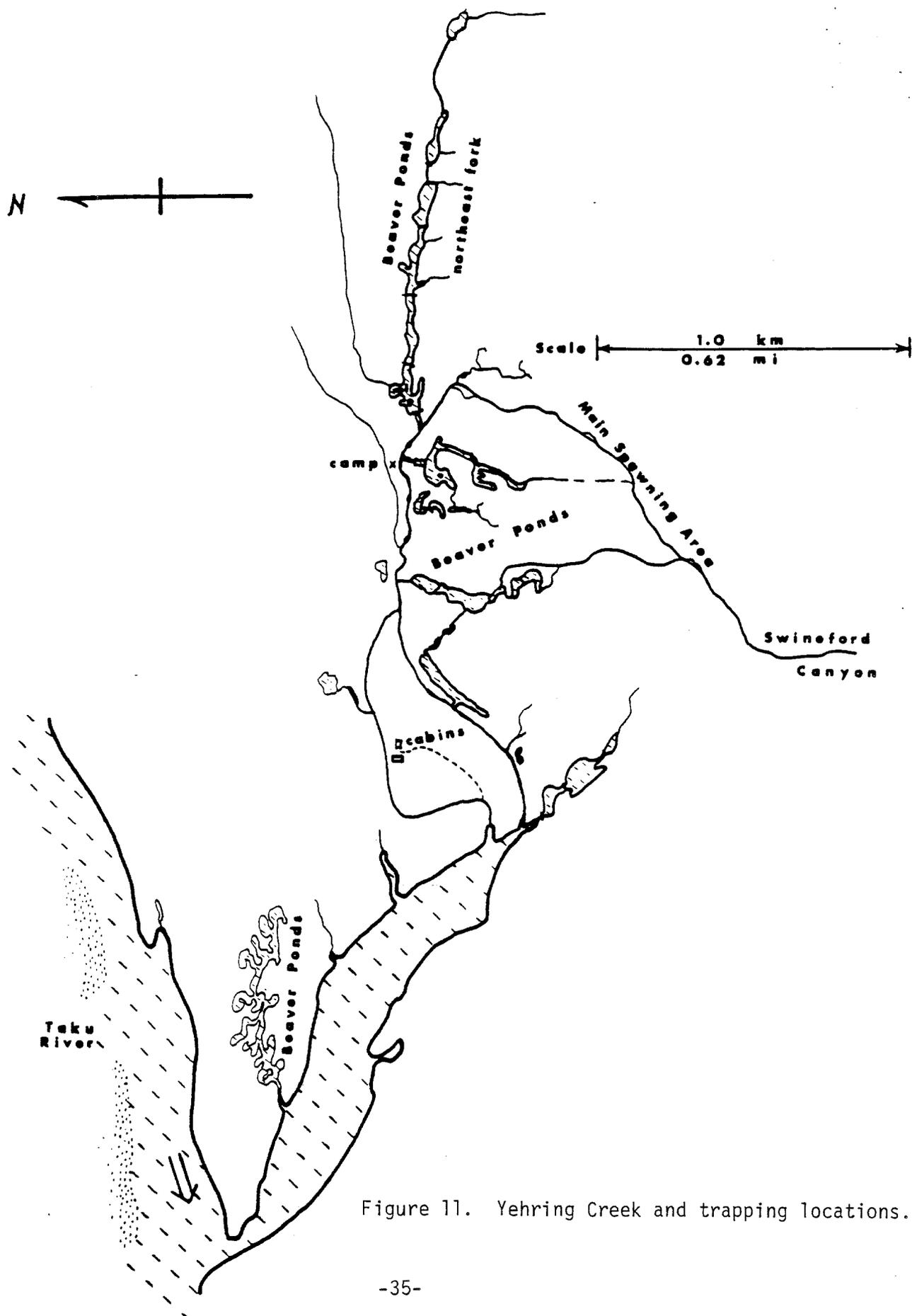


Figure 11. Yehring Creek and trapping locations.

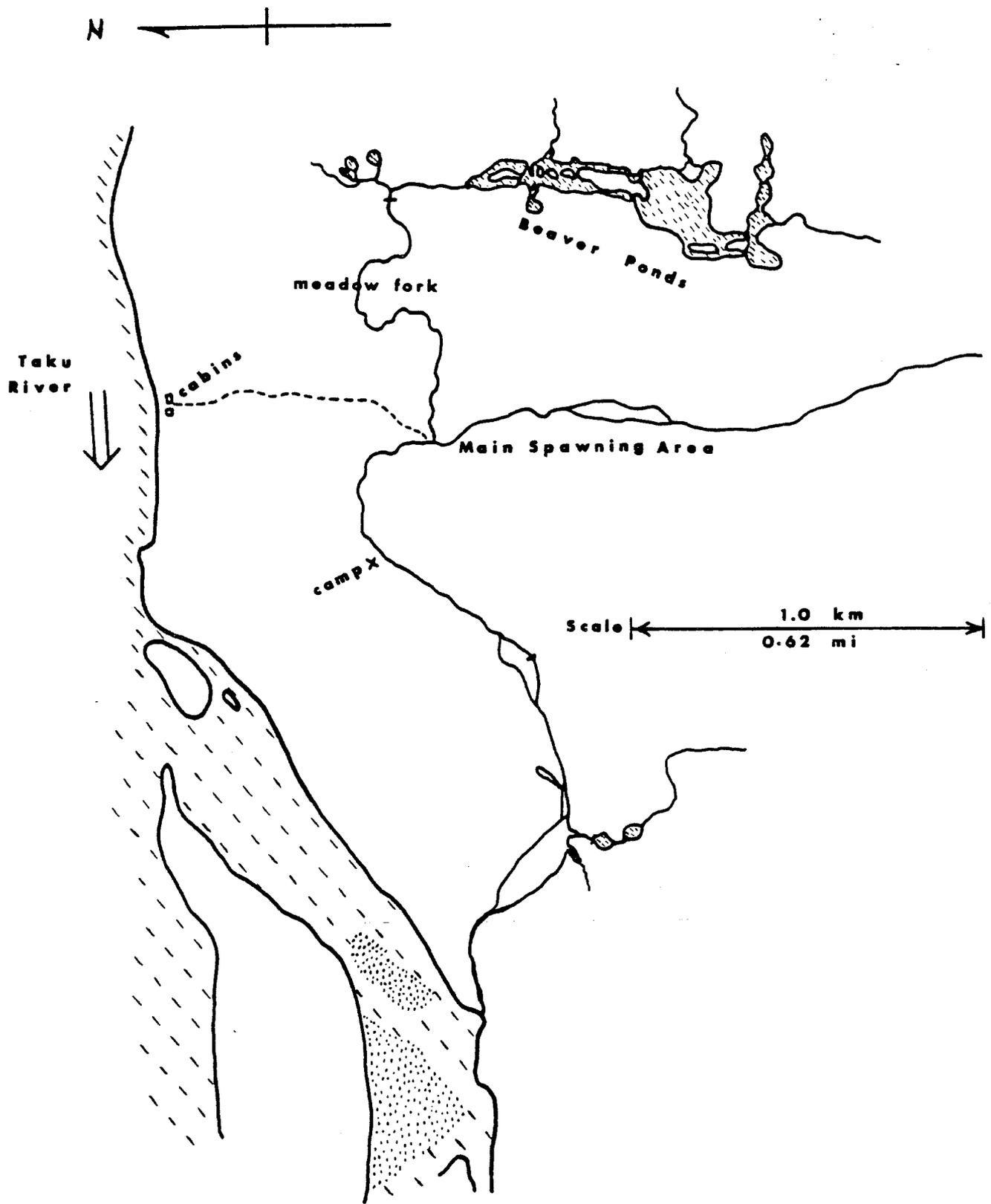


Figure 12. Johnson Creek and trapping locations.

Table 10. Summary of Lower Taku River tributaries (Yehring and Johnson Creeks) rearing coho salmon surveys (8/5-8/71)<sup>1</sup>.

Location	Number of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	Other
<b>Yehring Creek (8/5-6/71)</b>							
Cabin branch & slough	4	3	11	0	0	0	SB
Upper beaver ponds	5	6	75	2	3	2	---
Below cabin	2	8	14	1	0	0	SB
Lagoon & side bay	4	1	30	0	0	0	SB
Lower main channel	2	13	15	0	0	0	---
Subtotals for Yehring Creek (mean catch per trap in parentheses)	17	31(1.8)	145(8.5)	3(0.2)	3(0.2)	2(0.1)	
Total coho salmon, all ages combined		179(10.5)					
Total salmonids, all species combined (SS, DV, CT)		184(10.8)					
<b>Johnson Creek (8/7-8/71)</b>							
Meadow fork tributary	4	19	146	2	16	2	---
Beaver ponds & tributaries	4	3	44	3	5	0	---
Mainstream 0.8 km above forks	1	13	23	0	26	0	---
Lower mainstream	5	68	113	0	16	0	SB
Lower beaver dam pond	1	0	0	0	1	0	---
Subtotals for Johnson Creek (mean catch per trap in parentheses)	15	103(6.9)	326(21.7)	5(0.3)	64(4.3)	2(0.1)	
Total coho salmon, all ages combined		434(28.9)					
Total salmonids, all species combined (SS, DV, CT)		500(33.3)					
<b>TOTALS (Yehring &amp; Johnson Creeks combined)</b>							
(mean catch per trap in parentheses)	32	134(4.2)	471(14.7)	8(0.2)			
Total coho salmon, all ages combined		613(19.2)					
Total salmonids, all species combined (SS, DV, CT)		684(21.4)					

This table presents only a summary of trapping data for Yehring and Johnson Creeks. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 11.

SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, SB = stickleback.

Table 11. Lower Taku River tributaries (Yehring and Johnson Creeks) rearing coho salmon age and size composition (8/5-8/71).

	Yehring Creek			Johnson Creek		
	No. of fish	Percent in age class	Mean length in mm	No. of fish	Percent in age class	Mean length in mm
Age 0	31	17.3%	59 mm	103	23.7%	52 mm
Age I	145	81.0%	83 mm	326	75.1%	77 mm
Age II	3	1.7%	104 mm	5	1.2%	101 mm
Total No. of fish	179			434		
Mean catch per trap set	10.5			28.9		

- (4) Recapture ratios during 1972 trapping and tagging studies in Yehring Creek indicated that 55% of the age I and older coho salmon had been marked, and that there was a population of at least 12,180 fish of this size group present in Yehring Creek at the time. No age 0 fish (fry) were marked, hence no population estimate was made for this age group.
- (5) The mark-recovery study also indicated that some of the rearing coho salmon were straying throughout the individual beaver ponds and were dispersing elsewhere in the system when high water inundated the lower beaver ponds.
- (6) Most coho salmon rearing in Johnson Creek takes place in the warmer meadow fork tributary and beaver ponds. This slow-flowing, weedy stream contains uniform habitat for the 1.2 km of its length. During the 1972 trapping and tagging study at Johnson Creek 2,182 coho salmon juveniles (age I and older) were marked in 3-1/2 days in the same areas that were trapped in 1971. Traps set every 30 m along the meadow stream had good and very uniform catches, averaging 7.5 coho salmon (age I and older) juveniles per trap while traps set in the two beaver ponds averaged 14 coho salmon per trap.
- (7) The main fork of Johnson Creek contains excellent spawning gravel, but only a few good deeper rearing pools in the lower river. Pools with cover contained high densities of rearing coho salmon (up to 82 age I fish for a 2 hour trap set).
- (8) Additional trapping and tagging of Yehring Creek coho salmon juveniles (age I and older) in 1976 produced only 484 fish (60-120 mm, 75 mm mean length), possibly due to poor spawning success or lowered water levels preventing access of juveniles to beaver ponds. In 1977, trapping was good in the same areas and 5,058 coho salmon (60-115 mm, 75 mm mean length) were trapped and tagged. In 1976, 1,352 coho salmon (60-120 mm, 75 mm mean length) were trapped and tagged in Johnson Creek.
- (9) Yehring Creek and Johnson Creek are typical lower Taku River tributaries which consist of major rearing areas above beaver dams. In some cases, rearing coho salmon have been found above a series of eight beaver dams totaling over 6 m increase in elevation, while in others, a single 1 m dam appears to have been a total block to adult and juvenile coho salmon. During late fall surveys in 1973, small numbers of spawning adult coho salmon were observed in head-water streams above six dams on the northeast fork of Yehring Creek. It is assumed that most utilization of these rearing areas originates from spawner access rather than juvenile access. Years of low October rainfall, or old beaver dams which no longer contain a distinct spillway may prevent full utilization of significant rearing areas. To remove the beaver dams completely would cause a drop in the water levels and complete loss of the rearing area. There appears to be a delicate balance between sufficient dam elevation to maintain the water levels necessary for maximum rearing

area and enough flow over the dams to allow access of spawners and outmigration of smolts. Access of even a small number of coho salmon spawners may be critical to the utilization of major rearing areas.

#### Situk River:

The Situk River (Figure 13) is historically famous for its production of coho, sockeye, and chinook salmon, and steelhead trout. The Situk-Ahrnklin combined river mouth commercial gillnet catch of coho salmon has ranged from 10,000 to 33,000 and has averaged 21,000 fish in recent years. Coho salmon escapement counts are about half of this magnitude, and are used only as an index of escapement, with little known of the spawning or rearing distribution within the system.

The minnow trap survey of 16-21 August 1971 began by flying to Mountain Lake, continued by inflatable boat to Situk Lake, and down the main trunk of the Situk to the river mouth. A vehicle was then used to reach the East Fork for a survey extending 1.6 km below the road.

This survey indicated:

- (1) Mountain Lake, Situk Lake, and the connecting river produced surprisingly low minnow trap catches of 2.4 coho salmon per trap set (Table 12). No other rearing fish were taken, although this area is the major spawning and rearing area for the large Situk River sockeye salmon run.
- (2) Exceptional catches of rearing coho salmon averaging 34.9 per trap (Table 12) were taken in the Situk River downstream from Situk Lake. The East Fork appeared to be major rearing area with catches averaging 72.1 coho salmon per trap while the rest of the mainstream area below the lake averaged 24.9 coho salmon per trap. Age composition of coho salmon was 74.4% age 0 (54 mm mean length), 24.8% age I (87 mm mean length), and 0.8% age II (99 mm mean length). These late season catches containing nearly 75% large fry (age 0) demonstrated the catch bias dependent on time of sampling, and they are probably not comparable with early season minnow trap surveys when the smaller fry are either not attracted to the bait or they pass through the 6 mm mesh. Commercial catch sampling in 1969 and 1970 indicated that 37% of Situk-Ahrnklin Rivers coho salmon migrate to sea at age I after spending one winter in freshwater, 51% at age II, 11% at age III, and 1% at age IV (Gray et al. 1981).
- (3) Chinook salmon age 0 (fry) (68 mm mean length) made up 55.3% of the mainstream catches of salmonids (38.1 per trap) downstream from Situk Lake (excluding the East Fork). Most chinook salmon rearing does not appear to spread to side tributaries, as shown by the low catches of this species in the East Fork. No rearing surveys were conducted on the West Fork, Old Situk Channel, or in the extensive western tributaries known to rear coho salmon.

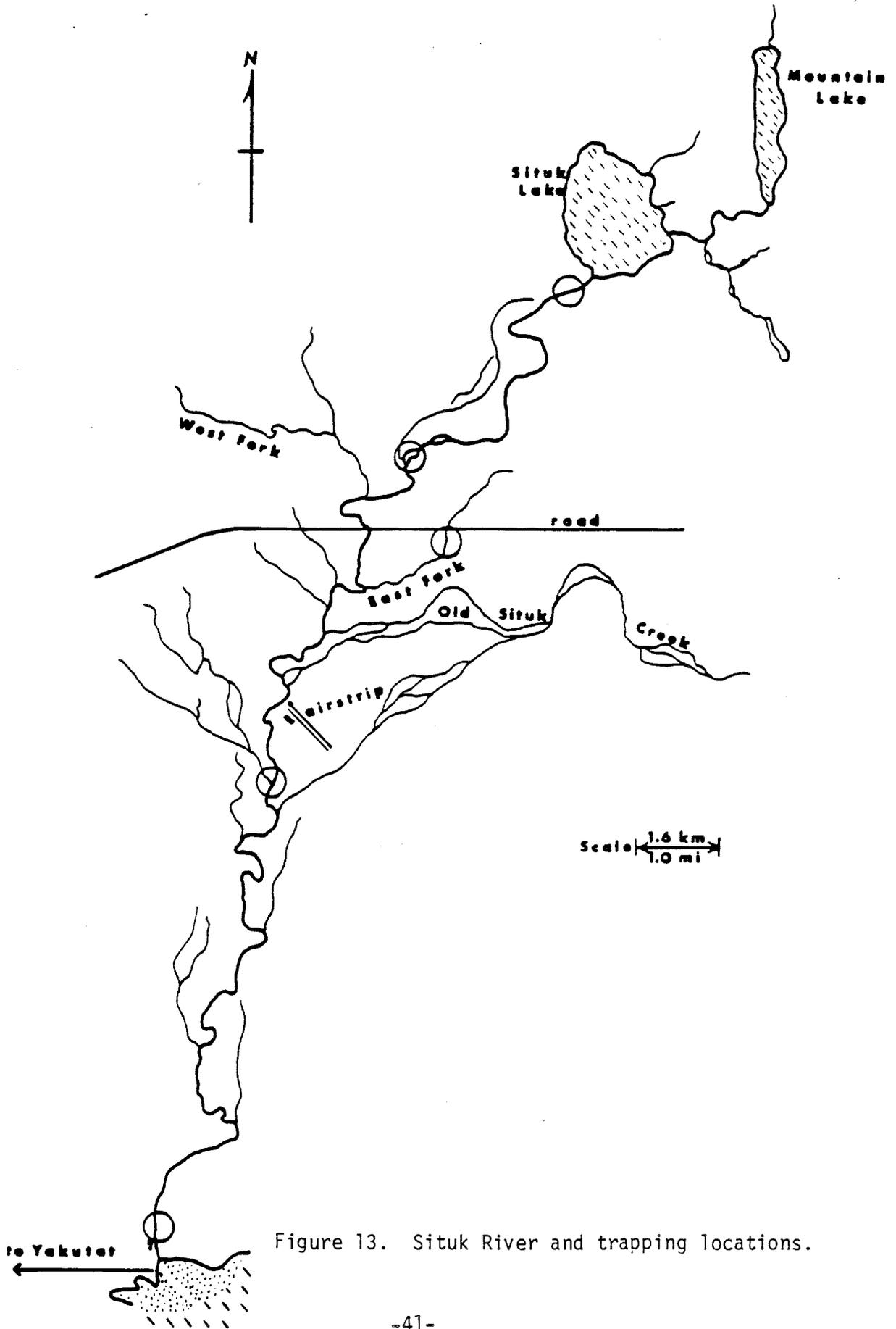


Figure 13. Situk River and trapping locations.

Table 12. Summary of Situk River rearing coho salmon survey (8/16-21/71)<sup>1</sup>.

Location	No. of traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	KS Age 0	DV	RT	Other
<u>Mt. Lake, Situk Lake &amp; interconnecting river</u>								
Mt. Lake inlet	1	0	0	0	0	0	0	---
Mt. Lake shoreline	7	0	2	0	0	0	0	---
Mt. Lake outlet	6	55	5	0	0	0	0	SS age 0 and age I seen
Situk Lake shoreline	16	2	7	0	0	0	0	CO,SB, SS age I, and adult RS jumpers seen
Subtotal (mean catch per trap in parentheses)	30	57(1.9)	14(0.5)	0	0	0	0	
Total coho salmon, all ages combined		71(2.4)						
<u>Situk River downstream from Situk Lake</u>								
Upper Situk River 0.4 km below Lake	6	34	8	1	85	0	13	SB
Branching area 2.4 km above west fork	8	151	202	9	625	19	58	SB
1.2 km below airstrip	8	121	65	0	216	57	10	SB

-Continued-

Table 12. Summary of Situk River rearing coho salmon survey (8/16-21/71)<sup>1</sup> (continued).

Location	No. of traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	KS Age 0	DV	RT	Other
Situk River downstream from Situk Lake - continued-								
0.4 km above old weir cabin	8	131	26	0	217	3	10	SB, 1 age I KS
East fork Situk River to 1.2 km below Hwy	8	549	27	1	8	34	4	4 RS fry
Subtotal (mean catch per trap in parentheses)	38	986(25.9)	328(8.6)	11(0.3)	1151(30.3)	113(3.0)	95(2.5)	4 RS (0.1) 1 KS (0.0+)
Total coho salmon, all ages combined		1325(34.9)						
Total salmonids, all species combined (SS, KS, RS, DV, RT)		2689(70.8)						
TOTALS (mean catch per trap in parentheses)	68	1,043(15.3)	342(5.0)	11(0.2)	1151(16.9)	113(1.7)	95(1.4)	4 RS(0.1)
TOTAL coho salmon, all ages combined		1396(20.5)						
TOTAL salmonids, all species combined (SS, KS, RS, DV, RT)		2760(40.6)						

<sup>1</sup>This table presents only a summary of trapping data for Situk River. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 12.

<sup>2</sup>SS = coho salmon, KS = chinook salmon, RS = sockeye salmon, DV = Dolly Varden char, RT = rainbow trout, SB = stickleback.

- (4) Dolly Varden char and rainbow trout catches were good in the main Situk River below the lake and in the East Fork, averaging 3.0 and 2.5 fish per trap, respectively.
- (5) Catches of all salmonids combined (coho, chinook, and sockeye salmon, Dolly Varden char, and rainbow trout) averaged 70.8 fish per trap downstream from Situk Lake. This was the highest average catch per trap of rearing salmonids encountered in 15 years of minnow trapping in Southeastern Alaska (Gray, et al. 1985, in press).

#### Kadashan Creek:

Kadashan Creek is one of the most valuable pink and chum salmon producers on Chichagof Island and contributes heavily to the seine fisheries in Icy and Chatham Straits. Little was known about coho salmon rearing or adult escapement, at the time of this survey. U.S. Forest Service plans to log this watershed have caused considerable concern among fishery managers over probable impacts to fish production. This survey was an attempt to learn something about the importance of the watershed to coho salmon, the areas of abundance, and size and age of rearing fish. It was also desired to obtain a count of coho salmon spawners, at least in the mainstream.

Kadashan Creek (Figure 14) was reached by floatplane, with access to the headwaters by helicopter. After being dropped off by helicopter in the headwaters of the mainstream two persons walked downstream, set minnow traps at intervals, and counted adult coho salmon and Dolly Varden char. The crew tent-camped at the end of each day and finished the survey at an ADF&G cabin near the mouth of the mainstream when extreme flooding prevented further work.

#### This survey indicated:

- (1) Rearing coho salmon juveniles were exceptionally abundant in Kadashan Creek and were found from headwaters to stream mouth in the mainstream and below the falls on the East Fork. A total of 49 minnow traps set in the mainstream of Kadashan Creek and in the East Fork, above and below the falls, captured 1,091 juvenile coho salmon with an exceptional mean catch of 22.3 fish per trap (Table 13). This was the third highest mean catch of rearing coho salmon encountered in a stream environment in Southeastern Alaska over the 15-year period (1969-1983) (Gray et al. 1985, in press).
- (2) Rearing coho salmon ranged in length from 41 to 110 mm. Age 0 fish were 41 to 65 mm, age I fish were 66 to 105 mm, and age II fish were 103 to 110 mm, as determined from scale samples taken from 49 fish.
- (3) Age composition of 1,091 rearing coho salmon was 73.7% age 0, 25.8% age I, and 0.5% age II, as determined from lengths taken from all minnow trapped fish and the 49 age-length samples.
- (4) Dolly Varden char were abundant throughout the mainstream areas of Kadashan Creek and the East Fork, both above and below the falls, and catches averaged 6.4 fish per trap. A total of 314 fish were

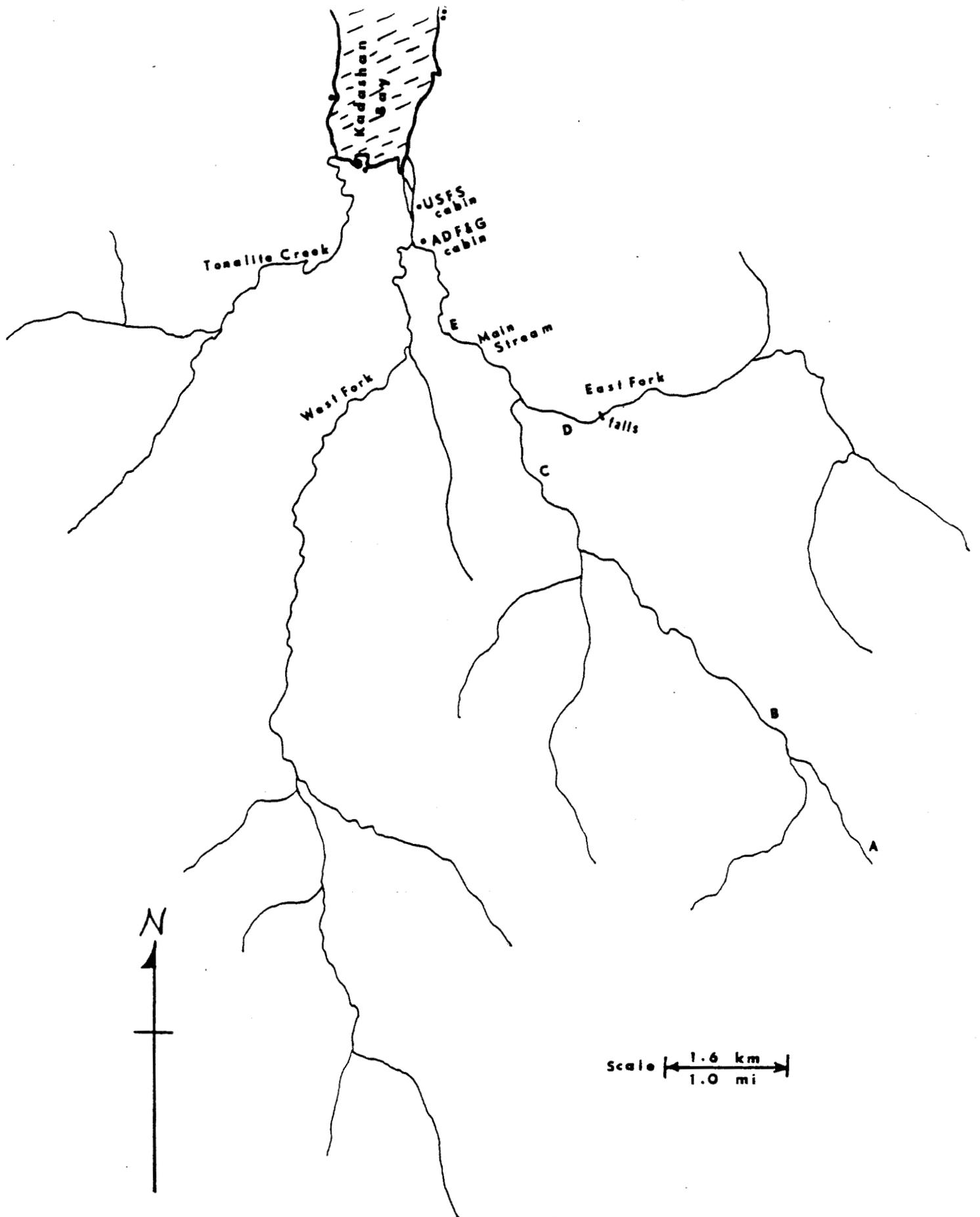


Figure 14. Kadashan Creek and trapping locations.

Table 13. Summary of Kadashan Creek rearing coho salmon survey (10/18-23/72)<sup>1</sup>.

Location	No. of traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	Other
Mainstream just above ADF&G cabin	5	145	11	0	4	0	---
West fork mainstream just above ADF&G cabin	5	41	17	0	19	3	CO
Headwaters of mainstream (Site A)	5	7	44	0	90	2	---
0.8 km below headwaters forks opposite small muskeg (Site B)	10	68	28	1	41	0	---
1.6 to 2.1 km below second tributary from headwaters of mainstream (at U.S.F.S. Porta camp) (Site C)	10	269	124	3	70	1	CO
East Fork of stream below falls (Site D)	4	61	51	1	28	0	---
East Fork above falls <sup>3</sup>	3	0	0	0	39	0	---
One-half way between ADF&G cabin & East Fork (Site E)	7	213	7	0	23	0	---
TOTALS (mean catch per trap in parentheses)	49	804(16.4)	282(5.8)	5(0.1)	314(6.4)	6(0.1)	
Total coho salmon, all ages combined		1091(22.3)					
Total salmonids, all species combined (SS, DV, CT)		1411(28.8)					

<sup>1</sup> This table presents only a summary of trapping data for Kadashan Creek. Individual trap catches by area, soak times, temperatures, and fish sizes are shown in Appendix Table 13.

<sup>2</sup> SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin.

<sup>3</sup> Anadromous salmonids may not be able to get over the East Fork falls, explaining the absence of rearing coho salmon.

taken, which ranged in length from 46 to 158 mm. Six cutthroat trout were taken (0.1 fish per trap) that ranged in length from 58 to 111 mm. The only other species of fish taken were a few sculpins (*Cottus* sp.).

- (5) Based on the abundance of rearing juveniles, Kadashan Creek is an important producer of coho salmon. No adult coho salmon surveys have been completed for this stream, but a partial count of coho salmon adults and Dolly Varden char on 20 October 1972 was 394 and 261, respectively. This count was for the upper mainstream of Kadashan Creek only and was interrupted by heavy rains with rising and murky water. Several chum salmon carcasses were seen in the extreme headwaters of the mainstream, along with coho salmon and Dolly Varden spawners, indicating that the whole length of the mainstream is accessible to anadromous fish.
- (6) More extensive surveys of rearing coho salmon in other tributaries, including the West Fork and Tonalite Creek, are needed as well as a complete escapement count. Rearing Dolly Varden char were captured in several traps above the falls on the east fork of Kadashan Creek, but it was not possible to tell if the falls were a block to coho salmon. More extensive trapping the area above the falls is needed.

Logging of the Kadashan Creek watershed is planned by the U.S. Forest Service in the near future. Because of the importance of an unlogged environment to rearing coho salmon it is very important to expand surveys throughout this watershed to determine areas of use by both juveniles and adults.

#### Naha River:

The Naha River is located about 29 km north of Ketchikan on Behm Canal, at the head of Roosevelt Lagoon in Naha Bay. The Naha River system (Figure 15) is a major pink salmon producer. It also has a large sockeye salmon run, a good chum salmon run, a coho salmon run reported to be as high as 5,000 spawners, and excellent steelhead-rainbow and cutthroat trout fishing. Very little information on the size of coho salmon runs to this system or the distribution and abundance of rearing coho salmon within the system was available. This survey was an attempt to locate major rearing and possibly spawning areas for coho salmon prior to the commencement of logging, which was planned for this watershed.

Access to the Naha River was by commercial airline from Juneau to Ketchikan and by floatplane drop-off at the U.S. Forest Service (USFS) cabin at Heckman Lake. An inflatable Avon boat was used to set minnow traps along the lakeshore of Heckman Lake and Jordan Lake and to gain access to inlet streams. Travel to the river mouth was by foot on trails along the riverbanks. The survey was completed in 4 days with pick-up at tidewater on the last day.

This survey indicated:

- (1) Deer Creek, the southeast inlet flowing into Heckman Lake had exceptional minnow trap catches of rearing coho salmon. Dolly Varden and

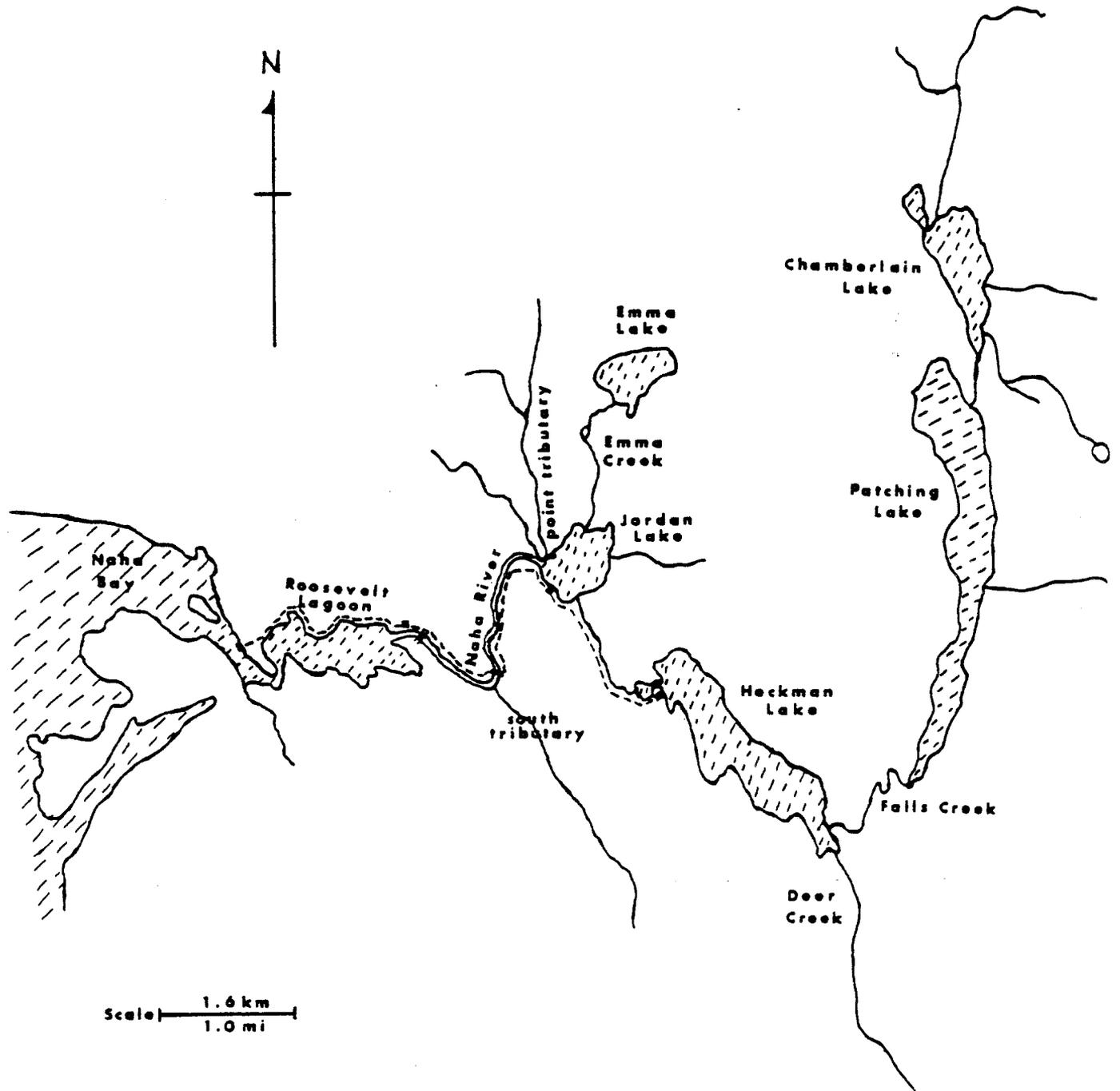


Figure 15. Naha River and trapping locations.

cutthroat trout were also present in the 0.8 km of stream where traps were set. Mean catches of these species were 22.8, 1.8, and 0.5 fish per trap, respectively (Table 14). Numerous very small (age 0) coho salmon were seen in the first 1.2 km of stream above the lake. Deer Creek is reported to be a major spawning stream for coho salmon and sockeye salmon. The best spawning area was found in the lower 2.5 km where the stream is 4 to 5 m wide by 0.3 m in depth, flowing 60 cps, with 90% excellent gravel, 5% boulders, 5% sand and silt, and has several good holding pools to 2 m deep. There was excellent cover (9.5°C) at the time of the survey. Deer Creek is a critical spawning area that should not be logged.

- (2) Falls Creek, the east inlet flowing into Heckman Lake from Patching Lake has an 8 to 9 m falls that is a barrier to fish migration. This large falls is located 2 km upstream from Heckman Lake and is just downstream from Patching Lake. Age 0 coho salmon were trapped just below this large falls indicating that three other falls further downstream (2.1, 3.7, and 1.8 m) were all passable to adult coho salmon. Good catches of rearing coho salmon were taken in Falls Creek and cutthroat and rainbow trout were also present. Mean trap catches of these species were 7.2, 0.5, and 0.8 fish per trap, respectively. Falls Creek is 12 to 15 m wide by 1.2 m deep, with a flow of 100 cps. The bottom is mostly bedrock and boulders with little gravel. At the time of the survey the water was 12°C and clear.
- (3) Heckman Lake had good trap catches of rearing coho salmon and cutthroat trout, but catches varied in different portions of the lake. Mean trap catches of these species were 8.1 and 0.6 fish per trap, respectively.
- (4) Jordan Lake had very good catches of rearing coho salmon with cutthroat trout and rainbow trout also present. Mean trap catches for these species were 15.0, 0.8, and 0.2 fish per trap, respectively. There was a higher proportion of age 0 coho salmon found in Jordan Lake than in Heckman Lake.
- (5) Emma Creek, a tributary to Jordan Lake, had fair catches of rearing coho salmon and rainbow trout (4.0 and 2.0 fish per trap, respectively). This stream was 4.5 m wide by 0.3 m deep with a flow of 45 cps. The bottom consists of loose but stable, clean gravel at least 0.5 km upstream from the lake.
- (6) A major tributary flowing into Jordan Lake on a point at the outlet had good trap catches of rearing coho salmon, Dolly Varden char, and cutthroat trout (7.0, 6.5, and 5.0 fish per trap, respectively). This stream was 9 m wide by 0.2 m deep with a flow of 75 cps, and the bottom was unstable and flood prone with pools to a 1.8 m deep and log jams. The water was clear with a temperature of 7.5°C at the time of the survey, and the stream appeared to be accessible for 3.2 km.

Table 14. Summary of Naha River rearing coho salmon survey (7/10-13/73)<sup>1</sup>.

Location	No. of traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	RT	Other
Heckman Lake (shorelines & around inlets & outlet)	16	6	124	0	0	10	0	SB,CO
Deer Creek (southeast tributary to Heckman Lake)	4	1	86	4	7	2	0	CO
Falls Creek (inlet flowing into Heckman Lake from Patching Lake)	4	4	25	0	0	2	3	---
Jordan Lake (shoreline)	6	46	44	0	0	5	1	SB,CO
Inlet from Heckman Lake	1	4	0	0	0	0	0	---
Emma Creek	1	0	4	0	0	0	2	---
First tributary west of Emma Creek	2	0	14	0	13	10	0	---
Roosevelt Lagoon	6	5	8	0	25	9	0	SB,CO
TOTALS (mean catch per trap in parentheses)	40	66(1.6)	305(7.6)	4(0.1)	45(1.1)	38(1.0)	6(0.2)	
Total coho salmon, all ages combined		375(9.4)						
Total salmonids, all species combined (SS, DV, CT, RT)		464(11.6)						

<sup>1</sup>This table presents only a summary of trapping data for Naha River. Individual trap catches by area, soak times, temperatures, and fish sizes are shown in Appendix Table 14.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RT = rainbow trout, CO = sculpin, SB = Stickleback.

- (7) A tributary to the Naha River located 1.6 km upstream from Roosevelt Lagoon, on the south bank at a bend downstream from the footbridge, had numerous age 0 coho salmon but no traps were set. This stream was 4 m wide, 15 cm deep, with a flow of 30 cps, a muskeg brown color, good gravel, and a stable appearing bottom, was 10°C at the time of the survey, and contained in-stream logs and cover from large streamside trees.
- (8) Roosevelt Lagoon contained fair numbers of rearing coho salmon, Dolly Varden char, and cutthroat trout (2.2, 4.2, and 1.5 fish per trap, respectively) and appeared to have a low surface salinity.
- (9) In general, it appears that rearing coho salmon, Dolly Varden char, cutthroat trout, and rainbow trout are dispersed throughout the Naha River system in good numbers, as far upstream as the barrier falls, 2 km above Heckman Lake. Overall mean trap catches for these species were 9.4, 1.1, 1.0, and 0.2 fish per trap, respectively. The overall mean catch for all salmonids combined was 11.6 fish per trap. Adult spawning ground surveys are recommended to locate the most important areas and to obtain an idea of the total number of coho salmon adults using this system. Logging is not recommended in the Naha River watershed because of the importance of commercial fish production as well as its nearness to and easy access from Ketchikan and its popularity as a sport fishing area.

#### Windfall Lake:

Windfall Lake is located about 32 km north of Juneau and is accessible by highway to the Herbert River and about 3 km by trail to the lake (Figure 16). Windfall Lake is noted for coho salmon, Dolly Varden char, and cutthroat trout sport fishing and is known to have a good run of sockeye salmon. It was desired to learn something of the importance of this system to coho salmon and to locate the areas of greatest use by rearing fish.

The trail to Windfall Lake was reached by truck from Juneau and the lake was reached by hiking along 3 km of trail. All camping equipment, food, traps, and gear for the survey were carried in two backpacks. The survey was conducted by two persons working out of a tent camp pitched near the lake outlet. A USFS skiff left at the lake was used to set traps around the lakeshore and to reach the inlet stream. Two and a half days were spent trapping and surveying the outlet, lake, and inlet areas and about one day packing in and out.

The following observations were made during this survey:

- (1) The outlet, just downstream from Windfall Lake is muskeg-colored with 2 to 2.5 m visibility, weedy, 10 m wide, 1.5 to 2.5 m deep, and was 14°C at the time of the survey. Downstream (1.5 km) from the lake outlet the stream consists mainly of pools and a few riffles, is 0.3 to 2.0 m in depth and has more current than upstream.
- (2) The lake is shallow and muskeg-colored, with lily pads, arrowhead, horsetail, and other weeds around the shorelines for cover.

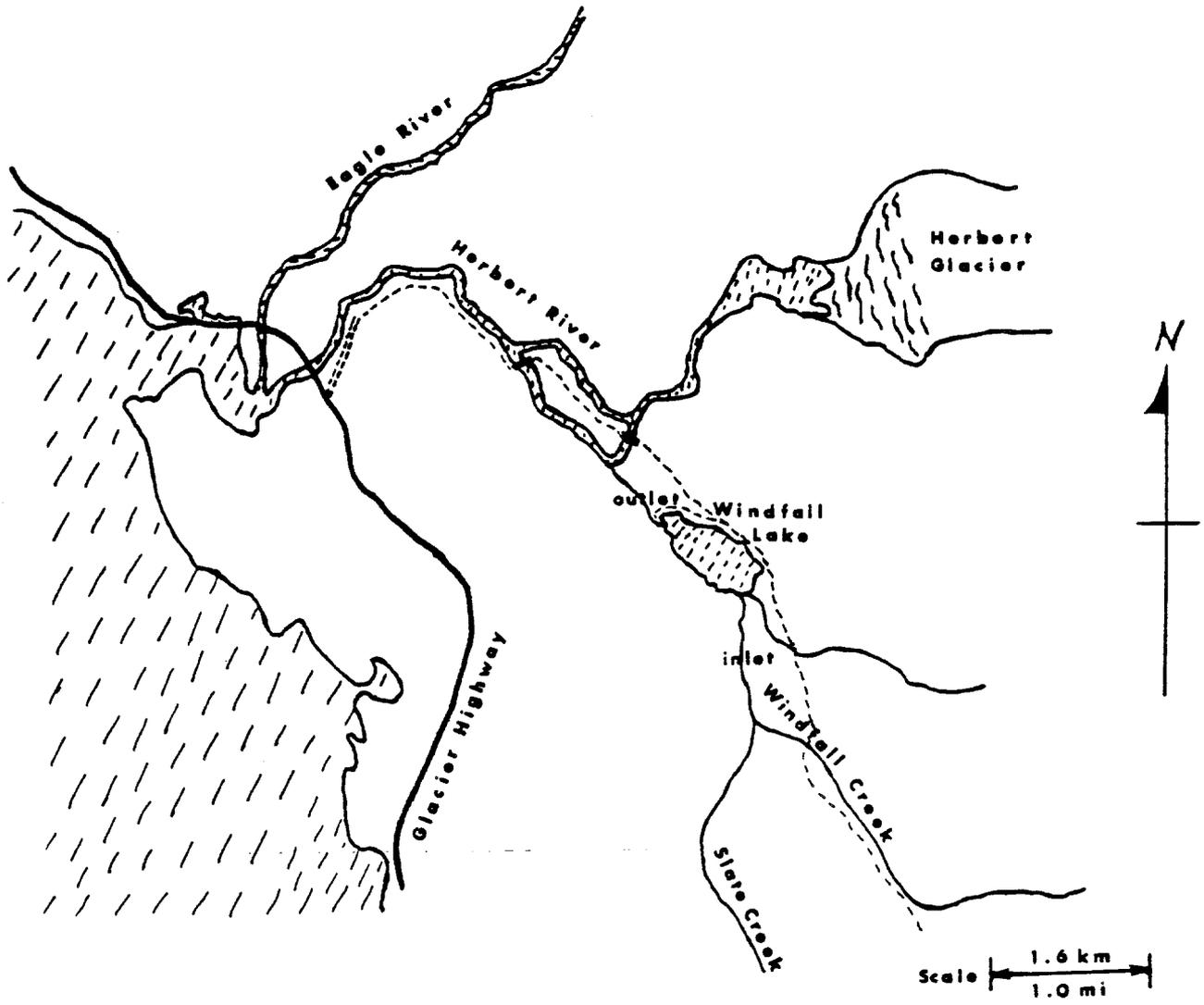


Figure 16. Windfall Lake and trapping locations.

- (3) A ground survey was made on the main southwest inlet stream, Windfall Creek. This inlet flowing into Windfall Lake is 4.5 to 6 m wide at the lake and 1 to 2 m deep with numerous holes 2.5 to 3 m deep. This clearwater stream has several beaver dams on it. The bottom consists of sand and gravel, and the water temperature was 8°C at the time of the survey. About 180 m upstream from the lake the stream narrows to 2 m wide and 2 m deep. About 50 large Dolly Varden char spawners 1 to 2.5 kg were observed in this part of the stream. Boat travel is possible for 0.4 to 0.5 km above the lake until the stream splits into numerous narrow channels blocked by beaver dams and overhung with alders, tall grass, and dead timber. About 0.4 km above a large beaver dam the stream reformed into a 3 to 8 m wide, 15 to 45 cm deep section with holes 1 to 1.25 m deep. The streambed consisted of excellent gravel and was overhung by mature spruce cover. A total of 1,246 spawning sockeye salmon and 39 carcasses were counted within 3 to 4 km above the lake. Numerous coho salmon (age 0 and fingerlings) and Dolly Varden char (age 0) were also seen in the inlet stream. The stream continues on for at least another 0.8 km but there was insufficient time to walk further or to check several side tributaries entering the main stream. The inlet stream provides excellent spawning for sockeye and coho salmon, Dolly Varden char, and cutthroat trout and is a good rearing area for coho salmon.

This survey indicated:

- (1) Catches of coho salmon juveniles were exceptional in the outlet stream, averaging 29.2 fish per trap, excellent in the lake, averaging 18.3 per trap, and very good in the inlet stream, averaging 13.7 per trap (Table 15). The overall mean catch of 20.9 coho salmon juveniles per trap for the lake, inlet, and outlet combined, was excellent. The overall mean trap catch for all salmonids combined (coho salmon, Dolly Varden char, cutthroat trout, and sockeye salmon) was 23.3 fish per trap. A total of 670 coho salmon juveniles, 69 Dolly Varden char, 6 cutthroat trout, and one sockeye salmon juvenile, were caught in the 32 traps set in the outlet, lake, and inlet. Several minnow traps set in the Herbert River averaged 2.5 Dolly Varden char per trap, but no coho salmon were taken there.
- (2) The age composition of 670 coho salmon was calculated by length groupings from scale samples and lengths from 94 fish (Table 16). Age class composition of the total sample consisted of 45.4% age 0, 52.7% age I, and 1.9% age II. The percent of coho salmon in each age class and range in lengths differed between samples taken from the outlet, inlet, and the lake. In general, age 0 and age I fish were smaller in the colder inlet stream and larger in the lake and outlet stream. Age II fish were present in the lake and outlet stream.
- (3) Based on minnow trap catches and examination of the habitat, the Windfall Lake system would be classed as an important coho salmon producer. It is also important for sockeye salmon, Dolly Varden

Table 15. Summary of Windfall Lake rearing coho salmon survey (7/30-8/1/73)<sup>1</sup>.

Location	No. of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	Other
Windfall Lake outlet	9	140(15.6)	117(13.0)	6(0.7)	18(2.0)	5(0.6)	SB,CO
		263(29.2)					
Windfall Lake	20	149(7.4)	210(10.5)	7(0.4)	1(0.0+)	1(0.0+)	SB 1 RS (age 0)
		366(18.3)					
Windfall Lake inlet stream	3	15(5.0)	26(8.7)	0	50(16.7)	0	---
		41(13.7)					
TOTALS (mean catch per trap in parentheses)	32	304(9.5)	353(11.0)	13(0.4)	69(2.2)	6(0.2)	1 RS (age 0)
Total coho salmon, all ages combined		670(20.9)					
Total salmonids, all species combined (SS, RS, DV, CT)		746(23.3)					
Herbert River (at trail end by parking lot)	2	0	0	0	5(2.5)	0	---

<sup>1</sup>This table presents only a summary of trapping data for Windfall Lake. Individual trap catches by area, soak times, temperatures, and fish sizes are shown in Appendix Table 15.

<sup>2</sup>SS = coho salmon, RS = sockeye salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin, SB = stickleback.

Table 16. Windfall Lake rearing coho salmon age and size composition (7/30-8/1/73).

Age Class	Windfall Lake Outlet Stream	Windfall Lake	Windfall Lake Inlet Stream	Total
Age 0	53.2% (50-68 mm)	40.7% (45-66 mm)	36.6% (47-57 mm)	45.4%
Age I	44.5% (72-99 mm)	57.4% (68-114 mm)	63.4% (58-87 mm)	52.7%
Age II	2.3% (100-111 mm)	1.9% (120-129 mm)	---	1.9%
Sample size for aged fish	N = 25	N = 41	N = 28	94

char, and cutthroat trout. Further surveys for spawning adult coho salmon should be conducted to learn the total number and distribution of spawners and run timing.

#### Staney Creek:

Staney Creek is one of the most important producers of salmon in Southeastern Alaska. Old Fish and Wildlife Service weir escapement counts of over 366,000 pink salmon, 43,000 chum salmon, and over 20,000 coho salmon have been reported for a single season (Orrell et al. 1963).

Staney Creek is one of the very few streams in all of Southeastern Alaska with a coho salmon escapement of this magnitude. Prior to this survey little or no information on the abundance and distribution of rearing salmonids in this stream system was available even though over half of the watershed had been clearcut and logging of additional areas was under way. The Alaska Department of Fish and Game recommended that the Staney Creek watershed remain unlogged because of its very high production of commercial and sport fish species and its high wildlife and recreational values.

Staney Creek is located 113 km northwest of Ketchikan on the northwest coast of Prince of Wales Island and was reached by floatplane at a point just north of the river mouth (Figure 17).

One night was spent at the USFS cabin by the two-man crew while traps were set at Site A. One day was spent hiking upstream to a temporary campsite located between Sites B and C. A day trip was made up the southwest tributary and traps set at Sites E and F. Another trip was made to the forks area of the southeast tributary and traps were set at Site D. On the return trip to the stream mouth following the road, traps were set at Site G while on the following day, traps were set at Site H. Access through the logged area was difficult, particularly in areas with slash and areas where the roadbed gravel had been removed.

The only block to fish migration found during this survey was a 5 m falls just below the 48 km road crossing of the northeast tributary. The canyon area of Staney Creek was hiked but no falls were observed in the section where Silver Salmon Falls was marked on the topographic map. A gauging station is located above the bend in Section A where stream dimensions are approximately 25 m by 0.6 m with a flow of 30 cps. The lower mainstream bottom is gravel and silt, with boulders and gravel below the lower bridge crossing. Most of the upper river is one-third each of gravel, boulder, and bedrock, except for sand and silt areas in the upper southwest tributary, unstable gravel in the upper southeast tributary, and stable gravel and silt in the north tributary.

On 1 August a small run of early coho salmon was entering the system and loggers from nearby areas were fishing for these by bringing boats upstream to the large pool in area A on the high evening tides. Many schooled pink salmon were also seen in this area and a small run of early chum salmon was entering the southeast tributary.

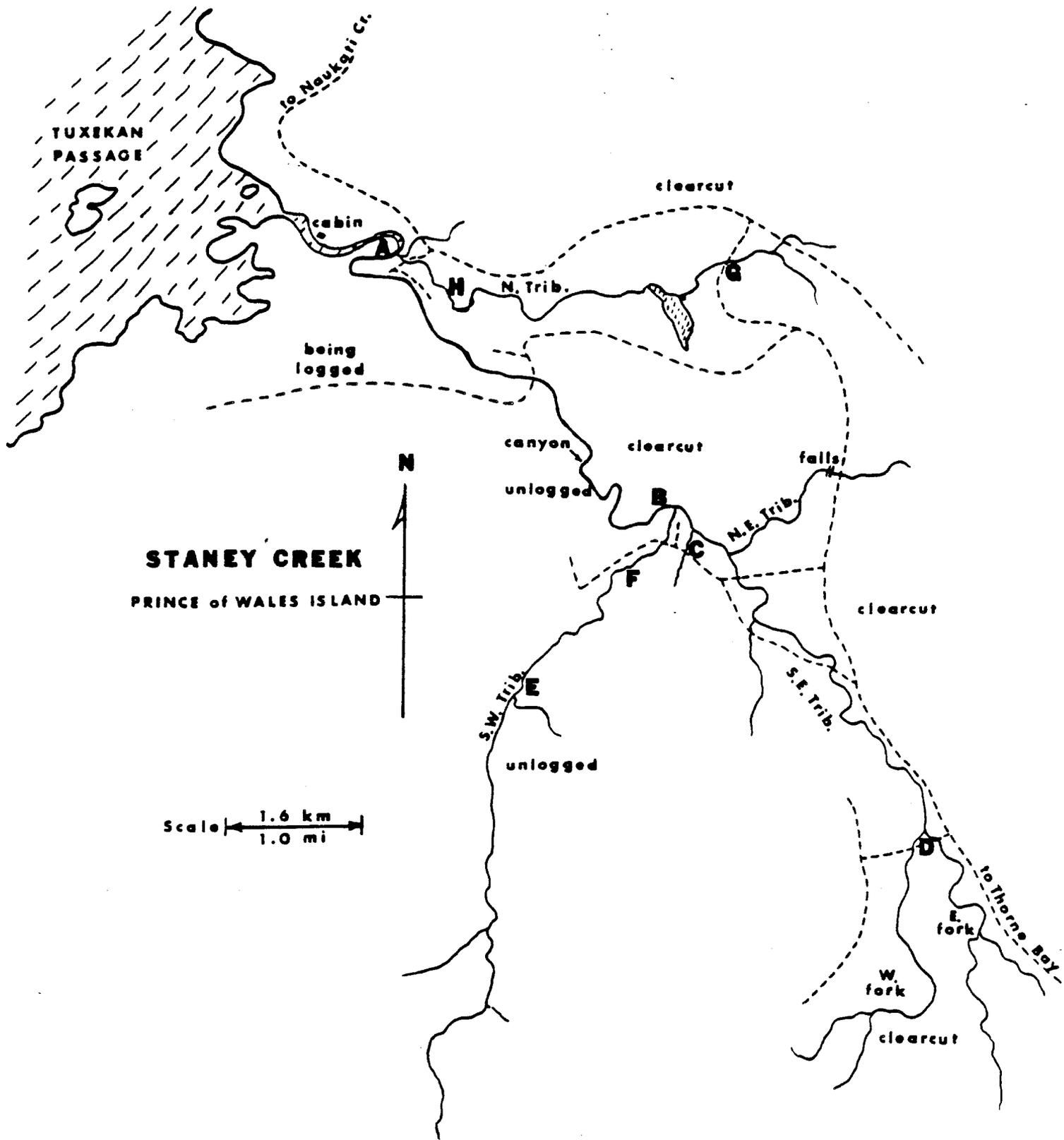


Figure 17. Staney Creek and trapping locations.

This survey indicated:

- (1) Catches of rearing coho salmon were very good, averaging 13.5 fish per trap for all trapping areas in Staney Creek (Table 17). A total of 745 coho salmon juveniles were captured in 55 traps set throughout Staney Creek in eight different areas (Sites A - H) and mean catches ranged from 4.9 to 27 fish per trap, depending on the area. The total catch consisted of 1,021 salmonids (coho salmon, Dolly Varden char, cutthroat trout, and rainbow trout), and averaged 18.6 fish per trap for the 55 traps that were set. These high trap catches indicate that Staney Creek is a very productive stream (Table 17).
- (2) Coho salmon juveniles were separated into age groups based on fish length measurements and scales and lengths taken from 99 fish and showed that 56.2% were age 0, 39.7% were age I, and 4.0% were age II.
- (3) While coho salmon were found throughout Staney Creek, other species of salmonids were more common in certain areas. Resident cutthroat trout and Dolly Varden char were found in the lake of the north tributary and rainbow trout (steelhead) were found in most of the upstream rocky areas. Dolly Varden char were most abundant at Site D, on the southeast tributary and Site G, on the north tributary where they averaged 7.7 and 8.5 fish per trap. The overall mean catch for this species in Staney Creek was 1.9 fish per trap. Cutthroat trout were most abundant at Site G, on the north tributary (2.2 fish per trap) and averaged 0.2 fish per trap for all areas.
- (4) One of the most significant observations was the exceptionally high density of rearing rainbow trout (steelhead); higher than observed in any other survey (except Plotnikof Lake), including the Situk and Naha Rivers that are known for rainbow (steelhead) sport fishing. The highest minnow trap catches of this species were made at Site C (a muskeg-fed tributary near the southwest tributary), Site D (the southeast tributary), and Site H (the north tributary), where catches averaged 6.3, 6.0, and 6.9 fish per trap, respectively. The overall mean catch was 2.9 fish per trap for all areas combined. Jones (personal communication) reports an excellent fall and spring run of steelhead to this stream and there was evidence of moderately heavy fishing activity in the largest pool at Site B.

#### Pavlof River:

The Pavlof River is an important spawning and rearing area for sockeye, coho, pink, and chum salmon, cutthroat trout and Dolly Varden char. Sockeye salmon escapements of up to 50,000 fish were reported to this system prior to 1900. Escapement counts from more recent years show up to 5,000 pink, 1,000 chum, 4,000 sockeye, and 2,000 coho salmon (Huizer et al. 1970). This system is noted for an early run of coho salmon and is a popular sport fishing area for this species. Plans for logging this area and a lack of information on abundance and distribution of rearing coho salmon and other salmonids within the watershed prompted this survey.

Table 17. Summary of Staney Creek rearing coho salmon survey (8/1-7/73)<sup>1</sup>.

Location	No. of traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	DV	CT	RT	Other
Site A: Lower bend of river and north tributary mouth	9	<u>200(22.2)</u>	<u>20(2.2)</u>	<u>23(2.6)</u>	1(0.1)	2(0.2)	0	CO
		243(27.0)						
Site B: Mainstream from fork with southwest tributary to 140 km downstream	7	<u>14(2.0)</u>	<u>15(2.1)</u>	<u>5(0.7)</u>	1(0.1)	0	11(1.6)	CO
		34(4.9)						
Site C: Muskeg-fed tributary just up- stream from southwest tributary	7	<u>10(1.4)</u>	<u>40(5.7)</u>	<u>2(0.3)</u>	2(0.3)	0	44(6.3)	CO
		52(7.4)						
Site D: Southeast tributary at township 32 roadcrossing	7	<u>31(4.4)</u>	<u>59(8.4)</u>	0	54(7.7)	0	42(6.0)	CO
		90(12.9)						
Site E: Southwest tributary 4.0 km upstream	7	<u>66(9.4)</u>	<u>63(9.0)</u>	0	9(1.3)	0	3(0.4)	---
		129(18.4)						
Site F: Southwest tributary 1.2 km upstream from rapids	7	<u>18(2.6)</u>	<u>27(3.9)</u>	0	2(0.3)	0	9(1.3)	CO
		45(6.4)						
Site G: North tributary at road crossing upstream from lake	4	<u>34(8.5)</u>	<u>46(11.5)</u>	0	34(8.5)	9(2.2)	0	SB
		80(20.0)						
Site H: North tributary 1.1 km upstream from main river	7	<u>46(6.6)</u>	<u>26(3.7)</u>	0	4(0.6)	1(0.1)	48(6.9)	SB,CO
		72(10.3)						
TOTALS (mean catch per trap in parentheses)	55	419(7.6)	296(5.4)	30(0.5)	107(1.9)	12(0.2)	157(2.9)	
Coho salmon age composition		<u>(56.2%)</u>	<u>(39.7%)</u>	<u>(4.0%)</u>				
Total coho salmon, all ages combined		745(13.5)						
Total salmonids, all species combined (SS, DV, CT, RT)		1021(18.6)						

<sup>1</sup>This table presents only a summary of trapping data for Staney Creek. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 16.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RT = rainbow trout, CO = sculpin, SB = stickleback.

The ADF&G, Sport Fish Division, recommended to the USFS that the Pavlof River system be removed from logging plans because of its high scenic, recreational, and sport fishing values, as well as its contribution to commercial fisheries. It was one of a number of systems selected in Southeastern Alaska to be set aside for fish and wildlife production and the recreational use of future generations.

The Pavlof River is located 64 km southwest of Juneau at Freshwater Bay on the northeast side of Chichagof Island (Figure 18). It is a very clear, medium-sized river flowing about 14 km before entering Pavlof Lake. Pavlof Lake is a clear, mostly shallow lake with scattered weeds, about 1.2 km long, that empties over a falls into saltwater. A Denali steep pass fish ladder is located at the falls at tidewater.

Access to the headwaters of the river for the two-man crew, inflatable boat, camping, and field gear was by helicopter. On 9 July 1975 the crew was dropped off at the large upper (most westerly) muskeg meadow on the upper Pavlof River. During the survey, the headwaters forks, part of the mainstream, and the northwest tributary were surveyed by walking upstream from the drop-off point. The mainstream was floated to the second large muskeg meadow, the mainstream falls, where tributaries upstream and downstream from the falls were surveyed, and to the lake where trapping continued, and included several small inlet streams. The survey was completed in seven days and pickup was made at the lake by floatplane.

This survey indicated:

- (1) The main Pavlof River and both headwaters forks (south and west) upstream from the upper (most westerly) muskeg meadow are probably the major spawning areas for coho salmon in the Pavlof River. The northwest tributary in the same area is probably important for spawning as well as rearing. The tributary just upstream from the mainstream falls is important for spawning and rearing the area downstream from a 2.4 m falls. The mainstream falls, approximately 3 km upstream from Pavlof Lake, does not appear to be much of a hindrance to migration of adult coho salmon, at least not at the water levels encountered during the survey. These falls could be a problem for some other species of salmonids and should be examined further during the spawning runs. The highest point in the mainstream falls was a drop of about 2 m on a slanted falls that an adult coho salmon could swim up with little difficulty. The first tributary downstream from the mainstream falls is used by coho salmon for spawning, as evidenced by rearing fish found upstream from a falls. Both coho salmon and Dolly Varden char were present in this tributary, downstream from the falls. The second tributary downstream from the mainstream falls is an important spawning and rearing area for coho salmon, Dolly Varden char, and cutthroat trout. Two small streams flowing into Pavlof Lake, one on the south shore of the lake where it narrows down about 200 m above the falls, and another on a grassy point 125 m west of the inlet of Pavlof River, contained large numbers of rearing coho salmon, Dolly Varden char, and cutthroat trout. Both of these small streams are probably used by a few spawners and

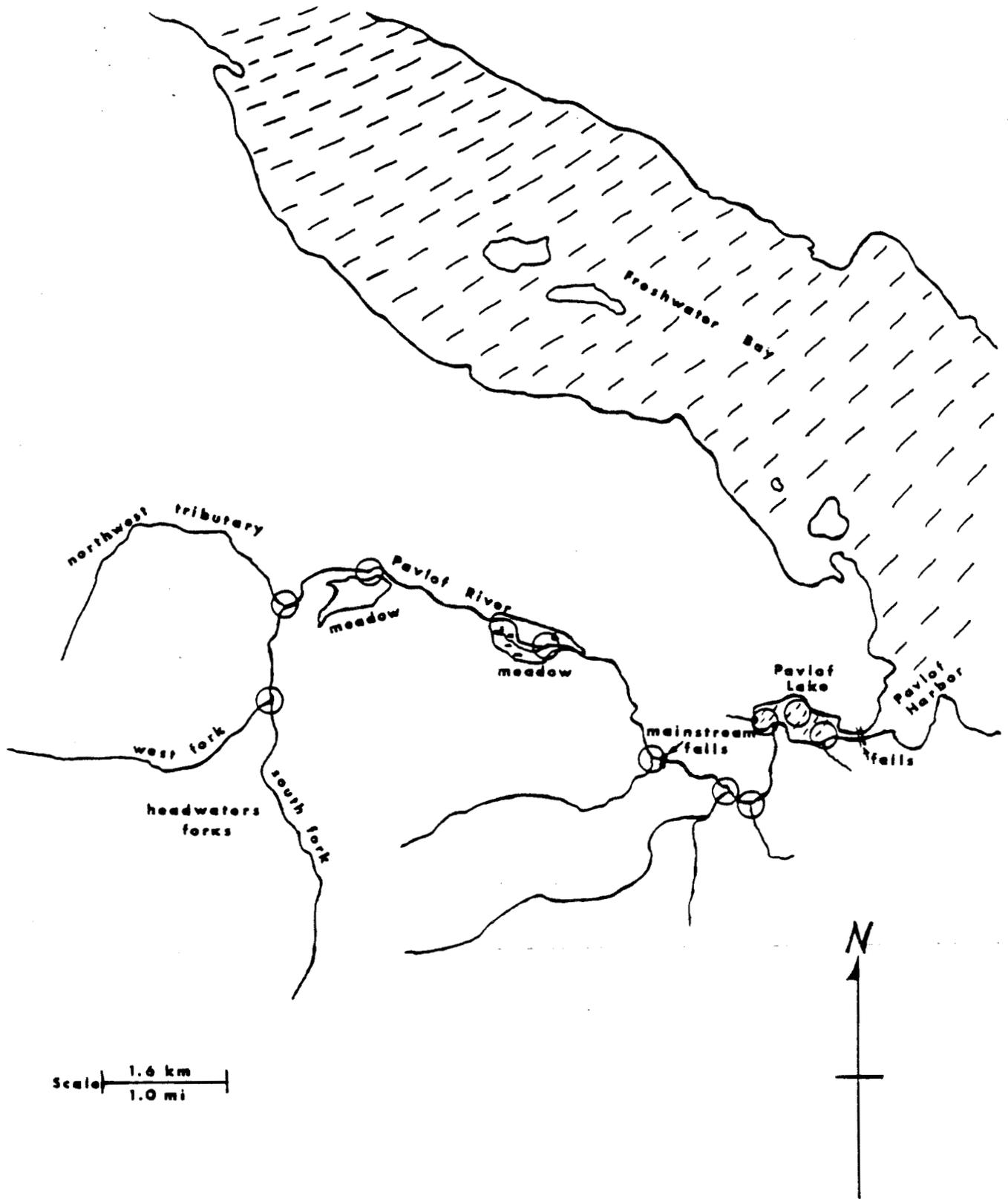


Figure 18. Pavlof River and trapping locations.

are certainly important to rearing salmonids<sup>1</sup>.

Most coho salmon probably spawn in the headwaters of the Pavlof River, with smaller but important numbers spawning in the north-west tributary near the headwaters of the river and in the other three mainstream tributaries, particularly the second one downstream from the mainstream falls. A few fish probably spawn in the two small inlet streams flowing into the lake.

- (2) Minnow trap catches were good and very good in specific areas, averaging 6.4 coho salmon per trap for the survey, from the headwaters of Pavlof River to Pavlof Lake outlet (Table 18). A total of 441 coho salmon were captured in 69 trap sets. A total of 784 salmonids of all species (coho salmon, Dolly Varden char, and cutthroat trout) were captured in 69 traps for a mean catch of 11.4 fish per trap. All species of salmonids were distributed from the headwaters of the river to Pavlof Lake.
- (3) A majority (nearly 80%) of rearing coho salmon minnow trapped in the Pavlof River system were captured in warmer beaver ponds, side sloughs, and side channels to the mainstream (Table 18). Some of the side stream rearing areas were connected to the mainstream and others were accessible only on high water. The mainstream was a much poorer rearing area than the warmer sidestream habitat.
- (4) Habitat preference of rearing salmonids in the Pavlof River system was dependent to a considerable extent on water temperature. Minnow trap catches of rearing coho salmon averaged 23.2 fish per trap in beaver ponds, sloughs, and tributaries warmer than 13° C (13.5 - 19°C) and only 1.3 per trap in the mainstream Pavlof River and tributaries cooler than 12°C (7-11.5°C) (Table 19). Pavlof Lake had mid-range temperatures, warmer than 10°C (10.5 - 15.5°C), and coho salmon catches double that of cool water areas (2.6 per trap). Pavlof Lake contained considerable numbers of rearing coho salmon but less than expected, possibly because of predation by cutthroat trout (25 - 40 cm) in the lake. Rearing Dolly Varden char as well as cutthroat trout were fairly abundant in Pavlof Lake and the lake is of major importance to rearing sockeye salmon, which are usually not attracted to baited minnow traps. Dolly Varden char and cutthroat trout were most abundant in tributary streams to the Pavlof River and lake which were colder than 12° C (Table 19), although they were found in all habitat types.

The phenomena of rearing coho salmon moving from cooler mainriver spawning areas into warmer side slough and beaver pond areas has been observed in many areas in Southeastern Alaska. In general, water temperatures ranging between 13° and 18.5° C seem to be pre-

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<sup>1</sup> Detailed descriptions of the Pavlof River, including tributary streams, spawning and rearing habitat is on file at the ADF&G Coho Research office in Juneau, Alaska.

Table 18. Summary of Pavlof River rearing coho salmon survey (7/9-16/75<sup>1</sup>).

Location	No. of Traps	SS <sup>2</sup> Age 0	SS Age I	SS Age II	SS Age III	DV	CT	Other	Water Temperature
Mainstream and south and west forks in headwaters	8	0	2	0	0	73	0	---	(7 - 9°C)
Side slough and side channel in headwaters.	2	1	9	0	0	3	2	---	(13.5 - 14.5°C)
Mainstream and both forks of northwest tributary.	8	2	16	3	0	55	1	---	(8.5 - 11°C)
Beaver pond and slough near northwest tributary.	7	86	120	0	0	41	2	SB	(14.5 - 18.5°C)
Mainstream by second muskeg.	2	0	0	0	0	0	0	---	(9°C)
Small ponds, highwater channels and outlet of marshy lake by second muskeg.	6	36	79	15	2	16	0	SB,TP	(17 - 19°C)
Mainstream upstream and downstream from falls.	5	0	1	0	0	9	0	---	(8°C)
Tributary upstream from falls.	2	0	5	0	0	21	6	---	(10°C)
First tributary downstream from falls.	4	0	0	0	0	3	0	---	(7 - 8°C)
Second tributary downstream from falls.	3	0	0	0	0	24	7	---	(8.5°C)
Pavlof Lake shore.	17	2	41	2	0	42	2	SB	(10.5 - 15.5°C)
Tributaries and off inlet to Pavlof Lake.	5	0	18	1	0	27	9	---	(8 - 11.5°C)
TOTALS (mean catch per trap in parentheses)	69	127(1.8)	291(4.2)	21(0.3)	2(0+)	314(4.6)	29(0.4)		
Coho salmon age composition		(28.8%)	(66.0%)	(4.8%)	(0.4%)				
Total coho salmon, all ages combined		441(6.4)							
Total salmonids, all species combined (SS, DV, CT)		784(11.4)							

<sup>1</sup>This table presents only a summary of trapping data for Pavlof River. Individual trap catches by area, soak times, water temperatures, and fish sizes are shown in Appendix Table 17.

<sup>2</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, SB = stickleback, TP = tadpole.

Table 19. Habitat preference of rearing salmonids in Pavlof River system (7/9-16/75).

Number of Traps	Total Catch (mean catch per trap in parentheses)			Water Temperature	Habitat Type
	SS <sup>1</sup>	DV	CT		
37	48 (1.3)	212 (5.7)	23 (0.6)	<12°C (7 - 11.5°)	Main river and tributaries to river and lake less than 12°C
15	348 (23.2)	60 (4.0)	4 (0.3)	>13°C (13.5 - 19°)	Beaver ponds, sloughs, and tributaries to main river and lake greater than 13°C
17	45 (2.6)	42 (2.5)	2 (0.1)	>10°C (10.5 - 15.5°)	Pavlof Lake shoreline
69	441 (6.4)	314 (4.6)	29 (0.4)	TOTALS	

<sup>1</sup>SS = coho salmon juveniles, all ages combined

DV = Dolly Varden char

CT = cutthroat trout

ferred by rearing coho salmon. After the fry hatch out of the gravel in the headwaters they appear to drop downstream and then ascend side sloughs and beaver ponds on high water levels, apparently homing in on warmer water flowing into the mainstream. The warmer water, richer food supply, and little or no current in these side sloughs probably provide much better growth than could be attained in the colder, swifter, areas of the mainstream which have less abundant food organisms. In addition, the side sloughs and small tributaries provide shade and cover from timber, brush, and overhanging banks that are often not present in the mainstream areas. Exit from the side sloughs and beaver ponds by coho smolts may be difficult or impossible during dry years and probably occurs during spring or fall flooding. These important sloughs, beaver ponds, and small tributary areas could be easily damaged by roadbuilding or logging along the mainstream, or parallel to any of the tributaries, or across any of the muskeg or meadow sloughs. It is recommended that roadbuilding and logging be kept out of these areas completely in order to maintain coho salmon spawning and rearing habitat at the highest level of productivity.

- (5) The age composition of 441 coho salmon that were trapped consisted of 28.8% age 0, 66.0% age I, 4.8% age II, and 0.4% age III (Table 18). Age was determined from lengths of all fish trapped and lengths and scale samples from 226 fish. There was considerable overlap in sizes of the 226 fish trapped, measured, and scale sampled from the Pavlof River system. Fry (age 0) ranged from 43 to 60 mm, age I from 52 to 100 mm, age II from 70 to 126 mm, and age III from 113 to 126 mm. Most of the largest fish came from the best looking habitat, with warmer water (13 to 18.5°C) and less current. Fish in the warmer side sloughs and beaver ponds probably grow much faster than fish in the colder mainstream and tributaries. Individual differences in growth of fish in the same habitat can also be considerable. The faster growing fish probably smoltify and go to sea at an earlier age than the slower growing fish. These two reasons, differences in rearing habitat and individual growth rates probably account for the overlap in lengths of fish of different ages.
- (6) The Pavlof River and lake system is an exceptional area for fish and wildlife production. It is an exceptionally scenic area that should be preserved and production of commercially valuable salmonids, sport fishing, deer hunting, camping, canoeing, and hiking<sup>1</sup>.

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<sup>1</sup> Since this survey was conducted in 1975 the Pavlof River watershed has been logged.

## ACKNOWLEDGMENTS

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APPENDICES

Appendix Table 1. Thorne River rearing coho salmon survey (7/17-22/70).

(Marriott & Moles)

Location	Trap No.	Hrs. set	W.T. °C	SS <sup>1</sup> Age 0	SS Age 1 & 11	DV	CT	RT	Other
Twin Lake outlet and outlet stream	1	10.0	11	--	1	--	2 (15 cm)	--	--
	2	1.0	11	--	--	--	--	--	No fish
	3	1.0	11	--	--	--	--	--	No fish
	4	0.9	11	--	--	--	--	--	No fish
	5	0.9	14.5	--	--	--	--	--	No fish
	6	0.9	14.5	--	--	--	--	--	3 CO
North Twin Lake inlet	7	1.0	13	--	--	--	--	--	No fish
	8	1.0	13	3	--	--	--	--	--
	9	1.0	13	1	1	--	--	--	--
South Twin Lake inlet	10	1.0	12	--	--	1 (11 cm)	--	--	--
	11	1.2	12	1	1	--	--	2 (13 cm)	2 CO
	12	1.1	12	--	4	1 (13 cm)	--	--	9 CO
	13	1.5	12	--	1	--	--	--	4 CO
Stream east of Twin Lake	14	1.0	13	1	--	--	--	--	1 CO
	15	1.0	13	2	--	--	--	--	1 CO
	16	1.0	13	--	--	--	--	--	No fish
	17	1.0	13	--	2	--	--	--	3 CO
Thorne Lake shore	18	1.0	13.5	--	--	--	--	--	1 CO
	19	1.0	13.5	--	--	--	--	--	No fish
	20	1.0	10	--	--	--	2 (13 cm)	--	2 CO
Thorne Lake outlet stream	21	1.0	14	1	1	--	2 (18 cm)	--	1 CO
	22	1.0	--	--	--	--	--	--	No fish
	23	1.0	--	--	--	--	--	--	No fish
Snaky Lakes outlet	24	1.0	14	3	--	--	--	25 (8-20 cm)	--
	25	1.0	--	--	--	--	--	22 (8-18 cm)	--
	26	1.0	--	--	--	--	--	15 (8-20 cm)	--

-Continued-

Appendix Table 1. Thorne River rearing coho salmon survey (7/17-22/70) - (continued).

										(Marriott & Moles)
Location	Trap No.	Hrs. set	W.T. °C	SS <sup>1</sup> Age 0	SS Age I & II	DV	CT	RT	Other	
West shore Snaky Lakes	27	1.0	--	1	--	--	--	--	3 SB	
	28	1.0	--	15	1	--	--	--	--	
	29	1.0	--	16	--	--	--	--	3 SB	
Thorne River by Control Lake Junction	30	1.1	13	--	1	--	--	1 (13 cm)	6 CO	
	31	2.1	13	--	--	--	--	2	1 CO	
	32	1.0	12	--	--	--	--	--	1 CO	
	33	1.1	--	1	--	--	--	--	1 SB	
	34	1.0	--	--	--	--	--	--	Many SS seen.	
	35	1.2	--	--	--	--	--	--	No fish	
	36	1.0	--	--	--	--	--	--	Trap hung from logs	
	37	1.0	--	--	--	--	--	--	1 CO	
	38	1.0	--	1	--	--	--	--	1 CO	
	39	1.0	--	--	--	--	--	1 (13 cm)	--	
Snaky Lake outlet near Thorne River Junction	40	0.8	13	1	4	--	--	3 (13 cm)	12 CO, 5 SB	
	41	1.1	12	--	--	--	--	--	No fish	
	42	1.1	12	--	--	--	--	3 (10-15 cm)	4 CO	
	43	1.1	12	3	1	--	--	5	5 CO	
	44	1.2	12	--	--	--	1 (18 cm)	--	1 CO	
	45	1.4	12	--	1	--	1 (15 cm)	--	4 CO, 1 SB	
Middle Thorne River and side ponds	46	1.0	13	--	--	--	--	--	2 SB	
	47	1.0	--	1	2	--	--	--	20 SB	
	48	1.1	--	1	--	--	1	--	1 CO, 2 SB	
	49	1.1	--	1	--	--	--	--	4 CO, 3 SB	
	50	1.1	--	--	--	1 (18 cm)	7 (18 cm)	1 (18 cm)	--	
Control Lake outlet	51	2.3	11.5	--	2	--	--	--	Kingfishers in area.	
	52	2.0	11.5	--	--	--	--	1 (18 cm)	--	
	53	1.7	11.5	--	--	--	--	--	No fish	
	54	1.1	11.5	1	1	--	--	1 (13 cm)	--	
	55	0.9	--	--	1	--	--	--	--	

-Continued-

Appendix Table 1. Thorne River rearing coho salmon survey (7/17-22/70) - (Continued).

(Marriott & Moles)										
Location	Trap No.	Hrs. set	W.T. °C	SS <sup>1</sup> Age 0	SS Age I & II	DV	CT	RT	Other	
Balls Lake outlet	56	1.5	14.5	--	1	--	--	1 (13 cm)	7 CO	
	57	1.2	14.5	--	--	--	--	1 (15 cm)	--	
	58	1.0	14.5	1	1	--	--	--	7 CO	
Roberts Creek	59	No trap (chumming)								6 SS, RT seen.
Beaver Creek	60	0.2	13	--	2	1 (10 cm)	--	17	--	
	61	0.2	--	--	--	--	--	2	--	
	62	0.2	--	--	--	1 (10 cm)	--	1 (15 cm)	--	
Lower Goose Creek	63	1.3	15	--	--	--	--	6	--	
	64	1.0	--	3	1	--	--	5	--	
	65	0.9	--	1	--	--	--	1	--	
	66	0.8	--	--	--	--	--	3	--	
	67	0.6	--	2	--	--	--	5	--	
TOTALS	66			63 (1.0)	30 (0.5)	5 (0.1)	16 (0.2)	124 (1.9)		
(mean catch per trap in parentheses)										
Total coho salmon, all ages combined.				93 (1.4)						
Total salmonids, all species combined (SS, DV, CT, RT)				238 (3.6)						

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RT = rainbow trout, CO = sculpin, SB = stickleback.

Appendix Table 2. Thorne River (Snaky Lakes) rearing coho salmon survey (6/26-27/71).

(Gray & Dye)										
Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)						
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	RT	Other
Lower channels	1	3.0	12.5	--	9 (82)	1 (93)	--	--	--	In side pond, 5 SB
	2	3.1	12.5	--	5 (80)	--	--	--	--	In side pond, 11 SB
	3	3.2	--	--	5 (83)	--	--	--	--	1 SB
	4	3.3	--	--	13 (82)	1 (99)	1 (159)	1 (140)	--	1 SB
Upper channels	1	3.5	8.5	1 (57)	2 (63)	2 (72)	--	--	--	--
	2	3.7	8.5	--	--	--	1 (116)	--	--	1 CO
	3	3.5	8.5	--	2 (73)	1 (70)	--	--	--	--
	4	3.7	8.5	--	--	--	--	--	1 (93)	--
	5	3.1	8.0	--	12 (67)	--	--	--	--	--
	6	3.6	14.5	--	12 (88)	1 (93)	--	2 (138)	--	In small side lake, 1 CO
	7	3.7	8.5	--	--	--	--	--	--	--
	8	3.7	8.5	--	--	--	--	--	--	--
	9	3.5	8.5	--	--	--	--	--	--	1 SB
	10	3.5	8.5	--	--	--	--	--	--	--
Upper east fork	1	1.5	7.5	--	8 (69)	--	--	--	1 (107)	--
	2	1.5	7.5	--	--	--	--	--	--	--
	3	1.5	7.5	--	1 (73)	--	--	--	--	--
	4	1.5	7.5	--	7 (62)	--	1 (96)	--	--	--
	5	1.5	7.5	--	--	--	--	--	--	--
	6	1.3	7.5	--	--	--	1 (94)	--	--	--
	7	1.6	7.5	--	1 (54)	--	--	--	--	--
	8	1.7	7.5	--	--	--	--	--	--	--
	9	1.7	7.5	--	--	--	--	--	--	--
	10	1.7	7.5	--	--	--	--	--	--	--
Upper west fork	1	3.0	7.5	--	--	--	3 (84)	--	5 (84)	Nice RT habitat in this fork.
	2	3.2	7.5	--	12 (64)	2 (80)	6 (79)	--	2 (67)	--
	3	3.5	7.5	--	2 (66)	--	6 (75)	--	1 (62)	--
	4	3.6	7.5	--	5 (62)	--	--	--	4 (69)	--
	5	3.7	7.5	--	--	--	--	--	--	--
	6	3.8	7.5	--	10 (64)	1 (76)	4 (75)	--	4 (111)	--
	7	3.9	7.5	--	1 (73)	--	1 (64)	--	2 (81)	--
	8	4.0	7.5	--	2 (76)	--	2 (90)	--	4 (101)	--
	9	4.0	7.5	--	5 (66)	--	2 (84)	--	3 (112)	--
	10	3.1	7.5	--	15 (62)	--	1 (69)	--	1 (88)	--
TOTALS	34			1 (0.0+)	129 (3.8)	9 (0.3)	29 (0.9)	3 (0.1)	28 (0.8)	
Total coho salmon, all ages combined				139 (4.1)						
Total salmonids, all species combined (SS, DV, CT, RT)				199 (5.9)						

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RB = rainbow trout, CO = sculpin, SB = stickelback

Appendix Table 3. Plotnikof Lake rearing coho salmon survey (10/6-9/70).

Location	Trap No.	Hrs. set	W. T. °C	Catch (mean length in mm)				RT	Comments
				SS <sup>1</sup> age 0	SS age 1	SS age 11	DV		
Northeast tributaries	1	3.0	8.0	--	--	--	--	1 (9 cm)	--
	2	3.0	--	--	--	--	--	--	--
	3	3.0	7.0	1	1	--	6 (4-18 cm)	3 (10-18 cm)	--
	4	3.0	--	--	2	1	--	--	--
Northeast shore by cabin	5	3.0	8.0	--	103	14	--	--	Many SS around trap.
	6	3.2	--	--	2	--	--	--	--
	7	3.0	--	--	11	1	--	--	--
	8	3.0	--	--	9	1	--	--	--
Northeast basin shore	9	3.0	--	--	4	8	1	--	--
	10	3.0	--	--	15	6	1 (5 cm)	--	--
Central basin shore	11	3.1	--	--	2	1	2 (5-13 cm)	--	--
	12	3.0	--	--	--	--	--	--	--
	13	3.0	--	--	--	--	--	--	--
Narrows	14	3.2	--	--	5	13	15	--	--
	15	3.4	--	--	3	8	--	1	--
Southwest basin shores	16	3.0	--	--	2	18	18 (4-18 cm)	--	--
	17	3.0	--	--	2	29	11 (3-15 cm)	1 (10 cm)	--
	18	3.2	--	--	--	8	1 (5 cm)	1 (5 cm)	--
Outlet bay and logjam	19	29.8	--	--	--	8	2 (10-13 cm)	11 (5-15 cm)	--
	20	29.4	--	--	--	6	5 (8-14 cm)	17 (9-15 cm)	--
	21	3.0	--	--	--	11	6 (10-15 cm)	8 (15-20 cm)	--
Upper river lake	22	28.0	9.0	1	1	--	--	6 (6-15 cm)	5 m deep pool.
	23	28.6	--	12	8	--	10 (5-13 cm)	--	--
	24	27.4	--	11	7	--	5 (6-11 cm)	1 (4 cm)	--
	25	27.4	--	2	8	--	4 (5-10 cm)	1 (11 cm)	--
Middle river	26	22.3	--	16	7	--	4 (10-13 cm)	10 (13-15 cm)	--
	27	21.0	--	0	4	--	3 (9-10 cm)	18 (10-15 cm)	one 10 cm mature DV +
Lower river	28	19.0	--	--	2	--	1 (11 cm)	16 (10-13 cm)	--
	29	18.5	--	1	4	--	--	35 (10-15 cm)	--
TOTAL	29			44 (1.5)	202 (7.0)	133 (4.6)	95 (3.3)	129 (4.4)	
(mean catch per trap in parentheses)									
Total coho salmon, all ages combined				379 (13.1)					
Total salmonids, all species combined (SS, DV, RT)				603 (20.8)					

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, RT = rainbow trout.

Appendix Table 4. Plotnikof Lake rearing coho salmon survey (8/11-14/71).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					Comments
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	RT	
Northwest shore by cabin	1	1.0	--	--	--	--	--	--	No fish
	2	1.0	--	--	--	--	--	--	No fish
	3	1.1	--	--	4 (87)	2 (111)	1 (69)	--	
	6	1.2	--	--	--	--	--	--	No fish
	7	1.2	--	--	--	--	1 (76)	--	
Northeast basin shore	4	1.1	--	--	2 (81)	2 (109)	--	--	
	5	1.2	--	--	--	--	--	--	No fish
	8	1.3	--	--	--	1 (90)	1 (59)	--	
	9	1.0	--	--	15 (77)	1 (109)	--	--	
	10	1.2	--	--	15 (85)	6 (100)	2 (96)	--	
	16	1.7	--	--	14 (80)	6 (100)	2 (71)	--	
Central basin shore	11	1.2	--	--	8 (88)	5 (108)	--	--	
	12	1.3	--	--	7 (87)	1 (100)	8 (62)	--	
	13	1.3	--	2 (57)	10 (87)	2 (112)	2 (61)	--	
	14	1.4	--	--	13 (85)	13 (104)	5 (89)	--	
	15	1.7	--	2 (58)	9 (84)	10 (107)	1 (107)	--	
	17	1.0	--	--	5 (85)	2 (116)	2 (88)	--	
	18	1.1	--	--	6 (82)	4 (104)	4 (59)	--	
	23	1.3	--	--	1 (91)	--	--	--	
	24	1.3	--	--	--	10 (94)	3 (108)	2 (79)	--
Narrows	19	1.2	--	--	1 (87)	6 (106)	6 (94)	--	
	22	1.3	--	--	1 (97)	13 (110)	1 (135)	--	
Southwest basin shore	20	1.3	--	--	--	--	--	--	
	21	1.3	--	--	--	--	--	--	
	25	1.0	--	--	--	--	1 (59)	--	
	26	1.0	--	--	3 (97)	7 (111)	8 (84)	2 (128)	
	27	1.2	--	--	--	--	--	--	
	30	1.3	--	--	3 (89)	4 (112)	1 (80)	1 (115)	
	31	1.4	--	--	3 (93)	1 (114)	12 (72)	1 (103)	
Outlet bay	32	1.5	--	--	1 (98)	1 (115)	4 (63)	--	
	28	1.2	--	--	2 (91)	10 (110)	7 (70)	--	
	29	1.3	--	--	2 (93)	--	6 (82)	--	
Total (mean catch per trap in parentheses)	32			4 (0.1)	135 (4.2)	100 (3.1)	77 (2.4)	4 (0.1)	
Total coho salmon, all ages combined					239 (7.5)				
Total salmonids, all species combined (SS, DV, RT)						320 (10.0)			

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, RT = rainbow trout.

Appendix Table 5. Hatchery Creek (part of Sweetwater Lake system) rearing coho salmon survey (6/29-7/1/71).

(Gray & Dye)

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	Other
Honker Lake narrows	29 A-1	4.4	15.5	--	2 ( 76)	2 ( 96)	--	--	4 CO
	29 A-2	4.1	14	--	3 ( 88)	4 ( 93)	--	--	8 CO
	29 A-3	3.7	13.5	--	1 (106)	--	--	--	8 CO
	29 A-4	3.6	14	--	--	--	--	--	--
	29 A-5	3.5	14	--	2 (105)	1 (108)	--	--	1 CO
Butterfly Lake inlet and south shore	30 A-1	3.1	14.5	--	--	--	--	1 (147)	1 CO
	30 A-2	3.4	15.5	--	1 (101)	1 (101)	--	1 (151)	11 CO
	30 A-3	3.3	16	--	2 (100)	--	--	--	6 CO
	30 A-4	3.4	14.5	--	1 (102)	--	--	--	--
	30 A-5	3.6	13.5	1 (52)	5 ( 87)	--	--	--	--
	30 A-6	3.6	13	--	2 ( 76)	--	--	--	--
	30 A-7	3.3	13	--	--	--	--	1 (150)	7 CO
	30 A-8	3.7	13.5	--	--	--	--	1 (148)	1 CO
	30 A-9	3.6	13	--	--	--	--	--	4 CO
	30 A-10	2.9	12.5	--	5 ( 91)	1 ( 86)	--	1 (132)	4 CO
East tributary of Butterfly - Hatchery Lake stream	30 B-1	3.5	8	--	1 ( 75)	--	--	1 (111)	2 CO
	30 B-2	3.6	8	--	--	--	--	5 (116)	--
	30 B-3	1.7	10.5	--	1 ( 75)	2 ( 89)	--	--	--
	30 B-4	1.6	8	--	3 ( 67)	--	--	2 ( 97)	--
	30 B-5	1.7	8	--	1 ( 69)	--	--	2 (104)	1 CO
	30 B-6	1.6	8	--	2 ( 77)	--	--	2 (134)	--
	30 B-7	1.8	11	--	2 ( 76)	1 ( 75)	--	1 (101)	3 CO
	30 B-8	1.6	7.5	--	3 ( 76)	--	--	1 (112)	--
	30 B-9	1.6	8	--	2 ( 61)	--	3 ( 89)	--	1 CO
	30 B-10	1.7	7	--	1 ( 79)	--	1 (104)	1 ( 96)	--
South shore and inlet of Hatchery Lake	1 A-1	3.3	--	--	--	--	--	--	No fish
	1 A-2	3.3	--	--	1 ( 99)	--	--	1 (150)	--
	1 A-3	3.2	--	--	1 ( 99)	--	--	--	7 CO
	1 A-4	3.3	14.5	--	--	--	--	--	Adult RS tangled in trapline.
	1 A-5	3.3	12.5	--	--	--	--	--	7 CO
	1 A-6	3.2	13	--	2 ( 69)	--	--	2 (142)	--
	1 A-7	3.3	12	--	1 ( 99)	--	--	--	--
	1 A-8	3.3	12	--	2 (100)	--	--	1 (126)	7 CO
	1 A-9	3.9	12	--	--	--	--	--	--
	1 A-10	4.0	12	--	4 ( 78)	2 ( 84)	--	--	1 CO
TOTALS	35			1 (0.0+)	51 (1.5)	14 (0.4)	4 (0.1)	24 (0.7)	
(mean catch per trap in parentheses)									
Total coho salmon, all ages combined				66 (1.9)					
Total salmonids, all species combined (SS, DV, CT)				94 (2.7)					

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RS = sockeye salmon, CO = sculpin.

Appendix Table 6. Sarkar Lake rearing coho salmon survey (7/3-9/71).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					
				SS age 0	SS age I	SS age II	DV	CT	Other
<u>Northeast Lake</u>									
Northeast tributary	3 A-1	2.1	16	--	4 ( 78)	3 ( 88)	--	3 (129)	--
	3 A-2	2.3	16	--	1 ( 89)	---	--	--	2 SB
	3 A-3	2.2	16	--	1 ( 90)	4 ( 81)	--	--	2 SB
	3 A-4	2.3	15.5	--	3 ( 73)	5 ( 81)	--	--	8 SB, 1 CO
	3 A-5	2.3	18	--	6 ( 70)	3 ( 87)	--	1 (121)	--
	3 A-6	2.3	12	--	20 ( 68)	7 ( 78)	1 ( 87)	--	5 CO
	3 A-7	2.6	12	--	4 ( 80)	--	--	1 (104)	7 CO
	3 A-8	2.5	12	--	6 ( 73)	--	--	--	2 CO
	3 A-9	2.6	12	--	3 ( 79)	--	2 ( 87)	1 (116)	--
	3 A-10	2.6	12	--	5 ( 76)	--	1 (108)	--	--
Northwest tributary	3 B-6	1.3	11	--	3 ( 76)	--	--	--	6 CO
	3 B-7	1.3	11	--	12 ( 77)	--	--	--	5 CO
	3 B-8	1.1	11.5	--	15 ( 75)	--	--	--	2 CO
	3 B-9	1.0	11.5	--	21 ( 73)	--	--	--	7 CO
	3 B-10	1.0	11.5	--	6 ( 77)	--	--	--	7 CO
North shore of lake	4 A-1	1.0	14.5	--	--	--	--	--	1 SB, 1 CO
	4 A-2	1.1	14.5	--	--	--	--	--	1 SB
	4 A-3	1.0	14.5	--	--	--	--	--	--
	4 A-4	1.0	14.5	--	1 ( 75)	--	--	--	--
	4 A-5	1.0	14.5	--	--	--	--	--	--
<u>Central ponds</u>	4 B-1	1.3	15	--	7 ( 86)	--	--	1 (144)	9 CO
	4 B-2	1.6	16	1 ( 47)	5 ( 86)	1 (106)	--	--	--
	4 B-3	1.7	16	1 ( 45)	2 ( 79)	--	--	--	1 SB, 1 CO
	4 B-4	1.8	16	2 ( 47)	13 ( 86)	--	--	--	9 SB
	4 B-5	1.9	16	--	--	--	--	--	--

-Continued-

Appendix Table 6. Sarkar Lake rearing coho salmon survey (7/3-9/71) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)						(Gray & Dye)	
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	Other		
<u>Southeast Lake</u>											
Mid-east tributary	6 A-1	3.4	11	--	8 ( 74)	--	--	--	--	1 CO	
	6 A-2	3.3	11	--	13 ( 78)	3 ( 95)	--	--	--	2 CO	
	6 A-3	3.3	11	1 ( 56)	6 ( 80)	1 (100)	--	--	--	5 CO	
	6 A-4	3.3	11	1 ( 57)	8 ( 74)	--	1 (101)	--	--	5 CO	
	6 A-5	3.3	11	--	12 ( 77)	2 ( 97)	2 (116)	4 (112)	--	1 CO	
	6 A-6	3.4	11	--	--	--	--	--	--	3 CO	
	6 A-7	3.7	11	--	7 ( 77)	2 ( 98)	--	--	--	19 CO	
	6 A-8	3.5	11	1 ( 48)	6 ( 72)	1 ( 92)	--	--	--	--	
	6 A-9	3.4	15.5	--	2 ( 76)	10 ( 98)	--	--	--	1 CO, 1 SB, many tadpoles	
	6 A-10	3.0	16	--	--	5 (105)	--	--	--	1 CO	
North tributary	6 B-1	2.0	16.5	--	--	1 (101)	--	--	--	--	
	6 B-2	2.3	16.5	--	--	--	--	--	--	No fish seen	
	6 B-3	2.0	13.5	--	1 ( 78)	4 ( 89)	--	--	--	--	
	6 B-4	2.1	13.5	--	1 ( 85)	1 ( 87)	--	--	--	10 CO	
	6 B-5	2.7	13.5	1 ( 42)	6 ( 86)	--	--	--	--	1 CO	
	6 B-6	2.1	13.5	--	--	--	--	--	--	3 CO	
	6 B-7	2.1	13.5	--	4 ( 83)	--	--	--	--	10 CO	
	6 B-8	2.2	13.5	--	3 ( 77)	2 ( 88)	--	--	--	15 CO, 1 SB	
	6 B-9	2.3	13.5	--	3 ( 73)	--	--	1 (132)	--	8 CO	
	6 B-10	2.2	13.5	--	2 ( 70)	--	1 (103)	--	--	9 CO	
South tributary	7 A-1	2.4	10	--	4 ( 66)	--	--	--	--	--	
	7 A-2	2.3	10	--	6 ( 73)	--	4 (102)	--	--	--	
	7 A-3	2.3	10	--	9 ( 75)	1 ( 92)	--	--	--	--	
	7 A-4	2.3	10	--	11 ( 75)	--	1 ( 71)	--	--	--	
	7 A-5	2.3	10	1 ( 59)	21 ( 73)	--	7 ( 84)	1 (110)	--	--	
	7 A-6	2.2	10	--	15 ( 78)	2 ( 97)	4 (110)	2 (119)	--	3 CO	
	7 A-7	2.0	10	--	3 ( 69)	--	1 (136)	--	--	2 CO	
	7 A-8	1.8	10	--	7 ( 75)	1 (101)	--	1 (108)	--	--	
	7 A-9	4.4	15.5	--	2 ( 83)	3 (101)	--	--	--	--	
	7 A-10	5.4	15.5	--	--	--	--	--	--	--	
<u>Central Lake</u>											
	8 A-1	2.0	16	--	--	2 (104)	--	--	--	3 CO	
	8 A-2	2.1	16	--	--	--	--	--	--	No fish	
	8 A-3	2.1	17	--	--	1 (123)	--	--	--	--	
	8 A-4	2.1	16.5	--	2 ( 96)	2 (114)	--	--	--	1 CO	
	8 A-5	2.5	17	--	7 ( 97)	5 (110)	--	1 (142)	--	6 CO	

-Continued-

Appendix Table 6. Sarkar Lake rearing coho salmon survey (7/3-9/71) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)						(Gray & Dye)	
				SS age 0	SS age I	SS age II	DV	CT	Other		
<u>Sarkar Lake</u>											
Northwest tributary	8 B-1	1.3	18	3 ( 53)	8 ( 79)	--	--	3 (105)	--		
	8 B-2	1.3	18	--	5 (108)	--	--	--	4 CO		
	8 B-3	1.3	18	--	3 ( 77)	--	--	2 (107)	--		
	8 B-4	1.2	18	--	--	--	--	--	4 CO		
	8 B-5	1.2	18	--	3 ( 84)	--	--	11 (111)	--		
South tributary (lake fork)	9 A-1	1.2	19.5	--	--	--	--	1 (124)	7 CO		
	9 A-2	1.1	19.5	--	--	2 ( 86)	--	--	2 SB, 2 CO		
	9 A-3	1.6	19.5	--	--	--	--	--	3 CO, 12 CT (15-40 cm) seen around trap		
	9 A-4	1.8	20	1 ( 57)	3 ( 76)	1 ( 94)	--	1 (119)	18 CO		
	9 A-5	2.3	19.5	2 ( 63)	2 ( 83)	1 ( 99)	--	2 (137)	15 CO		
	9 A-6	2.5	19.5	--	3 ( 73)	1 ( 99)	--	--	8 CO		
South tributary (non-lake east fork)	9 A-7	3.5	13	--	5 ( 77)	1 ( 89)	3 (143)	5 (120)	6 CO		
	9 A-8	3.7	13.5	--	12 ( 71)	1 ( 88)	6 ( 86)	6 (102)	19 CO		
	9 A-9	3.9	13.5	--	16 ( 69)	--	14 ( 78)	5 ( 96)	--		
	9 A-10	4.0	13.5	--	7 ( 27)	--	8 ( 73)	3 (115)	--		
TOTALS	75			15 (0.2)	374 (5.0)	79 (1.1)	56 (0.7)	56 (0.7)			
(mean catch per trap in parentheses)											
Total coho salmon, all ages combined				468 (6.2)							
Total salmonids, all species combined (SS, DV, CT)				580 (7.7)							

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin, SB = stickleback, TP = tadpole.

Appendix Table 7. Berner's River rearing coho salmon survey (7/7-9/71).

(Marriott & Sanders)									
Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	Other
<u>West fork</u>									
Glacial upper channels	1	5.0	8	1 ( 51)	1 ( 61)	--	5 ( 72)	--	1 CO
	2	4.8	8	--	--	--	5 ( 72)	--	--
	3	2.0	8	--	--	--	--	--	No fish seen
	4	1.0	8	--	--	--	--	--	No fish seen
Rusty slough	5	1.0	--	--	--	--	--	--	--
	6	1.0	--	--	--	--	--	--	DV fry seen
	7	1.0	--	--	--	--	--	--	--
	8	1.0	--	--	--	--	--	--	--
Glacial undercut banks	18	1.0	8	--	1 ( 69)	1 ( 94)	13 ( 87)	--	--
	19	1.0	8	--	--	--	1 (100)	--	--
	20	1.0	8	--	--	--	5 ( 94)	--	--
Subtotal	11			1 (0.1)	2 (0.2)	1 (0.1)	29 (2.6)	--	
(mean catch per trap in parentheses)									
Total coho salmon, all ages combined				4 (0.4)					
Total salmonids, all species combined (SS, DV)				33 (3.0)					
<u>East fork</u>									
Sandy old channel	9	3.0	9	--	4 ( 69)	--	14	--	--
	10	3.0	9	1 ( 46)	5 ( 67)	2 ( 78)	15	--	1 CO
	11	2.3	13.5	--	--	--	1	--	1 SB
Beaver pond	12	2.0	13.5	--	--	--	--	--	No fish seen
Lakeshore	13	1.0	13.5	--	25 ( 73)	1 ( 91)	4	3	--
	14	1.5	13.5	--	2	--	--	--	--
	15	1.5	13.5	--	--	--	--	--	Large CT seen

-Continued-

Appendix Table 7. Berner's River rearing coho salmon survey (7/7-9/71) - (continued).

Location	Trap Nc.	Hrs. set	W.T. °C	Catch (mean length in mm)						Other
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT		
Shallow marsh	16	1.0	23.5	4 ( 53)	13 ( 78)	--	--	--	--	
	17	1.0	23.5	6 ( 52)	4 ( 76)	--	--	--	Many SS age 0 lost.	
Clear side pond	21	0.8	--	--	3	--	--	--	--	
	22	0.8	--	--	41 ( 65)	--	4 ( 63)	--	1 SB	
	23	0.5	--	2 ( 45)	8 ( 63)	--	1 ( 62)	--	--	
Upper east fork-muskey water	24	1.0	12	--	--	--	--	--	No fish seen	
	25	1.0	12	--	1 ( 68)	--	--	--	--	
	26	1.0	12	--	5 ( 71)	1 ( 74)	1 ( 70)	--	--	
	27	1.0	12	--	--	1 ( 90)	2 ( 60)	--	--	
	28	1.0	12	--	--	8 ( 81)	1 ( 88)	--	--	
	29	1.0	12	--	--	--	1	--	2 SB	
Side pond	30	1.0	--	--	8 ( 76)	1 ( 89)	--	--	64 SB	
Lower east fork-deep and grassy bottom	31	2.0	13	--	45*	13*	1	--	* Age breakdown calculated from #32, 60mm = age 0, 90mm = age II; 7 SB	
	32	2.0	13	--	23 ( 79)	7 ( 94)	1 (104)	--	--	
	33	2.0	13	--	30 ( 81)	2 ( 93)	1 (110)	--	--	
	34	2.0	13	--	16 ( 78)	2 ( 92)	--	--	2 SB	
	35	2.0	13	--	18 ( 78)	1 (100)	--	1 (128)	--	
	36	2.0	13	--	27 ( 79)	6 ( 93)	2 (108)	1 (145)	--	
	37	2.0	13	--	11 ( 78)	1 ( 91)	--	--	2 SB	
Subtotal (mean catch per trap in parentheses)	26			13 (0.5)	297 (11.4)	39 (1.5)	48 (1.8)	5 (0.2)		
Total coho salmon, all ages combined				349 (13.4)						
Total salmonids, all species combined (SS, DV, CT)				402 (15.5)						
TOTALS (mean catch per trap in parentheses)	37			14 (0.4)	299 (8.1)	40 (1.1)	77 (2.1)	5 (0.1)		
Total coho salmon, all ages combined				353 (9.5)						
Total salmonids, all species combined (SS, DV, CT)				435 (11.8)						

<sup>1</sup> SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin, SB = stickleback.

Appendix Table 8. Castle River rearing coho salmon survey (7/10-13/71).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					(Gray)	
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	Other	
Upper forks	10 A-1	1.3	14	--	6 (83)	1 (95)	2 (112)	10 (107)	--	
	10 A-2	1.4	14	--	1 (70)	--	--	3 (121)	--	
	10 A-3	1.6	11	1 (54)	1 (53)	1 (92)	4 (96)	--	--	
	10 A-4	1.7	11	--	3 (83)	3 (100)	2 (95)	4 (101)	--	
	10 A-5	1.8	11	--	5 (76)	2 (93)	3 (107)	4 (107)	Brilliant coloration of all fish.	
Central north tributary	11 A-1	1.1	15	--	6 (80)	1 (89)	1 (114)	2 (95)	--	
	11 A-2	1.7	14	--	10 (89)	--	--	3 (85)	--	
	11 A-3	1.3	14.5	--	5 (85)	2 (87)	--	--	2 CO	
	11 A-4	1.4	14.5	1 (52)	8 (81)	1 (98)	--	12 (108)	--	
	11 A-5	1.7	14.5	--	6 (81)	4 (100)	--	5 (107)	--	
Central south tributary	12 A-1	1.3	11	--	11 (79)	--	--	2 (77)	--	
	12 A-2	1.4	11.5	1 (46)	18 (78)	1 (103)	1 (104)	--	--	
	12 A-3	1.8	13	--	15 (84)	--	--	2 (93)	4 CO	
	12 A-4	2.0	13.5	--	5 (77)	--	--	5 (82)	3 CO	
	12 A-5	2.2	13.5	4 (49)	10 (80)	--	--	--	--	
Log jam 4 km upstream from stream mouth	13 A-1	1.2	10.5	--	2 (80)	1 (92)	--	2 (126)	--	
	13 A-2	1.3	10.5	--	8 (73)	2 (77)	--	--	--	
	13 A-3	1.8	14	--	--	--	--	1 (122)	--	
	13 A-4	1.5	14	--	--	--	--	--	1 CO	
	13 A-5	1.4	14	--	15 (79)	1 (93)	--	5 (94)	1 CO	
TOTALS (mean catch per trap in parentheses)	20			7 (0.4)	135 (6.8)	20 (1.0)	13 (0.6)	60 (3.0)		
Total coho salmon, all ages combined				162 (8.1)						
Total salmonids, all species combined (SS, DV, CT)				235 (11.8)						

SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin.

Appendix Table 9. Chilkoot Lake rearing coho salmon survey (7/13-14/71).

									(Sanders & Dye)
Site	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)				Other	
				SS age 0	SS age I	SS age II	DV		
<u>Chilkoot River</u>									
Upper Chilkoot	1	1.8	5.5	2 (51)	--	--	--	--	
Lake inlet	2	1.8	--	1 (41)	--	--	--	--	
Lower Chilkoot	3	2.1	--	--	--	--	1 (107)	--	
Lake inlet	4	2.2	--	--	3 (74)	--	3 (99)	--	
	5							Trap stolen by bear.	
	6	1.8	--	2	1 (71)	--	--	--	
	7	1.7	--	--	1 (67)	--	--	1 RS juvenile.	
	8	1.6	--	3 (55)	3 (75)	--	1 (109)	--	
	9	1.6	--	2 (60)	--	--	--	--	
	10	1.7	--	--	--	--	--	--	
	11	1.8	--	--	--	--	--	Glory Hole outlet.	
	12	1.0	--	--	--	--	--	In Glory Hole.	
Subtotal	11			10 (0.9)	8 (1.6)	0	4 (0.5)		
(mean catch per trap in parentheses)									
Total coho salmon, all ages combined				18 (1.6)					
Total salmonids, all species combined				24 (2.2)					

-Continued-

Appendix Table 9. Chilkoot Lake rearing coho salmon survey (7/13-14/71) - (continued).

(Sanders & Dye)

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)				
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	Other
<u>Chilkoot Lake</u>								
West shore of lake	13	16.8	--	--	5 (90)	--	1 (133)	10 CO
	14	16.8	--	--	8 (87)	--	1 (131)	3 CO
	15	16.5	--	--	1 (82)	--	--	3 CO, 1 SB
Southeast corner of lake near outlet	16	1.4	--	3	18 (67)	--	--	1 CT (70)
	17	1.8	--	1 (46)	36 (71)	--	--	All not measured.
	18	1.8	--	--	17 (80)	1 (115)	3 (125)	3 CO
	19	1.8	--	--	12 (72)	--	--	--
	20	1.8	--	--	14 (72)	--	3 (106)	2 CO
	21	1.8	--	--	15 (69)	--	--	1 SB, 5 RS juveniles.
Northeast corner of lake	22	0.9	--	--	1	--	--	1 CO
	23	0.9	--	--	--	--	--	--
	24	0.9	--	--	--	1	--	--
	25	0.9	--	--	--	--	--	--
	26	0.9	--	--	--	--	--	--
	27	1.0	--	--	1	--	--	--
Subtotal (mean catch per trap in parentheses)	15			4 (0.3)	128 (8.5)	2 (0.1)	8 (0.5)	1 CT, 5 RS
Total coho salmon, all ages combined				134 (8.9)				
Total salmonids, all species combined (SS, DV, CT, RS)				148 (9.9)				
Totals (mean catch per trap in parentheses)	26			14 (0.5)	136 (5.2)	2 (0.1)	13 (0.5)	1 CT, 6 RS
Total coho salmon, all ages combined				152 (5.8)				
Total salmonids, all species combined (SS, DV, CT, RS)				172 (6.6)				

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RS = sockeye salmon, CO = sculpin, SB = stickleback.

Appendix Table 10. Chilkat Lake rearing coho salmon survey (7/15-16/71).

(Sanders & Dye)

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					Other
				SS age 0	SS age I	SS age II	DV	CT	
Shore of southeast lake basin	1	1.4	--	--	--	--	--	--	2 CO
	2	1.4	--	--	1 (97)	1 (127)	--	--	7 CO, 1 SB
	3	1.5	--	--	3 (94)	--	--	1 (119)	2 SB
	4	1.7	--	--	7 (90)	--	--	1 (119)	1 SB
	5	1.7	--	1 (49)	12 (90)	--	--	--	5 SB
	6	1.7	--	--	--	--	--	--	3 SB
	7	1.8	--	--	--	--	--	--	--
	8	1.7	--	--	8 (94)	--	--	1 (142)	1 CO, 3 SB
	9	1.8	--	--	8 (94)	--	--	--	11 CO, 2 SB
South shore	10	1.3	--	--	24 (94)	--	--	--	11 CO
	11	1.6	--	--	2 (97)	1 (121)	--	1 (135)	4 CO
	12	1.7	--	--	1 (93)	--	--	--	--
	13	1.7	--	--	--	--	--	--	2 CO
	14	1.6	--	--	--	--	--	1 (128)	2 CO
	15	1.7	--	--	--	--	--	--	--
	16	1.7	--	--	--	--	--	--	--
	17	1.7	--	--	4 (101)	2 (115)	--	--	--
	18	1.7	--	--	3 (94)	--	8 (102)	--	4 CO
Northeast shore	19	1.2	--	--	--	--	--	--	1 CO
	20	1.2	--	--	--	--	--	--	1 SB
	21	1.2	--	--	--	--	--	--	2 CO, 5 SB
	22	1.1	--	--	--	--	--	1 (137)	--
	23	1.0	--	--	--	--	--	--	1 CO, 1 SB
	24	1.1	--	--	1 (83)	--	--	--	7 CO, 3 SB
	25	1.1	--	--	8 (92)	1 (104)	--	--	3 CO, 18 SB
	26	1.2	--	--	--	--	--	--	1 CO, 1 SB
	27	1.2	--	--	4 (87)	--	--	--	8 CO, 2 SB

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-Continued-

Appendix Table 10. Chilkat Lake rearing coho salmon survey (7/15-16/71) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					Other	
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT		
Northwest shore	28	1.4	--	--	--	--	--	--	--	
	29	1.4	--	--	--	1 (115)	--	--	1 CO	
	30	1.2	--	--	--	--	1 (118)	--	--	
	31	1.2	--	--	--	--	--	--	--	
	32	1.2	--	--	--	--	--	--	--	
	33	1.2	--	--	--	2 (109)	--	--	2 CO	
	34	1.3	--	--	--	3 (111)	--	1 (134)	10 CO	
	35	1.2	--	--	--	--	--	--	3 CO	
	36	1.2	--	--	--	16 (99)	--	1 (100)	1 CO, 3 SB	
East bay islands & Lake Creek	37	1.4	--	--	--	--	--	--	5 CO	
	38	1.4	--	--	--	--	--	--	3 CO, 1 SB	
	39	1.4	--	--	--	7 (102)	--	--	2 SB	
	40	1.5	--	--	--	--	--	--	2 CO, 1 SB	
	41	1.6	--	--	--	3 (116)	--	--	12 CO, 12 SB	
	42	1.6	--	--	2 (65)	3 (81)	--	7	2	10 CO, 1 SB
	43	1.7	--	--	--	--	--	9 (92)	--	1 CO
	44	1.2	--	--	--	2 (96)	--	--	2 (105)	2 CO, 1 SB
45	1.2	14	--	--	--	--	--	4 (86)	--	
TOTALS	45			3 (0.1)	122 (2.7)	6 (0.1)	26 (0.6)	15 (0.3)	119 CO (2.6) 69 SB (1.5)	
(mean catch per trap in parentheses)										
Total coho salmon, all ages combined				131 (2.9)						
Total salmonids, all species combined (SS, DV, CT)				172 (3.8)						

<sup>1</sup> SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin, SB = stickleback.

Appendix Table 11. Lower Taku River tributaries (Yehring and Johnson Creeks) rearing coho salmon surveys (8/5-8/71).

(Marriott & Gray)									
Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)				CT	Other
				SS <sup>1</sup> age 0	SS age I	SS age II	DV		
<u>Yehring Creek (8/5-6/71)</u>									
Cabin branch and slough	1	1.4	13	1 (48)	2 (83)	--	--	--	1 SB
	2	1.4	--	--	--	--	--	--	--
	3	1.4	13	1 (60)	3 (81)	--	--	--	--
	4	0.8	16.5	1 (64)	6 (92)	--	--	--	1 SB
Upper beaver ponds	5	1.3	--	1 (66)	39 (81)	1 (109)	1 (80)	--	--
	6	1.6	12.5	1 (64)	4 (78)	--	--	--	--
	7	1.7	12.5	1 (65)	8 (78)	--	--	1 (119)	--
	8	1.9	--	3 (60)	24 (79)	1 (93)	2 (78)	1 (100)	--
	9	1.1	13.5	--	--	--	--	--	--
Below cabin	10	1.8	13	3 (55)	--	--	--	--	--
	11	1.9	13	5 (60)	14 (85)	1 (111)	--	--	12 SB
Lagoon and side bay	12	2.1	12.5	--	--	--	--	--	3 SB
	12 1/2	2.1	--	--	--	--	--	--	5 SB
	13	2.1	9	1 (66)	6 (91)	--	--	--	3 SB
	14	2.1	15.5	--	24 (92)	--	--	--	3 SB
Lower main channel	15	2.2	11.5	3 (57)	--	--	--	--	--
	16	2.1	12	10 (59)	15 (80)	--	--	--	--
Subtotal	17			31 (1.8)	145 (8.5)	3 (0.2)	3 (0.2)	2 (0.1)	28 SB (1.6)
(mean catch per trap in parentheses)									
Total coho salmon, all ages combined				179 (10.5)					
Total salmonids, all species combined (SS, DV, CT)				184 (10.8)					

-Continued-

Appendix Table 11. Lower Taku River tributaries (Yehring and Johnson Creeks) rearing coho salmon surveys (8/5-8/71) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	Other
(Marriott & Gray)									
Johnson Creek (8/7-8/71)									
Meadow	1	4.6	16	3 (51)	25 (85)	1 (110)	4 (113)	--	--
fork	2	4.4	16.5	6 (47)	26 (82)	--	5 (99)	--	--
tributary	3	4.0	16	2 (48)	25 (82)	1 (106)	3 (130)	--	--
	4	2.8	15.5	8 (51)	70 (76)	--	4 (92)	2 (130)	--
Beaver ponds	5	2.4	16	--	3 (74)	1 (100)	--	--	--
and tribu-	6	1.9	11	--	15 (68)	--	2 (71)	--	--
taries	7	1.1	15.5	3 (60)	22 (80)	2 (94)	3 (94)	--	--
	8	0.9	15.5	--	4 (66)	--	--	--	--
Mainstream	9	1.7	10.5	13 (50)	23 (70)	--	26 (67)	--	--
0.8 km above									
forks									
Lower main-	10	4.2	11.5	15 (51)	30 (75)	--	10 (76)	--	1 SB
stream	11	3.7	11.5	9 (54)	40 (75)	--	3 (97)	--	--
	12	3.3	11.5	17 (53)	14 (75)	--	3 (80)	--	--
	13	2.8	12	22 (53)	12 (73)	--	--	--	1 SB
	14	2.1	14.5	5 (53)	17 (86)	--	--	--	1 SB
Lower beaver	15	1.1	14	--	--	--	1 (115)	--	Small coho age 0 seen.
dam pond									
Subtotal	15			103 (6.9)	326 (21.7)	5 (0.3)	64 (4.3)	2 (0.1)	3 SB (0.2)
(mean catch per trap in parentheses)									
Total coho salmon, all ages combined				434 (28.9)					
Total salmonids, all species combined (SS, DV, CT)				500 (33.3)					
<hr/>									
TOTALS	32			134 (4.2)	471 (14.7)	8 (0.2)			
(Yehring & Johnson Creeks combined)									
Total coho salmon, all ages combined				613 (19.2)					
Total salmonids, all species combined (SS, DV, CT)				684 (21.4)					

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, SB = stickleback.



Appendix Table 12. Situk River rearing coho salmon survey (8/16-21/71) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)							(Marriott & Gray)	
				SS <sup>1</sup> age 0	SS age I	SS age II	KS age 0	DV	RT	Other		
<u>Situk River</u>												
<u>downstream</u>												
<u>from Situk Lake</u>												
Upper	31	1.6	14.5	--	--	--	--	--	--	--	--	
Situk River	32	1.9	--	5 (52)	--	--	--	--	1 (85)	--	1 SB	
0.4 km below lake	33	1.2	--	11 (63)	2 (71)	1 (80)	64 (73)	--	6 (97)	--	--	
	34	2.0	15	5 (50)	--	--	1 (69)	--	--	--	3 SB	
	35	1.9	--	--	--	--	--	--	--	--	--	
	36	1.9	--	13 (56)	6 (90)	--	20 (72)	--	6	--	27 SB	
Branching Area 2.4 km above west fork	37	1.1	13.5	39 (53)	47 (92)	--	205 (62)	2 (117)	26 (85)	--	2 SB	
	38	2.2	13	5	27	9	38	10	--	--	3 SB	
	39	2.7	13.5	2	2	--	30	--	1	--	Using #37 SS age composition.	
	40	2.5	6	40	48	--	37	7	1	--	Below side trib., 3SB.	
	41	2.6	13.5	14	16	--	52	--	7	--	1 SB	
	42	2.8	13.5	17	21	--	84	--	10	--	1 SB	
	43	2.9	13.5	8	10	--	81	--	6	--	--	
	44	3.0	13.5	26	31	--	98	--	7	--	4 SB	
1.2 km below airstrip	45	1.8	12	19 (66)	22 (84)	--	49 (65)	22 (99)	--	--	Up small tributary.	
	46	2.0	12	28 (57)	22 (85)	--	109 (64)	5 (90)	--	--	1 SB	
	47	2.4	13.5	20 (63)	11 (88)	--	4 (65)	8 (82)	2	--	13 SB	
	48	2.8	12	10 (50)	2 (82)	--	9 (63)	5 (76)	6	--	2 SB	
	49	2.6	11.5	26 (62)	4 (86)	--	5 (61)	13 (96)	1	--	1 SB	
	50	3.1	12	2 (63)	1 (87)	--	8 (64)	2 (83)	1	--	--	
	51	3.2	12	7 (47)	2 (92)	--	26 (65)	2 (73)	--	--	1 SB	
	52	3.4	13	9 (52)	1 (78)	--	6 (66)	--	--	--	3 SB	
0.4 km above old weir cabin	53	2.0	10.5	21 (56)	2 (81)	--	32 (70)	--	--	--	--	
	54	2.5	11	8 (59)	4 (85)	--	7 (70)	1 (151)	--	--	1 age I KS.	
	55	2.7	11	21 (56)	1 (77)	--	--	--	1 (102)	--	--	
	56	2.4	11	28 (59)	7 (83)	--	28 (74)	--	--	--	1 SB	
	57	2.6	11	2 (72)	9 (92)	--	111 (79)	2 (158)	9 (109)	--	--	
	58	2.7	11	19 (57)	3 (82)	--	28 (74)	--	--	--	--	
	59	2.7	11	4 (50)	--	--	--	--	--	--	--	
	60	2.7	11	28 (53)	--	--	11 (72)	--	--	--	--	

-Continued-

Appendix Table 12. Situk River rearing coho salmon survey (8/16-21/71) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)							
				SS <sup>1</sup> age 0	SS age I	SS age II	KS age 0	DV	RT	Other	
East Fork	61	1.2	9	56 (54)	1 (84)	--	--	5 (75)	--	--	
Situk River	62	1.6	9	66 (52)	1 (83)	--	--	8 (61)	2 (115)	--	
to 1.2 km	63	1.8	9	99 (50)	3 (88)	--	2 (63)	3 (59)	--	--	
below	64	2.1	9	48	7 (89)	--	1 (73)	7 (73)	--	--	
highway	65	2.2	9	96 (50)	2 (78)	--	5	5 (54)	--	2 age 0 RS.	
	66	2.6	--	80	5 (84)	1 (118)	--	4 (50)	--	1 age 0 RS.	
	67	2.7	--	4 (54)	2 (80)	--	--	--	--	1 age 0 RS.	
	68	2.7	9	100	6 (85)	--	--	2 (73)	2 (83)	--	
Subtotal	38			986 (25.9)	328 (8.6)	11 (0.3)	1,151 (30.3)	113 (3.0)	95 (2.5)	4 RS (0.1) 1 age I KS	
Total coho salmon, all ages combined				1,325 (34.9)							
Total salmonids, all species combined (SS, KS, RS, DV, RT)				2,689 (70.8)							
TOTALS	68			1,043 (15.3)	342 (5.0)	11 (0.2)	1,151 (16.9)	113 (1.7)	95 (1.4)	4 RS (0.1)	
Total coho salmon, all ages combined				1,396 (20.5)							
Total salmonids, all species combined (SS, KS, RS, DV, RT)				2,760 (40.6)							

<sup>1</sup>SS = coho salmon, KS = chinook salmon, RS = sockeye salmon, DV = Dolly Varden char, RT = rainbow trout, CO = sculpin, SB = stickleback.

Appendix Table 13. Kadashan Creek rearing coho salmon survey (10/18-23/72).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)						(Marriott & Gray)
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	Other	
Mainstream just above ADF&G cabin	1	2.0	4	11 (51)	1 (70)	--	--	--	--	
	2	2.1	4	32 (52)	2 (71)	--	2 (59)	--	--	
	3	2.1	4	2 (52)	--	--	--	--	--	
	4	2.1	4	21 (53)	1 (69)	--	--	--	--	
	5	2.3	4	79 (53)	7 (72)	--	2 (69)	--	--	
West fork mainstream just above ADF&G cabin	1	2.3	4.5	--	--	--	--	--	--	
	2	2.6	4.5	24 (52)	--	--	2 (75)	1 (63)	1 CO	
	3	2.8	4.5	3 (55)	2 (80)	--	1 (142)	1 (77)	4 CO	
	4	3.0	4.5	4 (56)	4 (80)	--	7 (86)	--	--	
	5	3.1	4.5	10 (56)	11 (79)	--	9 (85)	1 (76)	1 CO	
Headwaters of mainstream (Site A)	1	1.0	2	2 (65)	14 (80)	--	13 (110)	--	--	
	2	1.2	2	--	3 (79)	--	5 (88)	--	--	
	3	1.5	2	2 (59)	10 (75)	--	12 (79)	--	--	
	4	1.7	2	2 (61)	11 (80)	--	17 (101)	1 (156)	--	
	5	2.0	2	1 (50)	6 (78)	--	43 (102)	1 (140)	--	
0.8 km below headwaters forks opposite small muskeg (Site B)	1	1.0	--	5 (55)	3 (72)	--	1 (124)	--	--	
	2	1.1	--	1 (61)	2 (86)	--	7 (100)	--	--	
	3	1.2	--	11 (49)	--	--	1 (48)	--	--	
	4	1.2	--	4 (57)	--	--	--	--	--	
	5	1.2	--	15 (47)	2 (88)	--	7 (78)	--	--	
	6	1.3	--	--	1 (80)	--	7 (113)	--	--	
	7	1.3	--	9 (56)	7 (80)	1 (103)	3 (95)	--	--	
	8	1.4	--	18 (51)	9 (84)	--	10 (82)	--	--	
	9	1.5	--	5 (54)	3 (84)	--	5 (94)	--	--	
	10	1.5	--	--	1 (69)	--	--	--	Poor set.	

-Continued-

Appendix Table 13. Kadashan Creek rearing coho salmon survey (10/18-23/72) - (continued).

(Marriott & Gray)									
Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	Other
1.6 to 2.1 km	1	1.0	8	29 (56)	27 (79)	--	1 (65)	--	--
below second	2	1.2	8	7 (59)	7 (82)	1 (110)	4 (85)	--	--
tributary from	3	1.3	8	54 (50)	4 (85)	--	--	--	--
headwaters of	4	1.4	8	16 (58)	15 (83)	--	18 (76)	--	--
mainstream (at	5	1.5	8	12 (52)	20 (86)	2 (103)	17 (79)	--	3 CO
U.S.F.S. Porta	6	1.5	8	23 (52)	3 (73)	--	1 (73)	--	--
Camp)(Site C)	7	1.6	8	29 (50)	6 (74)	--	7 (77)	--	--
	8	1.7	8	27 (57)	30 (77)	--	21 (92)	1 (111)	3 CO
	9	1.8	8	69 (51)	10 (77)	--	--	--	--
	10	2.0	8	3 (52)	2 (76)	--	1 (68)	--	--
East fork of	1	5.2	--	20 (52)	11 (80)	--	15 (73)	--	--
stream below	2	5.1	--	39 (48)	1 (98)	--	--	--	--
falls (Site D)	3	5.0	--	--	17 (85)	--	3 (72)	--	--
	4	4.9	--	2 (49)	22 (87)	1 (103)	10 (116)	--	--
East fork	5	1.3	4	--	--	--	4 (87)	--	--
above falls <sup>2</sup>	6	1.2	4	--	--	--	15 (101)	--	--
	7	1.0	4	--	--	--	20 (98)	--	--
One-half way	1	1.1	--	8 (50)	1 (89)	--	3 (74)	--	--
between ADF&G	2	1.2	--	50 (51)	--	--	4 (73)	--	--
cabin and East	3	1.3	--	53 (49)	1 (80)	--	--	--	--
Fork (Site E)	4	1.5	--	36 (52)	1 (68)	--	6 (70)	--	--
	5	1.6	--	28 (50)	--	--	--	--	--
	6	1.8	--	7 (45)	--	--	--	--	--
	7	2.0	--	31 (50)	4 (79)	--	10 (61)	--	--
TOTALS	49			804 (16.4)	282 (5.8)	5 (0.1)	314 (6.4)	6 (0.1)	12 CO (0.2)
(mean catch per trap in parentheses)									
Total coho salmon, all ages combined				1,091 (22.3)					
Total salmonids, all species combined (SS, DV, CT)				1,411 (28.8)					

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin.

<sup>2</sup>Anadromous salmonids may not be able to get over the East Fork falls, explaining the absence of rearing coho salmon.

Appendix Table 14. Naha River rearing coho salmon survey (7/10-13/73).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)							Other
				SS age 0	SS age I	SS age II	DV	CT	RT		
(Marriott & Gray)											
<u>Heckman Lake</u>											
West and south shores and around inlets	1	2.2	13	--	--	--	--	--	--	1 SB, 9 CO	
	2	2.2	--	1 (45)	4 (90)	--	--	3 (135)	--	1 SB	
	3	2.2	--	--	--	--	--	--	--	1 CO	
	4	2.2	13	--	--	--	--	--	--	1 CO	
	5	2.2	--	--	9 (88)	--	--	--	--	1 SB	
	6	2.1	12.5	--	2 (99)	--	--	--	--	9 CO	
	7	2.2	11.5	--	--	--	--	--	--	In current from Patching Lake inlet. - No fish.	
	8	2.1	10.5	5 (47)	10 (78)	--	--	--	--	2 SB, 1 CO, 1 salmon- mander. Spring-fed slough in southeast corner of lake.	
	9	2.0	13	--	52 (91)	--	--	1 (142)	--	1 SB, 2 CO	
	10	2.3	--	--	9 (87)	--	--	4 (129)	--	3 CO	
North and west shores by cabin and outlet	11	1.2	13.5	--	2 (93)	--	--	--	--	3 CO	
	12	1.1	--	--	2 (101)	--	--	--	--	11 CO	
	13	1.1	13.5	--	24 (93)	--	--	--	--	1 SB, 6 CO	
	14	1.1	--	--	--	--	--	--	--	12 CO	
	15	1.2	--	--	8 (96)	--	--	2 (121)	--	--	
	16	1.0	--	--	2 (92)	--	--	--	--	--	
Deer Creek (southeast tributary to Heckman Lake)	17	2.6	--	--	7 (74)	--	--	--	--	Downstream pool near mouth, 1 CO.	
	18	2.2	9.5	1 (61)	9 (81)	3 (103)	2 (137)	--	--	--	
	19	1.4	9.5	--	48 (76)	1 (99)	4 (139)	2 (128)	--	--	
	20	0.4	9.5	--	22 (75)	--	1 (99)	--	--	0.8 km upstream.	
Falls Creek (inlet flowing into Heckman Lake from Patching Lake)	21	1.6	12.0	--	3 (90)	--	--	1 (164)	1 (155)	200 m above lower falls.	
	22	1.0	--	--	1 (87)	--	--	--	1 (94)	100 m above third falls.	
	23	1.0	--	--	14 (80)	--	--	--	1 (78)	"	
	24	1.0	--	4 (47)	7 (77)	--	--	1 (97)	--	"	
<u>Jordan Lake</u>											
Inlet stream	25	2.0	13	4 (48)	--	--	--	--	--	Side channel of inlet from Heckman Lake.	
Shoreline and tributaries	26	2.0	--	1 (44)	15 (93)	--	--	--	1 (73)	Shore of main channel into Jordan Lake.	
	27	2.2	13.5	6 (48)	2 (93)	--	--	1 (175)	--	Just east of inlet, 1 CO.	
	28	2.2	--	3 (47)	9 (79)	--	--	2 (139)	--	SE shore, 1 SB, 1 CO.	
	29	2.1	--	11 (49)	10 (81)	--	--	1 (112)	--	Shoreline near east inlet creek.	

-Continued-

Appendix Table 14. Naha River rearing coho salmon survey (7/10-13/73) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)							Other
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	RT		
Emma Creek	30	2.2	13.5	--	4 (92)	--	--	--		2 (127)	30 m up Emma Creek.
	31	2.0	--	11 (46)	7 (76)	--	--	--	--	--	West of Emma Creek, 7 SB.
	32	2.0	13.5	14 (47)	1 (67)	--	--	1 (132)	--	--	North shore, 10 SB.
In tributary on point near outlet of Jordan Lake	33	1.3	7.5	--	7 (79)	--	7 (78)	3 (89)	--	--	--
	34	1.5	--	--	7 (74)	--	6 (99)	7 (82)	--	--	0.4 km upstream.
<u>Roosevelt Lagoon</u>											
	35	1.6	9.5	5 (54)	4 (82)	--	--	--	--	--	Near inlet, 7 SB.
	36	1.7	11.5	--	--	--	--	--	--	--	15 CO
	37	1.7	--	--	3 (98)	--	13 (134)	3 (129)	--	--	30 m west of boat landing, 2 CO.
	38	1.8	11.5	--	--	--	--	2 (133)	--	--	South shore behind island.
	39	1.8	--	--	--	--	12 (156)	2 (141)	--	--	South shore off middle pond.
	40	2.0	--	--	1 (99)	--	--	2 (132)	--	--	North shore, 1 SB, 2 CO.
TOTALS	40			66 (1.6)	305 (7.6)	4 (0.1)	45 (1.1)	38 (1.0)	6 (0.2)		80 CO (2.0), 33 SB (0.8)
(mean catch per trap in parentheses)											
Total coho salmon, all ages combined				375 (9.4)							
Total salmonids, all species combined (SS, DV, CT, RT)				464 (11.6)							

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RT = rainbow trout, CO = sculpin, SB = stickleback.

Appendix Table 15. Windfall Lake rearing coho salmon survey (7/30-8/1/73).

Location	Trap No.	Hrs. set	W.T. °C	(Gray & Sanders)					
				SS <sup>1</sup> age 0	SS age I	Catch (mean length in mm)		CT	Other
						SS age II	DV		
Windfall	1	5.7	14	5 (60)	24 (84)	2 (107)	--	--	1 SB
Lake outlet	2	5.5	14	4 (62)	18 (86)	2 (106)	--	--	4 SB
	3	5.2	14	34 (57)	10 (77)	--	--	--	10 SB
	4	4.8	14	23 (59)	14 (82)	--	--	--	31 SB
	5	4.2	14	1 (59)	5 (89)	--	3 (99)	--	--
	6	3.5	14	2 (67)	5 (90)	--	1 (117)	3 (139)	--
	7	3.2	14	--	4 (84)	--	4 (110)	2 (110)	--
	8	2.6	14	35 (56)	27 (80)	1 (106)	1 (93)	--	4 SB
	9	1.0	14	36 (57)	10 (83)	1 (100)	9 (95)	--	2 CO
Subtotal				140 (15.6)	117 (13.0)	6 (0.7)	18 (2.0)	5 (0.6)	2 CO (0.2), 50 SB (5.6)
Windfall	1	1.7	13	2 (60)	20 (90)	2 (126)	--	1 (150)	18 SB
Lake	2	1.9	13	6 (59)	29 (87)	1 (124)	--	--	3 SB
	3	2.2	13.5	21 (60)	10 (77)	--	--	--	4 SB
	4	2.3	13.5	29 (60)	24 (78)	--	--	--	2 SB
	5	2.6	13.5	24 (58)	21 (80)	--	--	--	15 SB
	6	2.7	13.5	28 (60)	22 (81)	--	--	--	6 SB
	7	2.9	14	--	--	--	--	--	22 SB
	8	3.0	--	--	2 (97)	--	--	--	27 SB
	9	3.1	13	8 (58)	13 (78)	--	1 (141)	--	22 SB
	10	3.0	14	4 (64)	14 (80)	--	--	--	4 SB
	11	1.3	15	1 (59)	2 (83)	--	--	--	10 SB
	12	1.4	15	--	2 (77)	1 (125)	--	--	27 SB
	13	1.4	14	--	2 (89)	--	--	--	63 SB
	14	1.4	12	3 (63)	11 (88)	1 (129)	--	--	--
	15	1.5	13.5	1 (59)	3 (106)	1 (126)	--	--	16 SB
	16	1.5	13.5	7 (60)	11 (83)	1 (120)	--	--	1 SB
	17	1.6	14	4 (58)	5 (80)	--	--	--	26 SB, 1 RS (49).
	18	1.6	14	8 (62)	6 (79)	--	--	--	26 SB
	19	1.7	14	1 (67)	5 (96)	--	--	--	46 SB
	20	1.7	14	2 (63)	8 (90)	--	--	--	51 SB
Subtotal				149 (7.4)	210 (10.5)	7 (0.4)	1 (0.0+)	1 (0.0+)	1 RS (0.0+), 389 SB (19.4)

-Continued-

Appendix Table 15. Windfall Lake rearing coho salmon survey (7/30-8/1/73) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)					
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	Other
Windfall Lake inlet stream	1	5.1	8.5	10 (48)	5 (72)	--	8 (68)	--	--
	2	3.3	9.5	5 (53)	18 (72)	--	11 (92)	--	--
	3	2.5	10	--	3 (76)	--	31 (96)	--	--
Subtotal				15 (5.0)	26 (8.7)	0	50 (16.7)	0	
Herbert River (at trail end by parking lot)	1	1.0	3	--	--	--	5 (119)	--	Fish almost white color from glacial water.
	2	1.0	3.5	--	--	--	--	--	
				0	0	0	5 (2.5)	0	
TOTALS	32			304 (9.5)	353 (11.0)	13 (0.4)	69 (2.2)	6 (0.2)	1 RS (0.0+), 2 CO (0.1), 439 SB (13.7).
(Windfall Lake, outlet, and inlet) (mean catch per trap in parentheses)									
Total coho salmon, all ages combined				670 (20.9)					
Total salmonids, all species combined (SS, RS, DV, CT)				746 (23.3)					

<sup>1</sup>SS = coho salmon, RS = sockeye salmon, DV = Dolly Varden char, CT = cutthroat trout, CO = sculpin, SB = stickleback.

Appendix Table 16. Stoney Creek rearing coho salmon survey (8/1-7/73).

(Marriott & Bland)

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)							
				SS age 0	SS age I	SS age II	DV	CT	RT	Other	
Site A	1	1.2	13	1 (63)	1 (68)	4 (85)	1 (155)	--	--	10 CO	
Lower bend	2	1.3	14	12 (52)	4 (68)	3 (78)	--	--	--	--	
of river	3	1.3	--	71 (54)	8 (66)	6 (79)	--	--	--	--	
and north	4	1.8	--	37 (55)	4 (66)	3 (75)	--	--	--	1 CO	
tributary	5	2.0	--	9 (51)	1 (65)	--	--	--	--	--	
mouth	6	2.0	--	13 (51)	--	7 (84)	--	1	--	--	
	7	2.3	--	52 (58)	--	--	--	--	--	--	
	8	5.1	--	4 (58)	--	--	--	--	--	5 CO	
	9	5.0	--	1 --	2 --	--	--	1	--	4 CO	
Subtotal (mean catch per trap in parentheses)				200 (22.2)	20 (2.2)	23 (2.6)	1 (0.1)	2 (0.2)			
Site B	1	1.0	--	--	--	--	--	--	--	--	
Mainstream	2	1.0	--	--	--	--	--	--	3 (115)	--	
from fork	3	1.0	--	3 (58)	3 (71)	1 (87)	--	--	1 (76)	--	
with southwest	4	1.0	--	2 (59)	8 (81)	2 (83)	--	--	4 (107)	5 CO	
tributary to	5	1.2	--	9 (49)	3 (70)	--	--	--	--	--	
140 m downstream	6	1.2	--	--	--	--	--	--	2 (112)	--	
	7	1.2	--	--	1 (70)	2 (84)	1 (104)	--	1 (103)	--	
Subtotal				14 (2.0)	15 (2.1)	5 (0.7)	1 (0.1)	0	11 (1.6)		
Site C	1	1.0	--	5 (70)	11 (82)	1 (100)	--	--	13 (96)	--	
Muskeg-fed tribu-	2	1.2	--	--	9 (81)	1 (98)	--	--	2 (106)	3 CO	
tary just up-	3	2.6	--	1 (58)	--	--	1 (124)	--	5 (123)	--	
stream from south-	4	2.7	--	--	--	--	--	--	2 (124)	--	
west tributary	5	1.3	--	2 (63)	12 (85)	--	--	--	3 (107)	2 CO	
	6	1.7	--	--	--	--	--	--	16 (125)	--	
	7	1.8	--	2 (65)	8 (85)	--	1 (165)	--	3 (135)	--	
Subtotal				10 (1.4)	40 (5.7)	2 (0.3)	2 (0.3)	0	44 (6.3)		

-Continued-

Appendix Table 16. Stoney Creek rearing coho salmon survey (8/1-7/73) - (continued).

(Marriott & Bland)										
Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)						
				SS age 0	SS age I	SS age II	DV	CT	RT	Other
Site D	1	0.8	--	2 (45)	7 (78)	--	6 (119)	--	7 (118)	1 CO
Southeast tributary	2	1.1	--	6 (59)	17 (81)	--	6 (91)	--	3 (113)	2 CO
at town-ship 32	3	1.2	--	2 (69)	6 (80)	--	12 (108)	--	15 (107)	1 CO
roadcross- ing	4	1.4	--	19 (61)	16 (79)	--	12 (87)	--	1 (90)	--
	5	2.0	--	1 (60)	3 (83)	--	7 (107)	--	9 (100)	--
	6	1.7	--	1 (48)	4 (76)	--	9 (104)	--	5 (103)	--
	7	1.2	--	--	6 (85)	--	2 (81)	--	2 (87)	1 CO
Subtotal				31 (4.4)	59 (8.4)	0	54 (7.7)	0	42 (6.0)	
Site E	1	1.1	--	10 (43)	1 (67)	--	--	--	--	--
Southeast tributary 4 km up- stream	2	0.9	--	1 (45)	--	--	3 (87)	--	--	--
	3	1.2	--	29 (43)	1 (70)	--	1 (70)	--	--	--
	4	1.3	--	--	--	--	--	--	--	3 adult chum salmon seen.
	5	1.3	--	4 (58)	21 (73)	--	2 (92)	--	--	--
	6	1.5	--	10 (49)	2 (71)	--	1 (83)	--	--	--
	7	1.6	--	12 (56)	38 (71)	--	2 (72)	--	3 (80)	--
Subtotal				66 (9.4)	63 (9.0)	0	9 (1.3)	0	3 (0.4)	
Site F	1	1.0	--	1 (37)	--	--	--	--	--	--
Southeast tributary 1.2 km upstream from rapids	2	1.0	--	5 (46)	1 (75)	--	1 (88)	--	--	--
	3	1.0	--	1 (45)	3 (92)	--	--	--	8 (114)	3 CO
	4	1.7	--	1 (48)	2 (83)	--	--	--	--	--
	5	1.7	--	7 (53)	11 (77)	--	1 (92)	--	1 (122)	--
	6	1.3	--	2 (49)	2 (85)	--	--	--	--	--
	7	1.2	--	1 (51)	8 (83)	--	--	--	--	--
Subtotal				18 (2.6)	27 (3.9)	0	2 (0.3)	0	9 (1.3)	

-Continued-

Appendix Table 16. Stoney Creek rearing coho salmon survey (8/1-7/73) - (continued).

(Marriott & Bland)										
Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)						
				SS <sup>1</sup> age 0	SS age I	SS age II	DV	CT	RT	Other
Site G	1	1.0	--	12 (53)	11 (85)	--	6 (106)	2 (105)	--	--
North tributary	2	1.0	--	15 (52)	19 (80)	--	11 (87)	3 (94)	--	1 SB
at road crossing	3	1.2	--	4 (59)	6 (86)	--	4 (105)	1 (96)	--	--
upstream from lake	4	1.2	--	3 (50)	10 (83)	--	13 (90)	3 (111)	--	--
Subtotal				34 (8.5)	46 (11.5)	0	34 (8.5)	9 (2.2)	0	
Site H	1	1.1	--	1 (58)	3 (96)	--	--	--	12 (109)	1 CO
North tributary	2	1.2	--	4 (60)	3 (94)	--	--	--	8 (116)	--
1.1 km upstream	3	2.1	--	6 (54)	5 (94)	--	--	1 (133)	10 (121)	--
from main river	4	1.8	--	23 (54)	2 (93)	--	--	--	2 (96)	1 SB
	5	1.3	--	8 (59)	6 (87)	--	--	--	12 (107)	1 SB
	6	1.5	--	--	1 (78)	--	--	--	--	--
	7	1.3	--	4 (60)	6 (95)	--	4 (142)	--	4 (113)	--
Subtotal				46 (6.6)	26 (3.7)	0	4 (0.6)	1 (0.1)	48 (6.9)	
TOTALS	55			419 (7.6)	296 (5.4)	30 (0.5)	107 (1.9)	12 (0.2)	157 (2.9)	39 CO (0.7), 3 SB (0.1)
(mean catch per trap in parentheses)										
Coho salmon age composition				(56.2%)	(39.7%)	(4.0%)				
Total coho salmon, all ages combined				745 (13.5)						
Total salmonids, all species combined (SS, DV, CT, RT)				1,021 (18.6)						

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, RT = rainbow trout, CO = sculpin, SB = stickleback.

Appendix Table 17. Pavlof River rearing coho salmon survey (7/9-16/75).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)				(Gray & Florey)		
				SS <sup>1</sup> age 0	SS age I	SS age II	SS age III	DV	CT	Other
South fork Pavlof River	1	3.0	8	--	1 (60)	--	--	22 (78)	--	--
upstream from upper forks (1.6 km from mountain)	2	2.9	8.5	--	--	--	--	1 (68)	--	--
	3	1.9	8.5	--	--	--	--	9 (78)	--	--
	4	1.8	--	--	--	--	--	15 (78)	--	--
West fork Pavlof River up-stream from upper forks (1.6 km from mountain)	5	3.2	9	--	1 (58)	--	--	15 (86)	--	--
	6	4.2	7	--	--	--	--	4 (73)	--	--
	7	4.2	7	--	--	--	--	1 (138)	--	--
	8	3.8	13.5	--	--	--	--	2 (80)	2 (114)	In side channel.
Mainstream Pavlof River just upstream from upper forks	9	4.1	8.5	--	--	--	--	6 (64)	--	--
	10	4.2	14.5	1 (44)	9 (65)	--	--	1 (88)	--	In side slough.
Mainstream Pavlof River just downstream from northwest tributary	1	4.2	17	--	21 (64)	--	--	10 (78)	1 (185+)	In side slough.
	2	4.0	18.5	50 (47)	19 (63)	--	--	13 (61)	--	In side slough.
	3	4.4	8.5	--	1 (73)	--	--	3 (77)	--	--
	4	4.5	11	1 (44)	7 (67)	--	--	9 (76)	--	In colder side slough.
	5	4.6	9	1 (50)	4 (58)	--	--	3 (62)	--	--
	6	4.5	9	--	--	--	--	4 (67)	--	--
East fork of northwest tributary	7	4.4	9.5	--	2 (60)	--	--	8 (83)	--	--
	8	4.4	9.5	--	2 (60)	3 (74)	--	15 (82)	1 (113)	--
West fork of northwest tributary	9	4.5	9.5	--	--	--	--	4 (98)	--	--
	10	4.3	9.5	--	--	--	--	9 (81)	--	--

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Appendix Table 17. Pavlof River rearing coho salmon survey (7/9-16/75) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	(Gray & Florey)						
				SS age 0	SS age I	Catch (mean length in mm)		DV	CT	Other
						SS age II	SS age III			
In Beaver Pond just off main-stream	1	1.2	14.5	28 (52)	9 (69)	--	--	3 (80)	--	3 SB
	2	1.3	14.5	--	17 (81)	--	--	5 (98)	1 (121)	--
	3	1.5	14.5	--	36 (76)	--	--	4 (106)	--	--
	4	1.4	14.5	1 (59)	12 (75)	--	--	6 (82)	--	1 SB
	5	1.6	14.5	7 (54)	6 (71)	--	--	--	--	1 SB
In outlet to marshy lake in second muskeg from headwaters	6	1.1	18.5	18 (47)	10 (79)	--	--	2 (114)	--	32 SB
	7	1.4	19	5 (55)	39 (76)	--	--	10 (91)	--	55 SB
	8	1.5	19	6 (58)	27 (76)	1 (117)	--	2 (98)	--	55 SB
Main Pavlof River near outlet from same marshy lake (by above 3 traps)	9	1.2	9	--	--	--	--	--	--	No fish.
	10	1.0	9	--	--	--	--	--	--	No fish.
Small ponds and highwater channel to main-stream on north bank of second muskeg	1	1.2	19	--	--	3 (119)	1 (113)	--	--	8 SB, 1 TP
	2	1.2	17	--	2 (79)	9 (115)	--	--	--	8 SB
	3	1.2	18.5	7 (63)	1 (77)	2 (113)	1 (126)	2 (118)	--	7 SB
Mainstream Pavlof River just upstream from falls	4	2.2	8	--	--	--	--	2 (87)	--	--
	5	2.2	8	--	1 (74)	--	--	2 (81)	--	--
	6	2.2	8	--	--	--	--	4 (61)	--	--
Tributary to Pavlof River just upstream from main river falls	7	2.1	10	--	3 (71)	--	--	13 (100)	3 (123)	--
	8	2.2	10	--	2 (67)	--	--	8 (83)	3 (108)	--

-Continued-

Appendix Table 17. Pavlof River rearing coho salmon survey (7/9-16/75) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	Catch (mean length in mm)							(Gray & Florey)	
				SS <sup>1</sup> age 0	SS age I	SS age II	SS age III	DV	CT	Other		
Mainstream Pavlof River just downstream from falls	1	1.8	8	--	--	--	--	1 (86)	--	--		
	2	1.5	--	--	--	--	--	--	--	No fish.		
First tributary to mainstream, downstream from falls	3	2.0	8	--	--	--	--	--	--	No fish.		
	4	2.0	7.5	--	--	--	--	2 (81)	--	--		
	5	1.3	7	--	--	--	--	1 (64)	--	--		
	6	1.0	7	--	--	--	--	--	--	No fish, trap moved 45° to current.		
Second Tributary to mainstream, downstream from falls	7	1.9	8.5	--	--	--	--	1 (93)	3 (118)	--		
	8	1.7	8.5	--	--	--	--	7 (77)	4 (104)	--		
	9	1.0	8.5	--	--	--	--	16 (71)	--	--		
Pavlof Lake (south shore upstream from outlet)	1	2.2	13.5	--	--	--	--	--	--	No fish.		
	2	2.0	13	--	--	--	--	--	--	No fish.		
	3	2.0	13.5	--	--	--	--	--	--	No fish.		
	4	2.0	12	1 (50)	2 (71)	--	--	1 (61)	--	--		
In tributary creek 200 m upstream from Pavlof Lake outlet	5	2.1	11.5	--	17 (82)	1 (98)	--	2 (109)	1 (105)	--		
Pavlof Lake (near outlet and along north shore)	6	2.2	11	--	2 (90)	--	--	1 (83)	--	--		
	7	1.9	12	--	7 (80)	--	--	--	--	--		
	8	2.0	10.5	--	1 (85)	--	--	1 (98)	--	--		
	9	1.9	13.5	--	--	--	--	--	--	No fish.		
	10	1.7	13	--	--	--	--	--	--	No fish.		

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Appendix Table 17. Pavlof River rearing coho salmon survey (7/9-16/75) - (continued).

Location	Trap No.	Hrs. set	W.T. °C	(Gray & Florey)								
				SS <sup>1</sup> age 0	SS age I	Catch (mean length in mm)		DV	CT	Other		
Pavlof Lake (south shore)	1	3.4	13.5	1 (56)	9 (73)	--	--	16 (103)	--	Beside beaver lodge, 2 SB.		
	2	3.5	12	--	1 (69)	--	--	4 (129)	--	--		
	3	3.6	13	--	--	--	--	--	--	2 SB		
	4	4.2	14	--	--	1 (88)	--	3 (141)	1 (131)	--		
	5	3.3	15.5	--	1 (94)	--	--	9 (119)	1 (120)	In lily pads on edge of horsetail.		
	6	3.3	12	--	18 (80)	1 (88)	--	7 (101)	--	--		
In tributary creek 140 m west of Pavlof River	7	3.5	10.5	--	1 (79)	--	--	25 (86)	8 (113)	--		
Pavlof Lake (north shore and slough)	8	3.4	12	--	--	--	--	--	--	No fish.		
	9	3.2	9	--	--	--	--	--	--	In stagnant slough - low 0?		
	10	3.0	13.5	--	--	--	--	--	--	Off mouth of same slough, 1 SB.		
Pavlof Lake (off inlet mouth)	1	1.5	8.0	--	--	--	--	--	--	No fish.		
	2	1.5	8.5	--	--	--	--	--	--	No fish.		
TOTALS	69			127 (1.8)	291 (4.2)	21 (0.3)	2 (0+)	314 (4.6)	29 (0.4)	175 SB (2.5)		
Coho salmon age composition				(28.8%)	(66.0%)	(4.8%)	(0.4%)					
Total coho salmon, all ages combined				441 (6.4)								
Total salmonids, all species combined (SS, DV, CT)				784 (11.4)								

<sup>1</sup>SS = coho salmon, DV = Dolly Varden char, CT = cutthroat trout, SB = stickleback, TP = tadpoles.

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