Volume 14

Study No. G-I
Job No. G-I-A

STATE OF ALASKA

William A. Egan, Governor

Annual Progress Report for

Inventory and Cataloging of the Sport Fish and Sport Fish Waters in Southeast Alaska

by

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ALASKA DEPARTMENT OF FISH AND GAME

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IN MEMORIAM

Mike McHugh was born in Port Angeles, Washington, on September 24, 1935. He graduated from Columbia High School in Richland, Washington, in 1953. In August of 1953, he entered the U. S. Air Force where he served until 1957, when he received an honorable discharge. From 1957 to 1962, Mike attended Riverside College, and Humboldt State College in California, receiving his Bachelor of Arts in zoology from the latter. He was employed by the U. S. Fish & Wildlife Service, as a Fishery Biologist at Ludington, Michigan, from 1962 to 1964, where he was engaged in the lamprey control program.

Mike joined the Alaska Department of Fish and Game in June, 1964, as a Fishery Biologist, with the Commercial Fisheries Division. Mike first served as Assistant Area Management Biologist, then transferred to pink salmon research. In September, 1969, he transferred to the Sport Fish Division, where he was appointed Upper Southeast Area Management Biologist. He served in this position until his death on July 29, 1973.

Mike was a member of the American Institute of Fishery Research Biologists, the American Fisheries Society, and member and founder of the Juneau Rifle and Pistol Club.

He was considered to be an outstanding fishery biologist, and was noted for his extensive knowledge of the Southeast Alaska fisheries resources. The enthusiasm he showed for life was reflected in his work accomplishments in the fishery profession. He will be fondly remembered by those who knew and worked with Mike.

He is survived by his wife, Betsy, daughter Betsy and son Michael.

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RESEARCH PROJECT SEGMENT

State: Alaska

Project No.: F-9-5 Name: Sport Fish Investigations of Alaska.

Study No.: G-I Study Title: Inventory and Cataloging.

Job No.: G-I-A Job Title: Inventory and Cataloging of the Sport Fish and Sport Fish Waters in Southeast Alaska.

Period Covered: July 1, 1972 to June 30, 1973.

ABSTRACT

Two complete sets of catalog and inventory files were established and located in Sitka and the Region I office in Juneau. A total of 134 streams, 50 lakes and 2 saltwater bays were added to the catalog and inventory file. In addition, more information was added to 135 existing files on streams and lakes.

Development of sport fisheries along the road system was enhanced by finding a method for harvest of sockeye salmon, Oncorhynchus nerka, in Auke Lake. The Eagle River-Herbert River area yielded good catches of Dolly Varden char, Salvelinus malma: 11.33 per hour, and cutthroat trout, Salmo clarki: 8.0 fish per hour. Bathymetry, physical limnology, and fish populations of Mendenhall Lake were studied. Mendenhall Lake were shown to contain a high population of anadromous Dolly Varden. Attempts to catch fish by trotline, and hook and line met with little success.

Thirty-two streams and lakes were evaluated along the proposed St. James Bay-to-Haines highway.

An evaluation of the Crane Lakes area, Mitkof Island, was conducted.

The extent of the Prince of Wales Island road system and associated recreation area was documented. Recommendations for future investigations were made.

An estimated 7,175 coho, O. kisutch, 1,791 king, O. tshawytscha, 650 pink, O. gorbuscha, and 235 chum salmon, O. keta, were taken by Juneau area

saltwater sport fishermen, June 1 - September 3, 1972. The Golden North Salmon Derby coho, king, pink, and chum salmon catches were 1,817, 528, 328, and 123, respectively. The North Behm Canal salmon catch was 1,612 king, 513 coho, and 443 pink salmon during the period May 23 - August 28. Ketchikan area sport fishermen harvested an estimated 7,575 king, 9,134 coho, 6,290 pink, and 504 chum salmon from May 22 to August 28, 1972. An estimated 10,105 angler trips were spent fishing the waters adjacent to the Juneau road system. Total catch was estimated to be 9,152 Dolly Varden, 269 cutthroat, 56 king salmon, 583 pink salmon, 1,390 chum salmon, 56 sockeye salmon, 45 steelhead, Salmo gairdneri, and 45 halibut, Hippoglossus stenolepis. Haines roadside area sportsmen caught an estimated 2,916 pink salmon, 2,779 Dolly Varden, 1,813 coho salmon, 326 chum salmon, 130 king salmon, 60 sockeye salmon, 37 halibut, and 32 cutthroat.

The most suitable sampling design, based on an evaluation of previous studies to determine economic value to sport fisheries, proved to be handout questionnaires on a self-addressed Department mailer form.

RECOMMENDATIONS

Research

1. The Division of Sport Fisheries and the Division of Commercial Fisheries should standardize methods for the collection of field base line information. The same types of information are collected by both divisions, but often certain aspects or considerations are overlooked during a given investigation. Standardization of routine stream and lake investigations would eliminate those oversights and make all data more beneficial to potential users.
2. It is recommended that the limnology and fisheries of aquatic systems along the Prince of Wales Island road system be evaluated. Recreation inventories of these aquatic systems should be developed.
3. An evaluation of the economic contribution of the saltwater sport fishery in the Juneau area should be conducted using self-addressed mailer type questionnaires. Two questionnaires should be mailed or passed out to a representative sample of anglers at designated time intervals. One questionnaire should be designed to gain estimates of major or capital expenditures of equipment. The other should cover miscellaneous expenditures and census values that would change through the saltwater angling season. The results from these questionnaires should be compiled and expanded as one estimate of the saltwater angler's contribution to the economy of the greater Juneau area.

Management

1. If the proposed St. James Bay-to-Haines road is constructed, it is recommended that strict measures be taken to prevent damage to known productive systems. The systems of concern which are crossed by the proposed road are the Sullivan River, Endicott River, Beardslee River, and unnamed stream No. 115-31-45 at the head of "Snug Cove."

It is recommended that:

a) Construction equipment or materials will not be permitted to operate in these streams or take material from them.
b) Stream flow will not be obstructed or impaired by installation of bridging materials.
c) Bridging operations will be conducted during a period of time when spawning and rearing Salmonidae will not be distrubed.
d) Stream banks will be protected from undue activity that would cause destruction of cover.
e) Boat launch ramps and parking areas be constructed in the Haska Creek, Glacier River, Sullivan River, Endicott River, William Henry Bay, and Saint James Bay areas.

2. It is recommended that:
a) No further stocking be done in the Crane Lakes area of Mitkoff Island without more intensive surveys and follow-up monitoring.
b) Road access be provided to June Lake from the existing road system. Trail access be provided to Sand Lake from road system.

OBJECTIVES

1. To organize and publish all available information on the sport fish resources of the fresh waters of Southeastern Alaska.

2. To develop sport fisheries on under utilized populations of fish along the Juneau road system.

3. To develop a plan for management of the sport fish resources adjacent to the proposed highway between St. James Bay and Haines.

4. To develop a plan for the management of the sport fish resource in the Harriet Hunt Lake area near Ketchikan and the Crane Lake area near Petersburg.

   (A review of information available on Harriet Hunt Lake showed that this is a muskeg lake with drainage area of 1370 acres. Rainbow trout introduced in 1954 and 1967 have developed a fair recreational fishery. As there are no winter-kill problems and angler pressure is very light, no further investigations were conducted on this lake.)

5. To determine the need of developing plans for management of the sport fish resources along existing and proposed roads on Prince of Wales Island.

6. To determine angler success, fish size, abundance, and distribution of fish caught in the saltwater sport fishery-Juneau area; roadside fishery-Juneau area; Bell Island area-saltwater sport fishery and Haines area-sport fishery.

7. To determine the feasibility of conducting a study on the economic contribution of the saltwater sport fishery in the Juneau area.

TECHNIQUES USED

Organization of Catalog and Inventory Files

A filing system was designed to facilitate the orderly acquisition and subsequent recall of information collected on lakes, streams, and saltwater bays in the Southeast Alaska area. In addition to those field surveys conducted by personnel of this project, effort was devoted to acquire copies of research and management data collected and held by other biologists. Older documents were searched and any pertinent field surveys or notes on resource utilization were photocopied and filed with that system.

Development of Sport Fisheries - Juneau Road System

Auke Bay - Auke Lake:

A program was designed to encourage the development of a sport fishery for sockeye salmon in the Auke Bay and Auke Lake area. Combinations of colored flashers, plastic squid, flies, and lures were trolled on 18-inch leaders behind medium-sized flashers at very slow speed and varying depths. Trolling was done throughout the Auke Bay area, with primary effort allocated in the vicinity of Auke Creek. Fishing effort was shifted to Auke Lake as sockeye entered Auke Creek.

Eagle River - Herbert River:

The sport fishery potential of Eagle and Herbert rivers was sampled during the months of August and September by hook and line.

Mendenhall Lake:

The bathymetry, temperature and turbidity, and species composition and abundance of fish in Mendenhall Lake was determined from June through September.

Temperatures were taken at 5-foot intervals using an electronic thermometer. Turbidity readings were recorded in Jackson Turbidity Units and measured at 10-foot intervals using a Kemmener sampling bottle and a Hach colorimeter.

Vertical gillnet sets were used to determine the horizontal and vertical distribution of Salmonidae in Mendenhall Lake. Each net set was composed of five fixed size mesh panels (1/2", 3/4", 1", 1-1/4", 1-3/4"). The lake was divided into twenty sampling sections of equal size and one vertical gillnet set was allocated in each sampling section. The depth sampled by the net sets was varied in order to gain a representative sample of different depths. The sampling order of each set was randomly selected. The arrangement of the five different size mesh panels in each set were also placed randomly. Horizontal variable mesh gillnets were placed in predetermined locations to determine the species composition and abundance.

Once the preliminary vertical and horizontal gillnet sets were completed, trot lines and hook and line sampling were used to evaluate the sport fishing potential of Mendenhall Lake. Trot line sets were fished on the lake bottom, vertically from the surface to the bottom, and horizontally at a given depth. Baits were placed 10 feet apart with salmon roe, shrimp, cheese, and liver being used. Hook and line sampling involved the use of bait, lures, and surface plugs used in conjuuction with chum. Vertical gillnet sets, consisting of two net panels each of 1", 1-1/4", 1-3/4" mesh, were fished in close proximity to the trot line sets to indicate the abundance of fish in an area.

Fish Resources - St. James Bay to Haines

The aquatic systems along the west coast of Lynn Canal are primarily under-utilized by sport fishermen at present. Increased use of this area by sportsmen is anticipated if a proposed road connecting St. James Bay with Haines, Alaska, is constructed. The proposed route is in close proximity with excellent game habitat, so could become very desirable as a recreational area.

This field survey was conducted prior to road construction, to provide accurate information through which a management policy could be formulated, and the man-made environmental changes could be assessed.

Surveys were conducted beginning at Haska Creek and terminating with the unnamed stream (statistical chart No. 115-10-40) in the west coast of St. James Bay (Figure 1). Upon arrival at a stream, the crew first made a visual scan of the area to note any characteristics unique to the area. Photographs were taken to be retained with each stream file.

Fish were sampled by minnow traps, hook and line, and variable mesh gillnet. Species composition, size, and relative catch per unit effort were determined.

Water samples were analyzed according to procedures outlined by Hach Chemical Company. Parameters measured include temperature, dissolved oxygen, carbon dioxide, hardness, turbidity, and alkalinity.

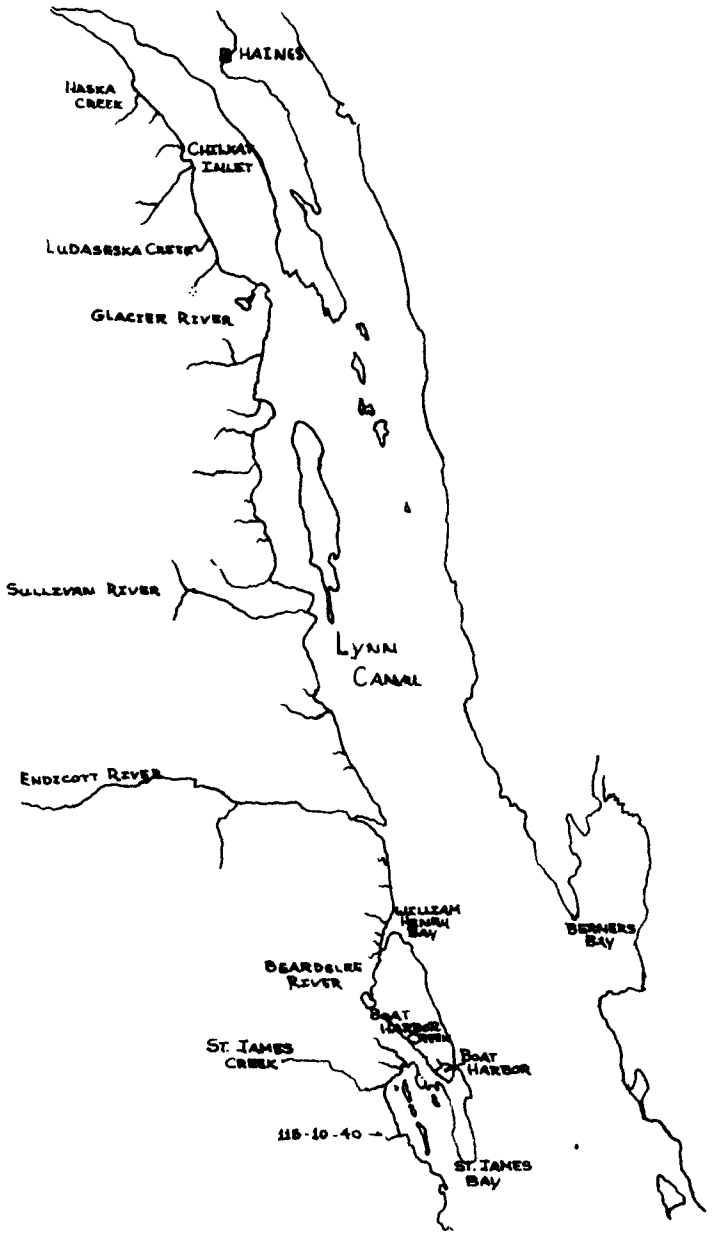


FIGURE 1. Locations of Streams and Lakes Included in Survey, St. James Bay to Haines, Alaska, 1972.

Prince of Wales Island - Road System

The U. S. Forest Service, Alaska Department of Highways, and Alaska Department of Public Works were contacted to obtain information of road and access status to the Prince of Wales Island road system.

Discussions were held with representatives of the Alaska Department of Fish and Game, U. S. Forest Service, and air charter agencies to determine location of sport fishing areas. Aerial observations of these areas were conducted.

Juneau Saltwater Area Creel Census

The saltwater creel census was conducted June 1 - September 4, 1972, by a crew of four census workers. The saltwater census was conducted on 34 (36%) of the 93 days in the sample period. The Golden North Salmon Derby was excluded from the sample period and considered separately.

Sample days were selected to provide equal coverage of all weekdays, Sunday through Saturday, throughout the sample period. Total censused days were 21 of 67 weekdays (31%) and 13 of 26 weekend days (50%).

The normal census period was between 3 p.m. and 11 p.m., as this is considered the peak fishing time. In effort to gain a measure of angler success before 3 p.m., intensive days started at 8 a.m. and terminated at 11 p.m. One weekday and one weekend day in each biweekly period were treated as intensive days.

Census workers stationed at three local boat harbors conducted angler interviews to obtain catch and effort information. Biological data was collected only from king salmon. A tally was kept of sport, as well as sport-commercial, boats leaving and returning to the harbors, so the ratio of sport to sport-commercial boats could be applied to aerial surveys.

Aerial surveys, used in estimates of total catch and effort, were flown on intensive survey days at peak fishing times. This was usually 1 - 3 p.m. on weekends and 6 - 8 p.m. on weekdays. If bad weather prevented flying, flights were made the next available census days during the biweekly periods. Counts were made of all boats, both potentially sport and sport-commercial but did not include vessels that were obviously only commercial, e.g. large trollers, gillnetters, seiners. Dockside observers counted both sport and sport-commercial boats that returned to their moorages. The ratio of sport boats to sport-commercial was assumed to be constant in the aerial and dockside censuses. An estimated number of sport boats was then derived from the aerial count. The catch and effort data collected were adjusted and expanded by ratios using aerial and dockside boat counts to provide estimates of total catch and effort. The sport-commercial catch was not included.

The expansion factors were derived from the fraction of the aerial count (C_a) divided by dock count (C_d) multiplied by the number of days in the weekday period (D_w) or weekend period (D_e) divided by the number of days censused (D_c). The expansion factors for weekdays (F_w) and weekend days (F_e) were computed separately as shown below:

$$\frac{C_a}{C_d} \cdot \frac{D_w}{D_c} = F_w \qquad (2) \qquad \frac{C_a}{C_d} \cdot \frac{D_e}{D_c} = F_e$$

Intensive survey days were designed to estimate the magnitude of angler effort for the available fishing period between 8:00 a.m. to 3:00 p.m. Using data from intensive weekdays to estimate 8:00 a.m. to 3:00 p.m. effort for a standard weekend day or weekday (S_1), the following proportional relationship was assumed: I_1: I_2: S_1: S_2, where I_1 equals the 8:00 a.m. to 3:00 p.m. angler effort and I_2 equals the 3:00 p.m. to 11:00 p.m. angler effort. S_2 equals the 3:00 p.m. to 1:00 p.m. angler effort for a standard weekday or weekend day.

Weekdays and weekend days were expanded separately, and then added to calculate an improved biweekly estimate.

Boat stalls were surveyed to determine how reliable the use of vacant boat stalls would be as an index of the boat's fishing status. Analysis of preliminary data revealed considerable variability due to transient stalls and overnight trips and further use was deemed unfeasible.

Estimates of salmon caught and fishermen participating during the Golden North Salmon Derby were obtained from the derby sponsors and staff observations. Biological samples were collected from king salmon entered in the derby and forwarded to the king salmon project leader for his analysis.

North Behm Canal Creel Census

An angler census was conducted of the saltwater sport fishery in the Yes Bay and Bell Island area. Angler effort was highly concentrated and sampling effort was devoted to obtain a total census of the effort and catch in the area. The area was covered by two census workers. One was stationed at Bell Island; the other at Yes Bay.

Ketchikan Area Creel Census

The 1972 Ketchikan area creel census was conducted similar to previous years' design (McHugh et al., 1971). The saltwater census was conducted on 45% of the 99 days in the sampling period. All weekend days and 50% of weekdays were sampled during the period.

Juneau Roadside Area Creel Census

Thirty-seven fishing locations along the Juneau road system were chosen for survey (Figure 2). These locations were grouped into three major units: South: Thane, North Douglas to Salmon Creek; Central: Jordan Creek to Peterson Creek-Windfall Lake trailhead and, North: Eagle River to Echo Cove.

Haines Roadside Area Creel Census

During each biweekly census period two weekdays and two weekend days were sampled. Each censused day was further stratified into four 4-hour census periods. The first period of the day started at 7 a.m. and the last ended at 11 p.m. On September 18 and for the remaining census period, the daylight hours grew shorter and the daily census periods were shortened to three 4-hour periods. Each of the four 4-hour census periods was assigned randomly to each of the four census days during a biweekly period.

Actual census procedure was to drive the Haines road system counting all sport fishing boats, number of fishermen per boat, and number of shore fishermen in the census area. Fishing parties were interviewed and those who could not be contacted were used in the expansion data.

The principal census area covered by the sample program were Letnikof Cove, Lutak Inlet, Chilkoot Lake and outlet stream, Chilkat River, and Mosquito Lake.

Economic Feasibility Study

Available literature sources were searched to gain information on economic studies conducted on sport fishermen. These studies were evaluated with respect to their precision and the feasibility of applying the study design and surveyed parameters to a study of the saltwater sport fishery in the Juneau area.

Other agencies were contacted to draw from their expertise and recommendations in conducting economic studies of outdoor resource users.

The survey was divided into regular and intensive survey days. One weekday and one weekend day was chosen as intensive days. On intensive days the entire area was covered in the early period (8 a.m. - 3 p.m.) and again during the late period (3 p.m. - 10 p.m.). Emphasis during the early period was to count fishermen without interviewing them.

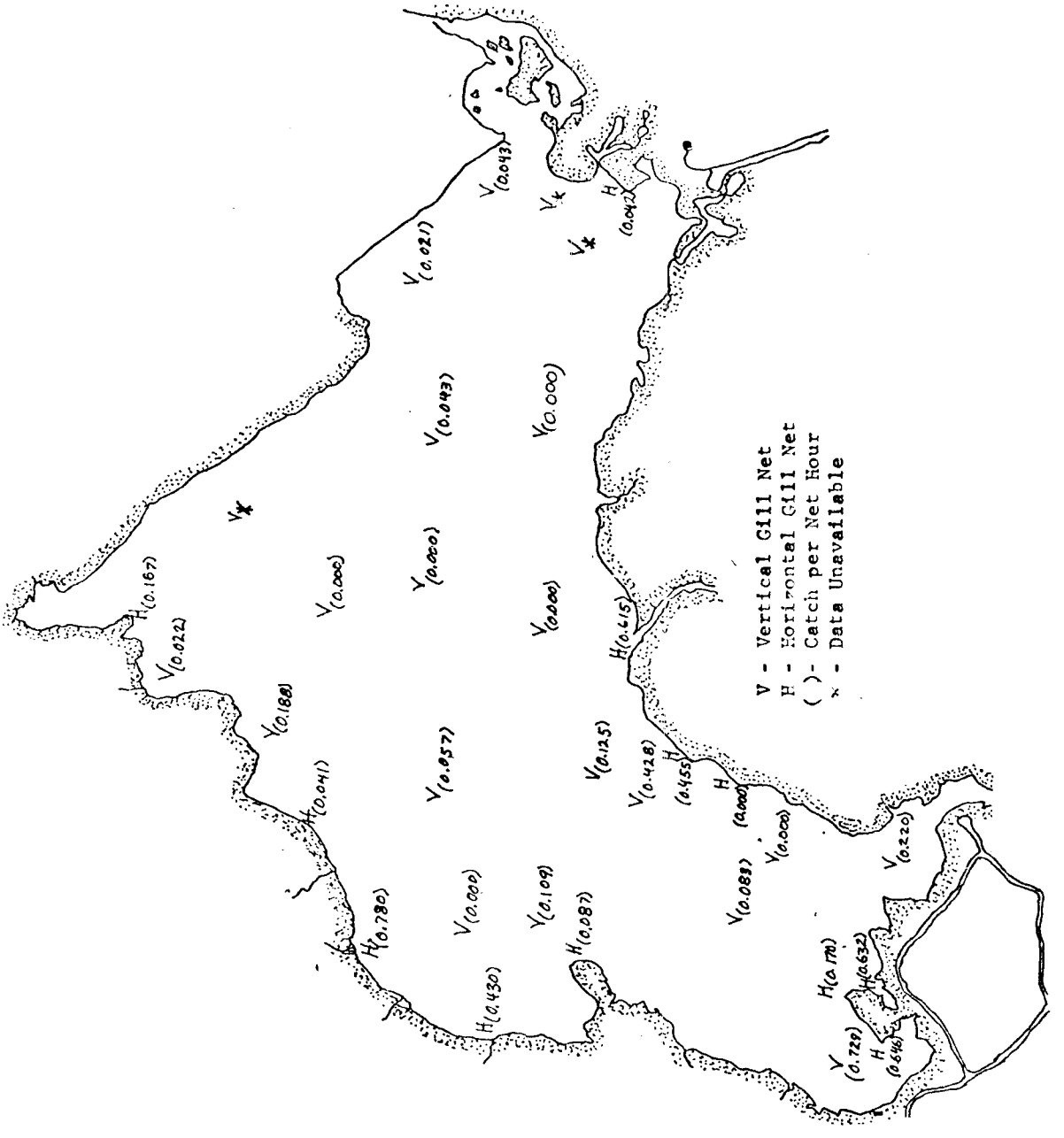


FIGURE 1. Vertical and Horizontal Distribution of Dolly Varden and Cutthroat Trout in Mendenhall Lake, June - September, 1972.

TABLE 1

ESTIMATE[1] OF ANGLERS PARTICIPATING IN THE JUNEAU AREA ROADSIDE SPORT FISHERY, JUNE 1 - AUGUST 20, 1972.

Weekday Hours	North[2]	Central[3]	South[4]
0800-1000	114/0.0 x 0 = 0	114/5.0 x 7 = 160	114/5.0 x 12 = 274
1000-1200	114/6.0 x 17 = 323	114/6.0 x 8 = 152	114/0 x 0 = 0
1200-1400	114/4.5 x 10 = 253	114/7.5 x 21 = 319	114/0 x 0 = 0
1400-1600	114/2.0 x 0 = 0	114/6.0 x 24 = 456	114/15.5 x 23 = 169
1600-1800	114/19.0 x 34 = 204	114/18.0 x 65 = 412	114/29.5 x 47 = 182
1800-2000	114/20.5 x 32 = 179	114/13.5 x 24 = 203	114/29.0 x 57 = 224
2000-2200	114/7.8 x 46 = 359	114/15.5 x 44 = 324	114/30.0 x 170 = 646
	TOTAL 1318	TOTAL 2026	TOTAL 1495
Weekend Hours			
0800-1000	46/2.0 x 18 = 414	46/7.0 x 12 = 79	46/2.5 x 9 = 166
1000-1200	46/4.5 x 55 = 562	46/6.0 x 23 = 176	46/3.0 x 0 = 0
1200-1400	46/2.5 x 19 = 350	46/6.5 x 35 = 248	46/6.0 x 22 = 169
1400-1600	46/1.5 x 13 = 399	46/4.5 x 24 = 245	46/7.0 x 42 = 276
1600-1800	46/10.5 x 71 = 311	46/14.0 x 54 = 177	46/18.0 x 127 = 325
1800-2000	46/11.5 x 46 = 184	46/13.0 x 35 = 124	46/20.0 x 54 = 124
2000-2200	46/14.5 x 68 = 216	46/9.0 x 14 = 72	46/16.5 x 31 = 86
	TOTAL 2436	TOTAL 1121	TOTAL 1146

TOTAL ESTIMATED FISHERMAN = 9542

[1] Fishing Hours Available / Fishing Hours Censused x Fisherman Observed = Expanded No. of Fisherman

2 Eagle River to Echo Cove

3 Jordan Creek to Peterson Creek - Windfall Lake trailhead

4 Thane North Douglas to Salmon Creek

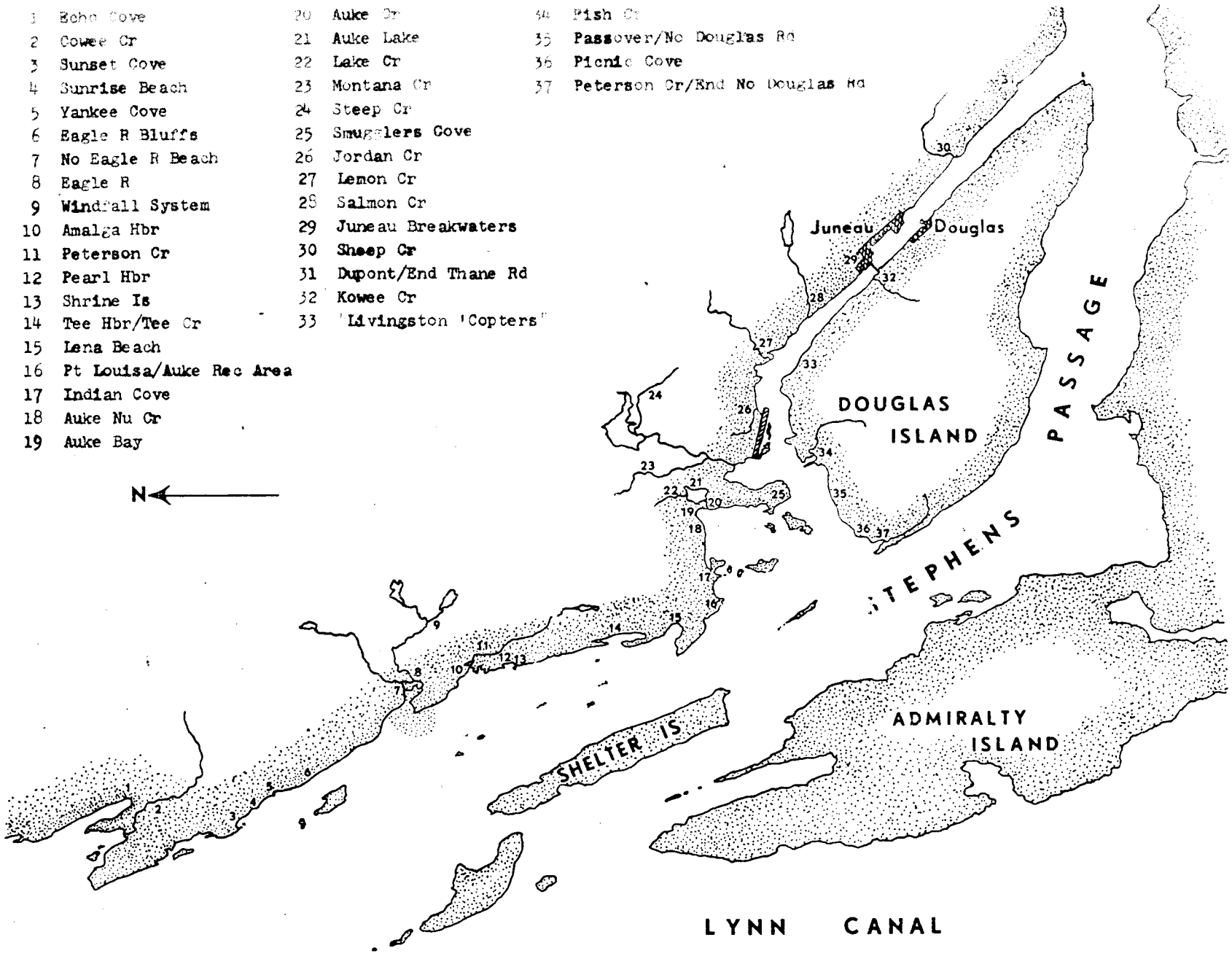


FIGURE 2 Locations of Roadside Creel Census, Juneau, 1972.

During regular day surveys, two crews contacted and interviewed fishermen. One crew covered the South unit while another covered the Central and North units. Census period, fishermen observed, fishermen checked, hours fished, and catch by species were recorded.

All daily data collected were summarized by fishing location and fishing unit. This information was then summarized by bi-weekly period.

The expansion method used assumes: 1) the results of the censused time period are directly proportional to the total fishing time available in the bi-weekly census period; 2) fishermen interviewed were representative of those observed, but not interviewed.

Five basic calculations were used for the survey. They are: 1) average length of fishing trip, 2) catch per angler hour, 3) total number of fishermen, 4) total man-hours of fishing, and 5) total catch by species. Number of fishermen was calculated by bi-hourly periods which were stratified by weekend and weekday. The results were then added to obtain total fishermen (Table 1).

FINDINGS

Organization of Catalog and Inventory File

A total of 134 streams, 50 lakes and two saltwater bays were added to the catalog and inventory file. In addition, more information was added to 135 existing files on streams and lakes. Information added includes species, fish abundance, length-weight, sex and maturity data, creel census data and certain physical and chemical characteristics of the various streams and lakes.

Two complete sets of files were established and located in Sitka and the Region I office in Juneau. These files were reorganized with the data breakdown by lake, stream, and saltwater bay and located as to island or mainland area (Figure 3). The 18 island areas included smaller island areas as related to their proximity (Table 2). Names and confines of the seven mainland areas are: 1. YAKATAGA; 2. YAKUTAT, the continuous Alaska mainland from Yakutat Bay south to Glacier Bay National Monument north boundary; 3. SKAGWAY, the Alaska mainland extending from the north Glacier Bay National Monument boundary west to the Pacific Ocean and east to the Skagway railway to the Canadian border; 4. JUNEAU, the Alaska mainland from the Skagway railway south to the Taku River; 5. TAKU, the Alaska mainland from the Taku River south to the Stikine River; 6. STIKINE, the continuous Alaska mainland south from the Stikine River to Burrows Bay; 7. CHICKAMIN, the continous Alaska mainland west of the Canadian border from Burrows Bay south to the Portland Canal.

Information on each aquatic ecosystem is expected to grow as the catalog and inventory project continues. Data to be filed should include anything that effects the ecosystem. These data will be valuable when analyzing changes in the ecosystem or changes in resource utilization. Input and use of information in these files is open to any investigator who has need for the information to formulate management decisions and policies, or to design more comprehensive research programs.

Development of Sport Fisheries - Juneau Road System

Auke Bay - Auke Lake:

No sockeye salmon could be caught on sport fishing gear in Auke Bay during the study period. Numerous sockeye were observed in Auke Bay throughout the attempted sampling period, and we feel the lures were fished where they could have been seen by the fish.

Sockeye salmon were caught throughout the test period July 12 - July 21 in Auke Lake (Table 3). The most successful tackle combination was a "Deep Six" diving plane, followed by an Abe and Al #1 chrome and blue flasher with a Les Davis "witch doctor" plug. Slow trolling speed and fishing depth of 15 to 25 feet were essential.

The average catch per unit of effort (0.167 fish per hour) for sockeye in Auke Lake was more productive than the sport fishery for king salmon (0.026 fish per hour) or coho salmon (0.100 fish per hour) in the Juneau saltwater fishery. It is evident that a very real potential exists for a sockeye sport fishery in Auke Lake during July. The addition of techniques that are effective in catching sockeye will add to the diversity of species and experiences available to the sport fisherman in the Juneau area.

Eagle River - Herbert River:

Hook and line sampling of Eagle River yielded 2.73 Dolly Varden per angler hour. Fish were caught on fresh salmon roe in the first 1-1/2 miles above the highway.

An evaluation of the sport fish potential of Herbert River was limited by high water conditions. Hook and line sampling at the confluence of Windfall Creek and Herbert River yielded 11.33 Dolly Varden and 8.0 cutthroat per angler hour. Fish length ranged from 150-480 mm with a mean of 348 mm (13.7 inches).

Although evaluation of these systems was cursory, it is evident that both systems have a definite bait sport fishing potential.

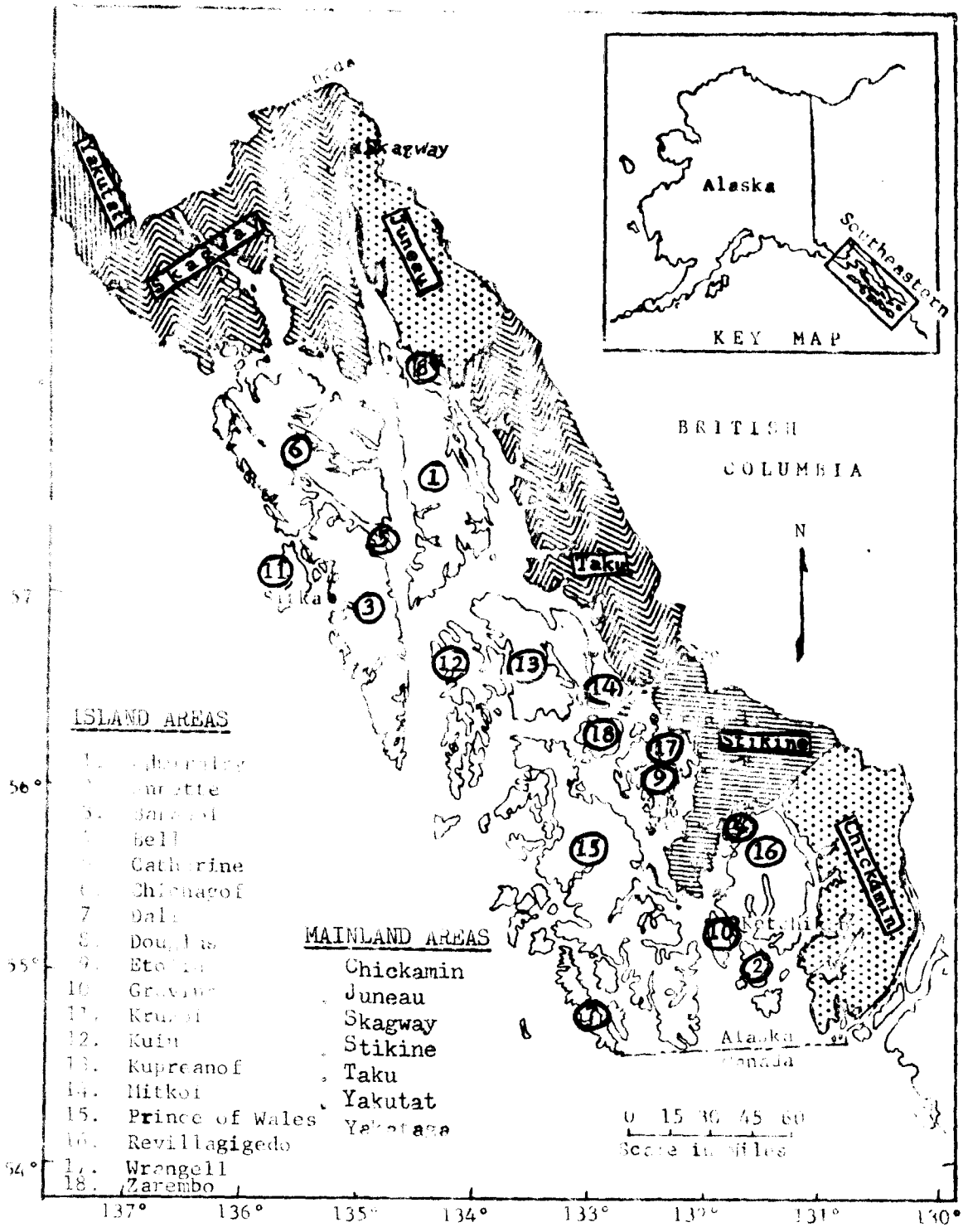


FIGURE 3. Locations of Catalog and Inventory Areas, Southeast Alaska.

Table 2. Distribution of island sport fish inventory and catalog areas.

Island Areas	
Major Island Area	Island to be included within major areas
1. Admiralty	Liederman, Lincoln, Shelter, Sullivan, Swan, The Brothers
2. Annette	Mary, Duke
3. Baranof	Biorka, Halleck, Krestof, Partofshikof
4. Bell	
5. Catherine	(to be arranged)
6. Chichagof	Emmons, False, Moser
7. Dall	Grand, Long
8. Douglas	(to be arranged)
9. Etolin	Brownson, Deer, Onslow, Stone
10. Gravina	
11. Kruzof	(to be arranged)
12. Kuiu	Coronation
13. Kupreanof	(to be arranged)
14. Mitkof	Dry, Farm, Woewodski
15. Prince of Wales	Baker, Hecta, Kosiusko, Lulu, Marble, Noyes, San Fernando, San Juan Beautista, Suemez, Sukkwan, Tuxekan, Warren
16. Revillagigedo	Bell, Betton, Gravina, Hassler, Smeaton
17. Wrangell	Woronfski
18. Zarembo	(to be arranged)

Table 3. Summary of Trolling Effort and Sockeye Catch by Gear Type, Auke Lake, July, 1972.

SUMMARY

DATE	ROD HOURS	NO. FISH	GEAR	DEPTH *	FISH PER ROD-HOUR
7/12	14.25	4	Diving plane, Les Davis #0, Pink Hooche	7,15	0.28
			Diving Plane, les Davis #0, orange w/Witch Doctor	12,15	
7/13	6.75	0			0
7/14	13.5	2	Diving plane, Les Davis #0, Orange w/ Witch Doctor	12	0.15
7/17	15.0	2	Diving Plane, Les Davis #0, orange w/ Witch Doctor	12	0.13
7/18	6.5	0			0
7/19	12.5	1	Diving Plane, Les Davis #0, Pink Hooche	12	0.08
7/20	7.5	1	Diving Plane, Les Davis #0, Pink Hooche	12	0.13
7/21	7.75	4	Diving Plane, Abe & Al #1, Chrome/Blue Witch Doctor	15	0.52

* Depth in number of strips with a strip being approximately 2½ feet.

Mendenhall Lake:

Mendenhall Lake was known to contain Dolly Varden and thought to be a major wintering area for these fish (Reed and Armstrong, 1971). We first determined the general abundance, species present and distribution of fish in the lake and then attempted to catch them on trot line using several types of bait.

A bathymetric map was made of the lake in June 1972 (Figure 4). Temperature profiles of the lake indicated the water was 32°F - 39°F throughout the sampling period (Figure 5). Turbidity readings of the lake were high and fairly uniform from surface to bottom (Figure 6).

A total of 339 Dolly Varden and 4 cutthroat were caught in 22 vertical and 12 horizontal gillnet sets. These fish ranged in length from 110 mm to 516 mm (Figure 7).

Most or all of the Dolly Varden and cutthroat in Mendenhall Lake are probably anadromous. The fish appear to begin entering the lake in early August and increase in abundance through late September (Figure 8).

The random placed vertical gillnet catches indicate that 66% of the lake's population of Dolly Varden are found in abundance from 2 to 15 feet deep (Figure 9). Below this level, sampling indicated that Dolly Varden are scattered vertically in small groups or as individuals.

Most of the fish were caught near the shoreline in the vicinity of the outlet, Mendenhall Campground, and off the mouth of inlet streams (Figure 10).

Trot lines baited with cheese, liver, and shrimp produced no fish in 216 hours of effort. Trot lines baited with eggs caught 15 Dolly Varden and 6 cutthroat in 504 hours of effort. Numerous fish were caught in the vertical gillnets accompanying the trot lines, indicating the presence of fish at sites tested. Eight hours of hook and line sampling with salmon roe and lures produced no fish.

Stomach analyses of 77 Dolly Varden showed 63 (82%) were empty, 12 (15%) contained insect remains, and 2 (3%) had eaten fish. Stomach analysis of six cutthroat showed four were empty, one had eaten insects, and one contained unidentified material.

Fish Resources - St. James Bay to Haines

The following surveys present all known available information on each system's studies (Table 4). Unnamed streams are identified by ADF&G anadromous stream number and by latitude and longitude. Precipitous runoff streams and dry streams are listed in Table 5.

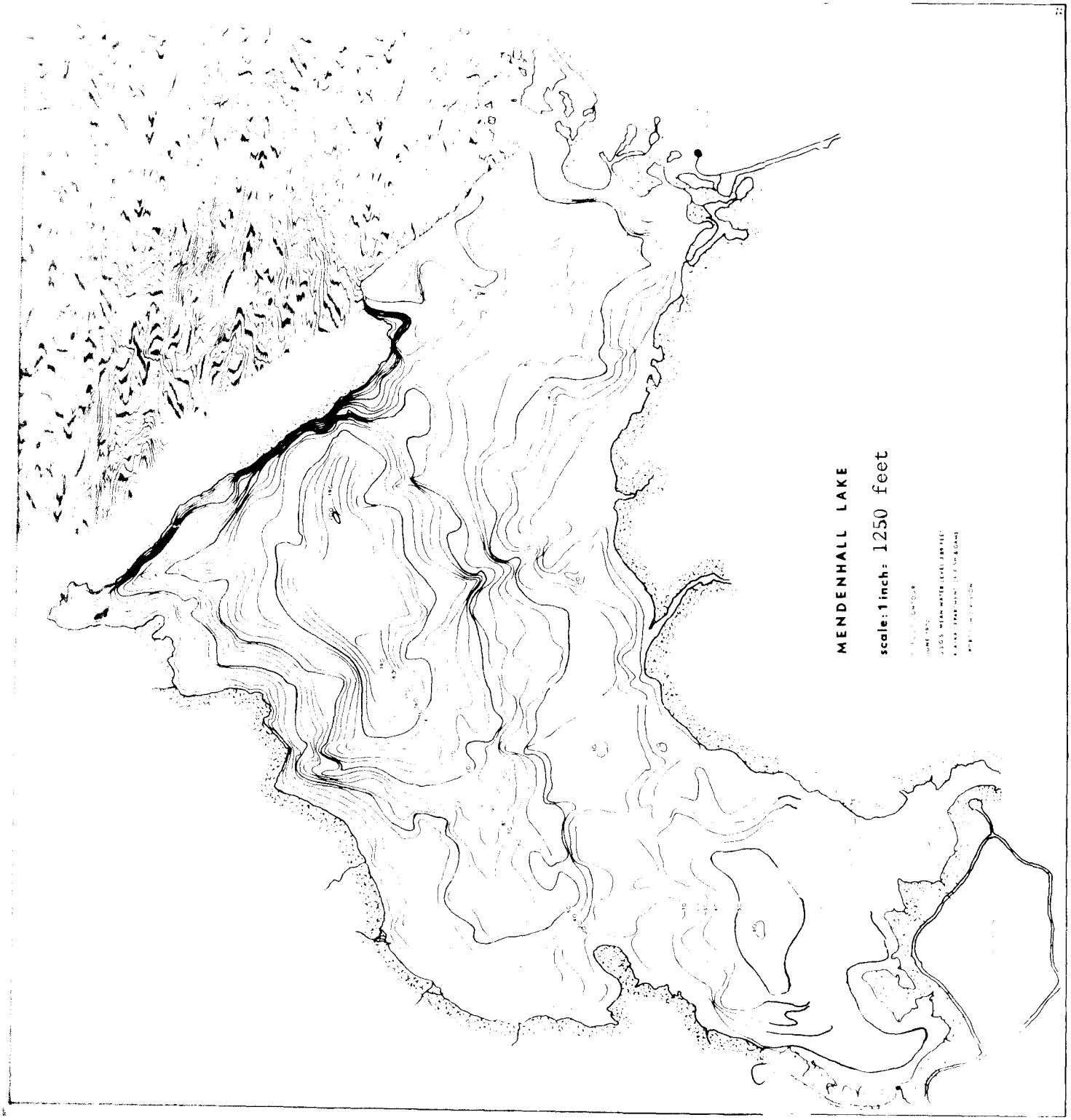


FIGURE 4. Bathymetric Map of Mendenhall Lake.

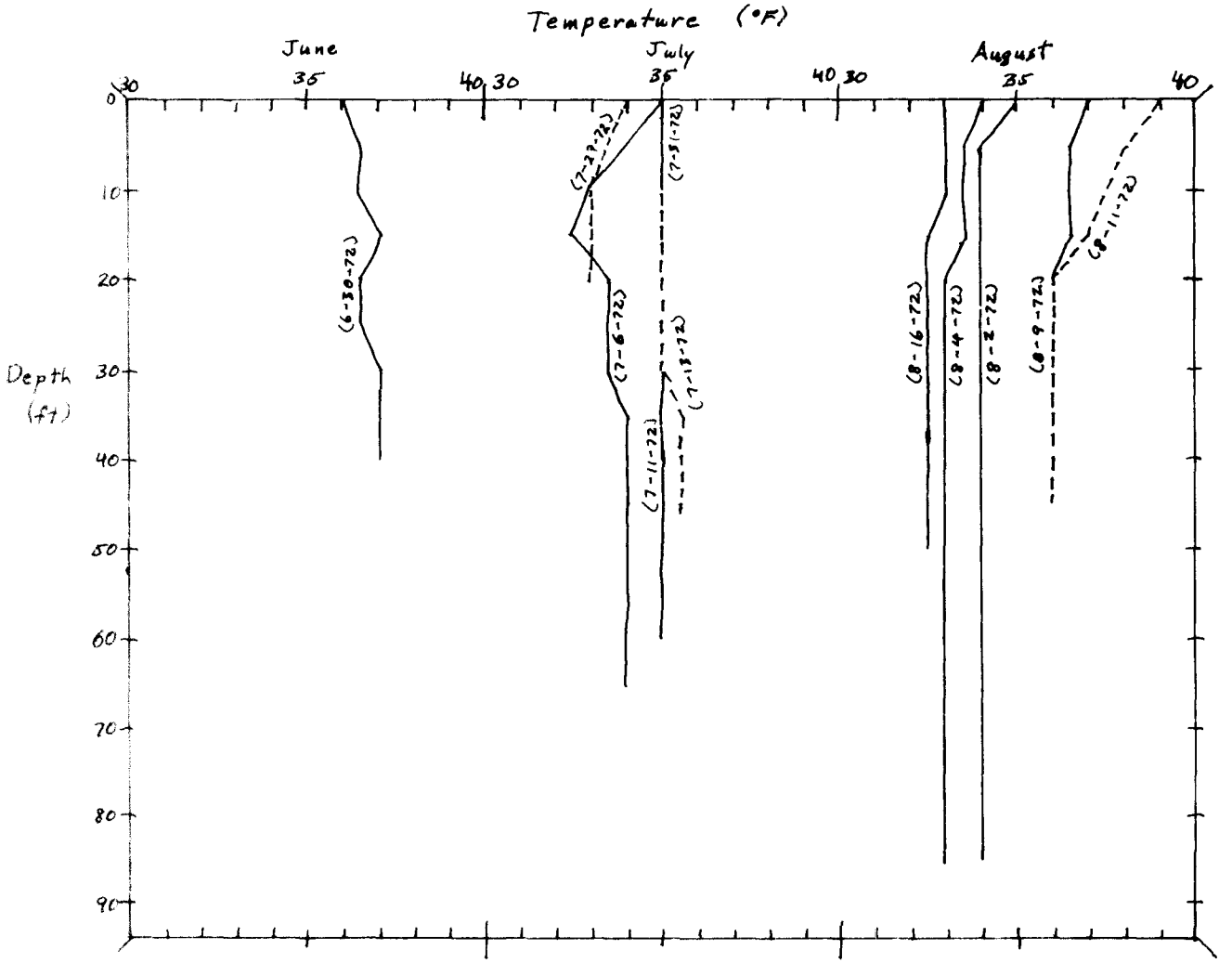


FIGURE 5. Temperature Profiles of Mendenhall Lake, June - August, 1972.

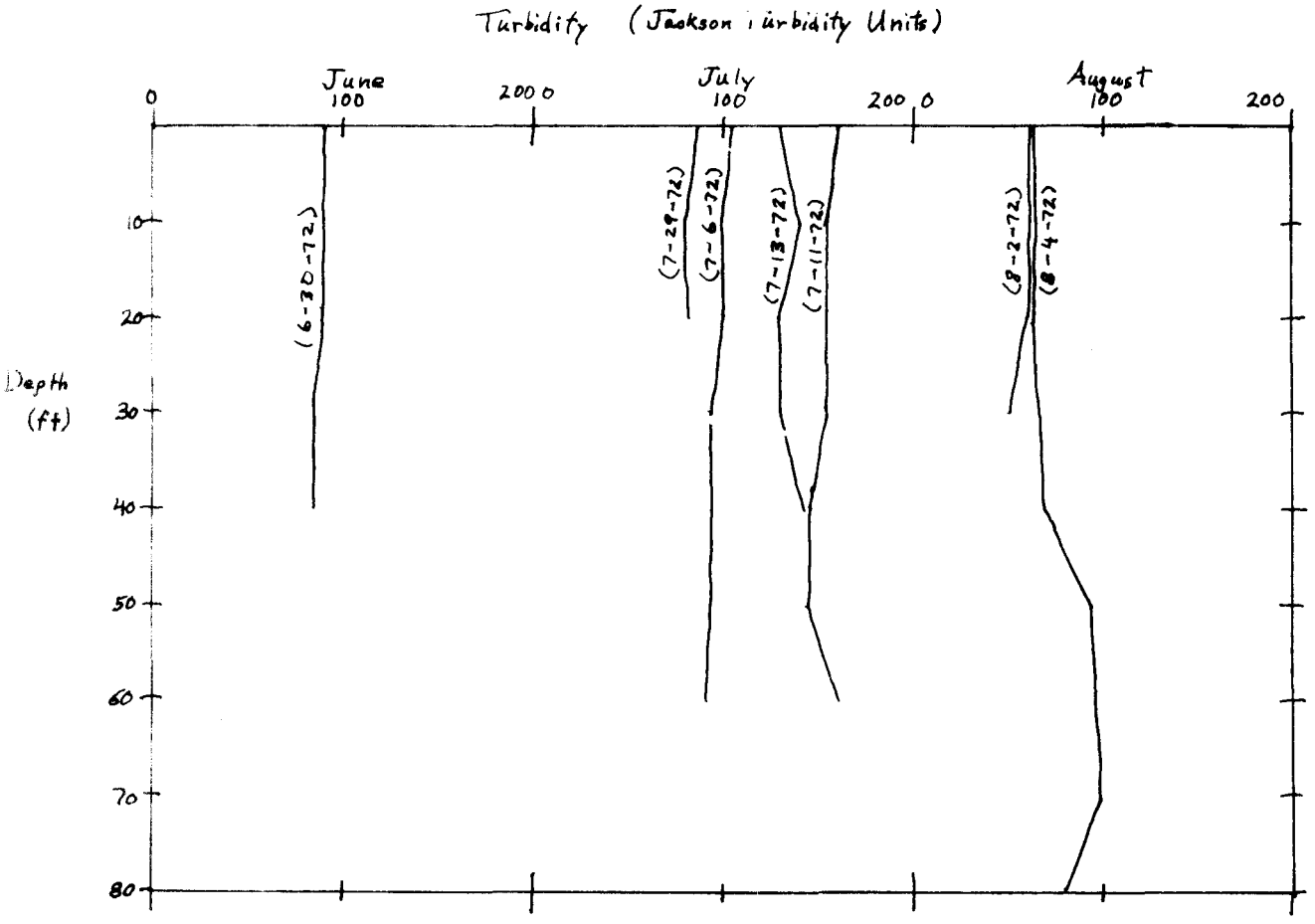


FIGURE 6. Turbidity Profiles of Mendenhall Lake, June-August, 1972.

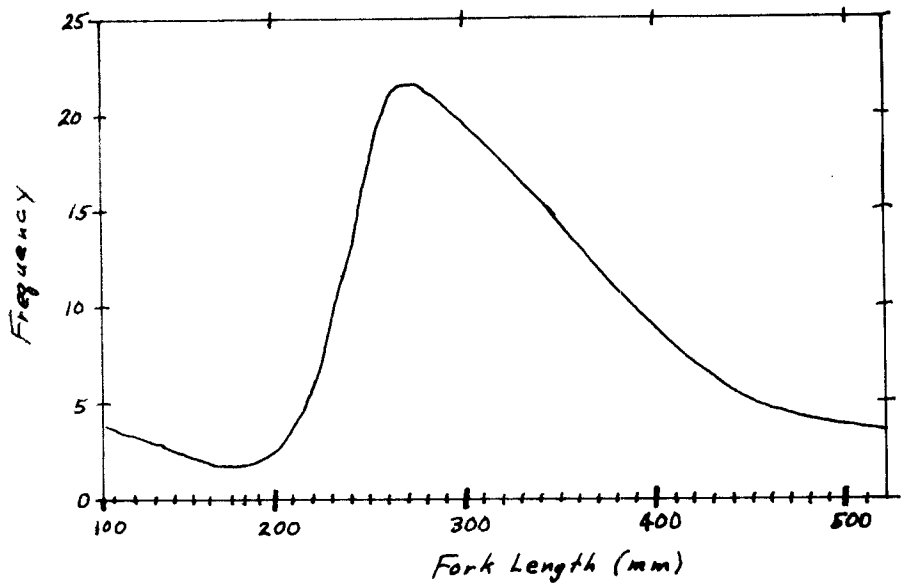


FIGURE 7. Length Frequency of Dolly Varden Char Caught in Mendenhall Lake, June - August, 1972.

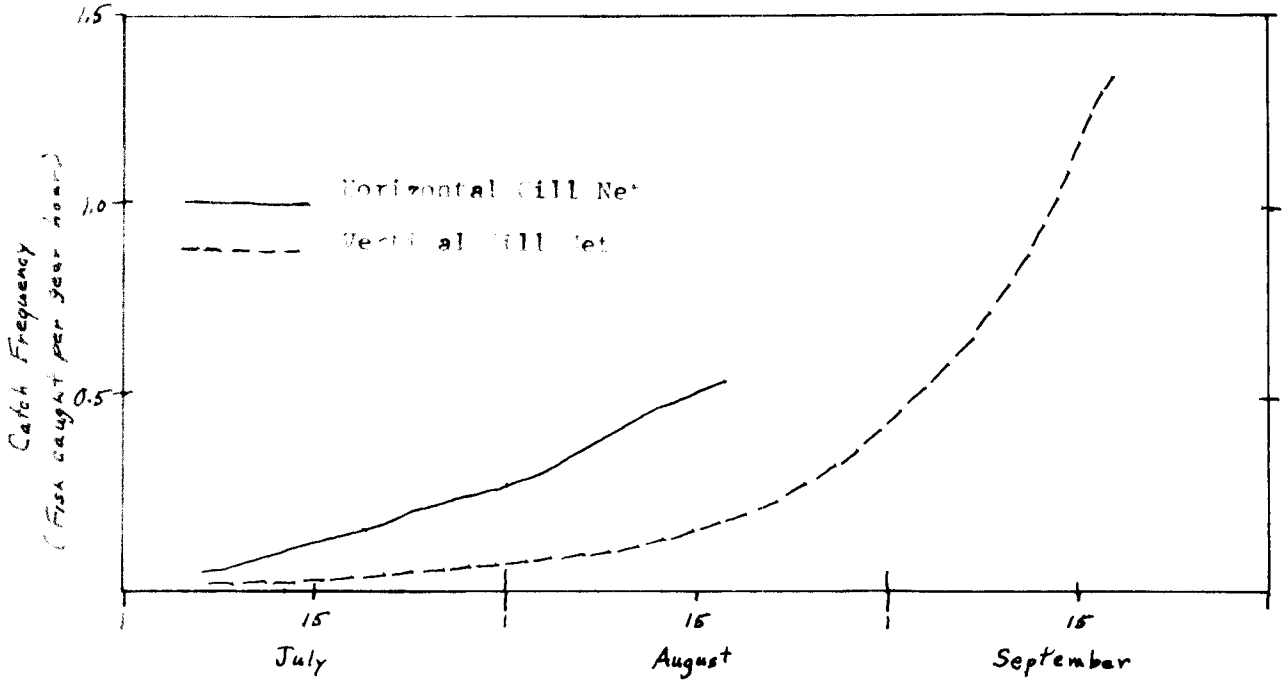


FIGURE 8. Catch Frequency of Fish Caught in Mendenhall Lake, July - September, 1972.

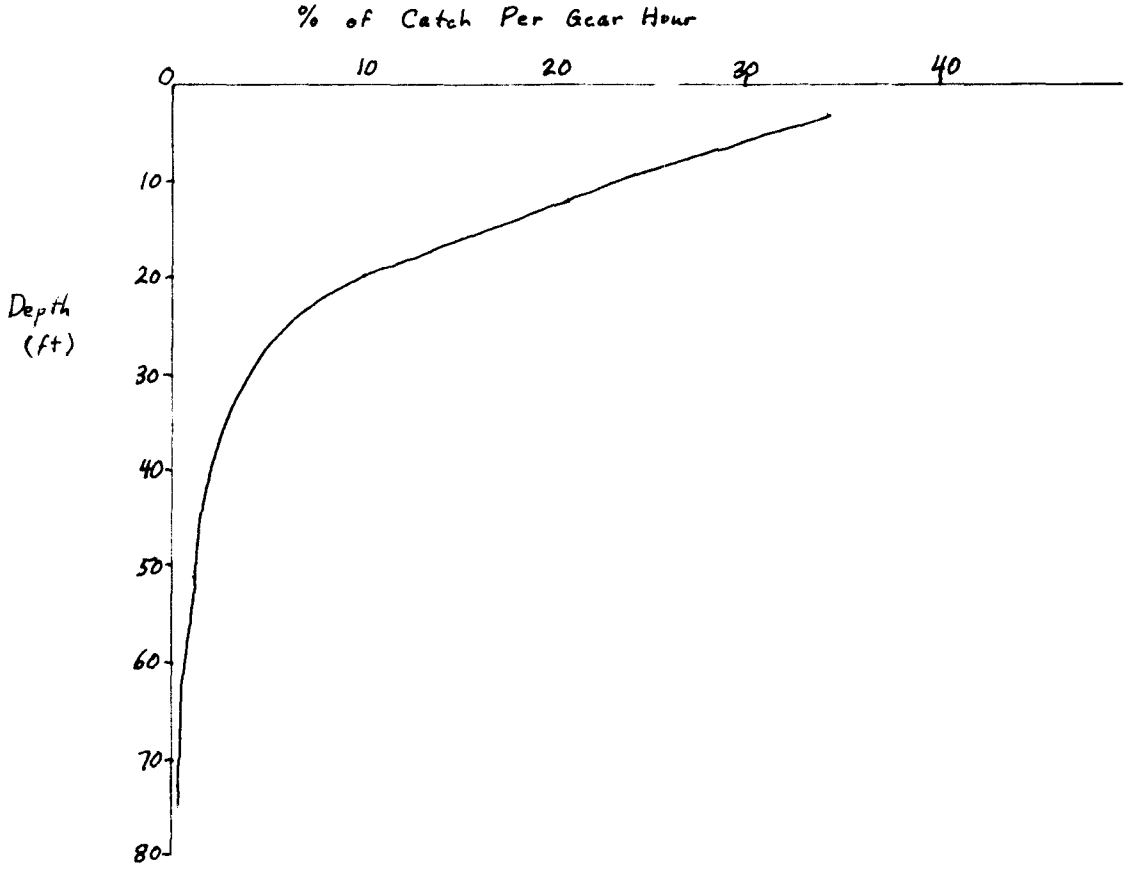


FIGURE 9. Vertical Distribution of Dolly Varden Char and Cutthroat Trout in Mendenhall Lake, June - September, 1972.

Table 4 LIST OF STREAMS STUDIED
ST. JAMES BAY TO HAINES, ALASKA - 1972

STREAM	LOCATION		SPECIES	NO. FISH	LENGTH(mm)	AVE. LENGTH	FREQUENCY[1]
	N. Latitude	W. Longitude					
Haska Creek	59°40'49"	135°14'17"	Dolly Varden	4	115 - 148	135	0.50
Unnamed (115-32-26)	59°12'	135°30'35"	No fish caught				
Anchorage Pt. Stream	59°11'19"	135°29'21"	No fish caught				
Ludaseska Creek	59°10'20"	135°28'22"	No fish caught				
Glacier River	59°06'12"	135°23'30"	No fish caught				
Davidson Lake	59°05'30"	135°22'26"	No fish caught				
Unnamed (115-31-80)	59°03'30"	135°00'25"	No fish caught				
Unnamed (115-31-75)	59°01'35"	135°23'41"	No fish caught				
Unnamed (115-31-70)	59°01'11"	135°24'31"	No fish caught				
Unnamed (115-31-60)	58°58'23"	135°24'36"	No fish caught				
Unnamed (115-31-45)	58°55'25"	135°21'55"	Cutthroat	5	85 - 143	125	0.42
			Dolly Varden	21	68 - 175	105	1.75
Sullivan River	58°54'25"	135°20'	Cutthroat	3	75 - 108	97	24.25
			Dolly Varden	58	55 - 146	92	23.0
			Silver salmon	6	30 - 98	86	21.5

Table 4 (continued) List of Streams Studied St. James Bay to Haines, Alaska, 1972.

STREAM	LOCATION		SPECIES	NO. FISH	LENGTH(mm)	AVE. LENGTH	FREQUENCY
	N. Latitude	W. Longitude					
Unnamed (115-31-38)	58°51'19"	135°18'18"	No fish caught				
Unnamed (115-31-36)	58°50'37"	135°17'34"	No fish caught				
Reed Lake (unofficial)	58°48'	135°17'	No fish caught				
Unnamed (115-10-90)	58°49'	135°16'47"	No fish caught				
Endicott River	58°46'30"	135°00'25"	Dolly Varden	70	65 - 150	98	5.83
Unnamed (115-10-73)	58°14'19"	135°14'49"	Dolly Varden	11	65 - 118	94	4.40
Unnamed (115-10-68)	58°42'19"	135°14'18"	Dolly Varden	5	91 - 112	95	1.00
WHB - 1	58°41'20"	135°00'15"	Dolly Varden	3	110 - 135	117	0.60
WHB - 2	58°40'57"	135°14'17"	Cutthroat	1	123	123	0.33
			Dolly Varden	6	125 - 133	128	2.00
Beardslee Lake	58°41'30"	135°16'	Dolly Varden	1	106 - 125	114	0.50
Beardslee River	58°40'49"	135°14'17"	Dolly Varden	21	66 - 108	79	10.5
			Silver salmon	22	44 - 101	72	11.0
			T/S. Stickleback	29	---	--	14.5
Boat Harbor Creek	58°38'24"	135°11'13"	Cutthroat	4	90 - 164	114	1.0
			Dolly Varden	11	75 - 102	86	2.75
			Silver salmon	10	65 - 84	72	2.50
Unnamed (BH - 1)	58°38'40"	135°00'10"	Cutthroat	4	64 - 100	90	1.00
			Dolly Varden	5	81 - 97	89	1.25
			Silver salmon	1	75	75	0.25

Table 4. (continued) List of Streams Studied St. James Bay to Haines, Alaska, 1972.

STREAM	LOCATION		SPECIES	NO. FISH	LENGTH(mm)	AVE. LENGTH	FREQUENCY
	N. Latitude	W. Longitude					
Unnamed (SJB - 1)	58°36'18"	135°11"	Silver salmon	2	67 - 95	81	0.04
Kissner Lake (unofficial)	58°37'40"	135°10'30"	Not sampled				
Unnamed (SJB - 2)	58°36'18"	135°11'12"	Dolly Varden	1	70	70	0.08
			Silver salmon	63	52 - 102	80	5.25
			T/S. Stickleback	3	---	--	0.25
			Sculpin	1	---	--	0.08
Unnamed (115-10-46)	58°38'25"	135°12'31"	Not sampled[2]				
Unnamed (115-10-44)	58°38'	135°13'11"	Not sampled[2]				
St. James Creek	58°36'19"	135°14'31"	Cutthroat	1	127	127	0.50
Unnamed (115-10-40)	58°33'30"	135°13'7"	Dolly Varden	7	93 - 140	102	0.41

1 Fish per minnow trap hour

2 Not sampled due to rapid flood stage

TABLE 5

STREAMS NOT SURVEYED
ST. JAMES BAY TO HAINES, ALASKA - 1972

STREAM ADF&G NUMBER	LOCATION		DATE OF SURVEY
	N. Latitude	W. Longitude	
Unnamed (115-32-23)[1]	59°71'	135°29'	July 10
Unnamed (115-30-10)[2]	59°06'57"	135°26'30"	July 12
Unnamed (115-31-77)[1]	59°02'20"	135°00'23"	July 12
Unnamed (115-31-66)[1]	59°1'	135°24'10"	July 18
Unnamed (115-31-63)[1]	59°00'20"	135°24'	July 19
Unnamed (115-31-57)[1]	58°58'10"	135°24'30"	July 19
Unnamed (115-31-55)[1]	58°58'	135°23'	July 19
Unnamed (115-31-53)[1]	58°57'45"	135°22'40"	July 19
Unnamed (115-31-51)[1]	58°57'30"	135°22'30"	July 19
Unnamed (115-31-49)[1]	58°57'	135°22'30"	July 19
Unnamed (115-31-47)[1]	58°56'30"	135°22'	July 19
Unnamed (115-10-93)[2]	58°45'40"	135°17'	June 22
Unnamed (115-10-75)[1]	58°45'20"	135°15'	July 31
Unnamed (115-10-52)[2]	58°38'30"	135°11'18"	August 1

1 Dry at time of survey

2 Runoff grade was 60% or greater

Haska Creek (115-32-27) Survey Date: 7/10/72

LOCATION: Lat. 59°13'N Long. 135°32'W

DESCRIPTION: Haska Creek flows some 2 miles into the McClellan Flats of the Chilkat River. The stream is clear and approximately 25 feet wide and 2 feet deep. Upstream passage is blocked some 200 yards upstream by large falls which rise 70 feet above the downstream section of the stream. In the past this stream was utilized as the water source for Fort William H. Seward, now called Port Chilkoot.

BARRIERS: Steep falls about 200 yards upstream form a barrier to fish.

SPECIES PRESENT: Dolly Varden and threespine stickleback.

FISH OBSERVED: No fish seen.

AVERAGE CATCH PER TRAP (n=2): Dolly Varden = 2.0

EVALUATION: Large shallow pool located adjacent and connected to main stream is well suited for rearing area. The bottom strata is composed of small rubble; abundant aquatic insect larvae are present. Large spawning area is available in the stream below falls out to the intertidal zone.

FISHING HISTORY: In talking to local residents, they report seasonal catches of Dolly Varden and cutthroat.

Unnamed Stream (115-32-26) Survey Date: 7/8/72

LOCATION: Lat. 59°12'N Long. 135°30'35"W

DESCRIPTION: This unnamed creek flows 1-1/4 miles into the McClellan Flats at the mouth of the Chilkat River. The stream is very fast flowing and the water is clear. The stream has a moderate gradient, and, as a result of its washing action, has eroded both banks in several places and caused trees to uproot and block upstream passage of anadromous species. The banks are populated with a mature stand of Sitka spruce which forms a high overhead canopy. Ground-level flora is composed of Devil's clubs, small alder, and willow bushes.

BARRIERS: Several log jams prevent passage upstream.

SPECIES: Presence unknown.

FISH OBSERVED: No fish seen.

EVALUATION: Poor stream due to large log jams and excessive seasonal variation of water runoff. Bottom composed of variable-sized rubble.

Anchorage Point Stream (115-32-20) Survey Date: 7/9/72

LOCATION: Lat. 59°10'30"N Long. 135°28'10"W

DESCRIPTION: Anchorage Point Stream flows 3-1/2 miles from its glacial origin in the Chilkat Range to the West, to enter Chilkat Inlet. The stream is bordered by wide strips of rubble and gravel. Abundant moose and bear sign was evident along the gravel delta. However, at the time of survey, no fish were detected. Aesthetically appealing with a good view.

SPECIES: Presence unknown.

FISH OBSERVED: No fish seen.

AVERAGE CATCH PER TRAP (n=4): No fish caught.

EVALUATION: Large rubble on stream bottom and very irregular flow rates make this system highly questionable habitat for anadromous Salmonidae.

Ludaseska Creek (115-32-15) Survey Date: 7/12/72

LOCATION: Lat. 59°10'25"N Long. 135°28'27"W

DESCRIPTION: Ludaseska Creek surges down from Rainbow Glacier one mile into Chilkat Inlet. Local residents report that this creek goes dry during warm periods of the year. At the time of survey numerous log jams were in the stream as well as logs stacked along the stream. They also commented no fish utilize the stream for habitat.

SPECIES PRESENT: Unknown.

FISH OBSERVED: No fish seen

Davidson Lake & Glacier River (115-32-05) Survey Date: 7/13/72

LOCATION: Lat. 59°06'12"N Long. 135°23'30"W

DESCRIPTION: This large, glacial lake river flows 3/4 mile from Davidson Lake and empties into Chilkat Inlet. This river is readily accessible to runs of Salmonidae and very similar to the Mendenhall River system near Juneau. This system appears valuable as a scenic attraction.

SPECIES PRESENT: Unknown

FISH OBSERVED: No fish seen

AVERAGE CATCH PER NET: No fish caught (24-hour set)

EVALUATION: This large glacier system appears to be possible habitat as in the Mendenhall Glacier, Lake, and River system. However, the survey crew was unable to detect the presence of Salmonidae in the system. It could be utilized seasonally and should be scheduled at a future date to test this hypothesis.

Unnamed Stream (115-31-80) Survey Date: 7/18/72

LOCATION: Lat. 59°04'24"N Long. 135°24'40"W

DESCRIPTION: Small, clear creek flows from its mountainous origin five miles and empties into Lynn Canal. Numerous logs have fallen across the stream due to washing action of banks indicating high spring runoff. Local residents report that the stream dries up by midsummer and that fish do not utilize it as a habitat.

SPECIES PRESENT: Unknown

FISH OBSERVED: No fish seen

AVERAGE CATCH PER TRAP (n=3): No fish caught

EVALUATION: The stream appears to be an excellent system; however, due to the evidence from residents who live in the area year-round, and because of no success from the minnow traps, it appears to be an non-producer. Several Dolly Varden were caught in the intertidal mixing zone but none in the stream proper.

Unnamed Stream (115-31-75) Survey Date: 7/12/72

LOCATION: Lat. 59°01'37"N Long. 135°24'20"W

DESCRIPTION: This large, glacial stream flows 2 miles down through a large draw into an open rubble delta to empty into Lynn Canal. The stream is fast flowing and shows heavy washing action, evidenced by numerous fallen trees in this system.

SPECIES PRESENT: Unknown

FISH OBSERVED: No fish seen

AVERAGE CATCH PER TRAP (n=3): No fish caught

Unnamed Stream (115-31-70) Survey Date: 7/19/72

LOCATION: Lat. 59°01'14"N Long. 135°24'30"W

DESCRIPTION: This small stream flows 2 miles from a mountainous drainage and empties into Lynn Canal. The stream has a moderately steep grade and fast flow. Over time it has eroded its banks falling trees across its course. Its average width is 8 feet and average depth is 1.5 feet. Several small pools now exist in this rapidly flowing stream due to the holding action of this debris.

SPECIES PRESENT: Unknown

FISH OBSERVED: No fish seen

AVERAGE CATCH PER TRAP (n=2): No fish caught

EVALUATION: This stream, although very rapid, does appear to have potential for a very small population. However, sampling equipment used did not produce any results. Fishing at the mouth in the intertidal zone did not produce any results by hook and line. Small schools of fry were observed and presumed to be pink salmon.

Unnamed Stream (115-31-60) Survey Date: 7/19/72

LOCATION: Lat. 58°59'25"N Long. 135°24'5"W

DESCRIPTION: This unnamed stream flows 3-1/2 miles from an open mountain pass. Due to heavy spring runoff, this stream has eroded its banks and caused a large series of log jams at its mouth. Average width is 60 feet and the average depth is 1.5 feet. Adjacent to and just south of the stream is a logged-off site.

SPECIES PRESENT: Unknown

FISH OBSERVED: No fish seen

AVERAGE CATCH PER TRAP (n=3): No fish caught

EVALUATION: The jam appears to be impassable to Salmonidae. This stream could have supported a population previously although no fish could be detected by the sampling methods employed.

Unnamed Stream (115-31-45) Survey Date: 7/19/72

LOCATION: Lat. 58°55'25"N Long. 135°21'24"W

DESCRIPTION: This unnamed stream flows 3 miles and empties into Snug Cove. Its average width is 10 feet and average depth is less than 1 foot. The banks are heavily populated with alder, which form a low canopy over stretches of the stream making access difficult.

SPECIES PRESENT: chum salmon, cutthroat trout, Dolly Varden

FISH OBSERVED: Estimate 300 mature chum salmon were present awaiting passage further upstream to spawn. Several small Dolly Varden and cutthroat were observed in pools.

AVERAGE CATCH PER TRAP (n=4): cutthroat = 1.25
Dolly Varden = 5.25

EVALUATION: The rearing potential of this stream appears to be excellent for its size. It provides a substantial rearing area for cutthroat and Dolly Varden. Numerous pools and bends in the system provide suitable rearing habitat. Dolly Varden and cutthroat appear to be abundant throughout the system, presumably in response to spawning salmon, and also abundant insect larvae present.

Sullivan River (115-31-43) Survey Date: 7/29/72

LOCATION: Lat. 58°54'25"N Long. 135°20'W

DESCRIPTION: The Sullivan River flows some 9 miles from its mountainous origin to empty into Lynn Canal. Its average width is 20 feet and average depth, 8 feet. The water is turbid. Adjacent private logging cuts may be a contributing factor, as some of the plots have no protective fringe left between logged-off areas and the river itself. Sullivan River is fed upstream by tributary streams, each providing suitable habitat for Salmonidae.

SPECIES PRESENT: cutthroat trout, Dolly Varden, and silver salmon.

FISH OBSERVED: Rearing cutthroat, Dollys, and silvers could be readily seen in rushing tributary streams.

AVERAGE CATCH PER TRAP (n=3): cutthroat = 1.0, Dolly Varden = 19.3 and silver salmon = 2.0

EVALUATION: The main stream itself was not sampled due to siltation and size. However, the rushing tributary streams appear to be very important rearing areas for these Salmonidae. Suitable spawning area also exists in the tributary streams.

Unnamed Stream (115-31-38) Survey Date: 6/13/72

LOCATION: Lat. 58°51'25"N Long. 135°18'24"W

DESCRIPTION: This unnamed stream flows one mile down a mountain slope and empties into the northwest corner of "300 Cove." It functions primarily as a spring drainage system and dries up by midsummer.

Unnamed Stream (115-31-36) Survey Date: 6/13/72

LOCATION: 58°50'42"N Long. 135°17'37"W

DESCRIPTION: This unnamed stream flows two miles through a large eroded draw and empties into the southwest corner of "300 Cove." The average width is 70 feet and the average depth is 6 feet. Three tributary streams unite to form this stream. A large fall, located 200 yards upstream, rises 35 feet above the lower reaches. The stream banks are characterized by high and steep sides.

SPECIES PRESENT: Unknown

FISH OBSERVED: No fish seen

AVERAGE CATCH PER TRAP (n=4): No fish caught

EVALUATION: Stream velocity below the falls is too swift for rearing Salmonidae to withstand. No suitable habitat exists downstream from the falls for spawning adults.

Reed Lake (unofficial name) Survey Date: 6/22/72

LOCATION: Lat. 58°48'N Long. 145°17'W

DESCRIPTION: Reed Lake is a small mountain lake located at the head of unnamed stream No. 115-10-90. The lake is a part of a low alpine muskeg drainage. Three tributary streams empty into the lake, which empties into the unnamed outlet stream. At the time of survey the lake was mostly covered by a layer of melting snow and ice. The lake is bordered by a climax stand of Sitka spruce, interspersed with some western hemlock. Alder is abundant near the lake's edge. The surface area of the lake is approximately 20 acres.

SPECIES PRESENT: Dolly Varden char

FISH OBSERVED: Dolly Varden char

AVERAGE CATCH PER TRAP (n=1): No fish caught

EVALUATION: The school of dollys observed in the survey were very stunted and not of a size to interest an angler. The lake should be sampled again to detect the presence of larger dollys or additional species. Due to the steep stream gradient, anadromous fish movement appears to be very restricted or nonexistent.

Unnamed Stream (115-10-90) Survey Date: 6/22/72

LOCATION: Lat. 58°49'N Long. 135°16'49"W

DESCRIPTION: This unnamed stream flows from a small, unnamed lake, 3/4 mile down a moderate grade and empties into Lynn Canal. Average width is 4 feet and average depth is 1/2 foot. The stream contained fallen logs that would impair passage of Salmonidae. This stream was dry on July 31, 1972.

Endicott River (115-10-80) Survey Date: 8/22/72

LOCATION: Lat. 58°46'49"N Long. 135°14'30"W

DESCRIPTION: The Endicott River flows 25 miles from its Endicott Lake origin to empty into Lynn Canal. The river varies in width from about 35 feet to a possible 300 feet at flood stage. The flood plain is composed of a sand and rubble flat that borders the main channel.

SPECIES PRESENT: pink salmon, chum salmon, silver salmon, cutthroat trout, and Dolly Varden char

FISH OBSERVED:

AVERAGE CATCH PER TRAP (n=3): Dolly Varden = 23.3, silver salmon = 1.0, cutthroat = 0.3

EVALUATION: The Endicott River represents a major system providing rearing and spawning habitat in the Lynn Canal area. Numerous pools located adjacent to the main river channel and tributary streams provide excellent rearing habitat. Young Salmonidae can be readily seen in the shallow, clear water pools.

Unnamed Stream (115-10-73) Survey Date: 7/31/72

LOCATION: Lat. 58°44'17"N Long. 135°14'47"W

DESCRIPTION: This unnamed stream flows miles from its origin on the ridge of William Henry Mountain and enters into Lynn Canal on the mouth

side of the entrance to William Henry Bay. The average width of this stream is 8 feet; average depth is less than 1 foot.

SPECIES PRESENT: Dolly Varden

FISH OBSERVED: No fish seen

AVERAGE CATCH PER TRAP (n=2): Dolly Varden = 11.0

EVALUATION: Numerous pools and riffles available upstream and suitable for rearing Salmonidae. Rearing and spawning areas are available above the intertidal zone upstream to the foothills of William Henry Mountain. Although a narrow stream, it could well support a small breeding population of Salmonidae.

Unnamed Stream (115-10-68) Survey Date: 7/31/72

LOCATION: Lat. 58°42'19"N Long. 135°14'18"W

DESCRIPTION: This unnamed stream flows four miles through an open valley from the base of the southern slope of William Henry Mountain and empties into the west coast of William Henry Bay. Its average width is ten feet, and average depth is less than one foot above the intertidal zone.

SPECIES PRESENT: Dolly Varden

FISH OBSERVED: No fish observed

AVERAGE CATCH PER TRAP (n=1): Dolly Varden = 5.0

EVALUATION: The length of the stream from the base of William Henry Mountain to the intertidal zone is considered both suitable for rearing and spawning Salmonidae.

Unnamed Stream (William Henry Bay #1) Survey Date: 8/1/72

LOCATION: Lat. 58°41'20"N Long. 135°16'W

DESCRIPTION: This is a very small stream which flows 1/2 mile and empties into the west coast line of William Henry Bay. This stream at the time of survey was 1/2 foot deep and 3 feet wide. It may become seasonally dry due to its small size, and due to its seasonal function as a mountain drainage.

SPECIES PRESENT: Dolly Varden

FISH OBSERVED: No fish seen

AVERAGE CATCH PER TRAP (n=1): Dolly Varden = 3.0

EVALUATION: Due to its small size, spawning activity would be limited to only a few mated pairs. Small pools are available for rearing Salmonidae. Its fish production value is limited in comparison with other productive systems in the area.

Unnamed Stream (William Henry Bay #2) Survey Date: 8/1/73

LOCATION: Lat. 58°40'57"N Long. 135°14'17"W

DESCRIPTION: This small unnamed stream enters the west corner of William Henry Bay. The stream varies in pool depth from 1/2 to 2 feet.

SPECIES PRESENT: cutthroat trout and Dolly Varden char

FISH OBSERVED: No fish observed

AVERAGE CATCH PER TRAP (n=3): cutthroat trout = 0.3
Dolly Varden = 2.0

EVALUATION: The small pools in this stream provide good habitat for limited population of rearing Salmonidae. However, the area available is severely limited due to water level and size of the pools. Due to size limitations, spawning area is unavailable for a mature Salmonidae to move freely in the system.

Beardslee Lake Survey Date: 8/17/72

LOCATION: Lat. 58°41'30"N Long. 135°16'W

DESCRIPTION: Beardslee Lake is located in a saddle at the headwaters of Beardslee River and southwest of William Henry Bay. The lake has a surface area of approximately 20 acres and is primarily shallow. The bottom is composed of a deep layer of humus and algae slime. Numerous snags and debris can be seen on the lake bottom. The banks of the lake are wide open and characteristic of alpine muskeg lakes of this region.

SPECIES PRESENT: Dolly Varden char

FISH OBSERVED: Dolly Varden char

AVERAGE CATCH PER TRAP (n=5): Dolly Varden = 1.0

EVALUATION: The productivity of Beardslee Lake is apparently limited by the large deposits of humus in its shoal areas. Minnow trap success indicates that spawning and most of the rearing capacity of the total system is in the stream.

Beardslee River (115-10-65) Survey Date: 8/1/72

LOCATION: Lat. 58°40'49"N Long. 136°14'17"W

DESCRIPTION: The Beardslee River flows four miles from its origin in Beardslee Lake (unofficial name) and empties into the head of William Henry Bay. The water source is largely muskeg accounting for the golden brown color in the water. Excellent spawning rearing habitat is abundant throughout the entire system. Dense cover on both banks shades large areas of the river. A small logging cut lies adjacent to the south bank of the river.

SPECIES PRESENT: chum salmon, silver salmon, pink salmon, Dolly Varden char, and threespine stickleback

FISH OBSERVED: Eighteen adult pink salmon in spawning activity, 300 adult chum salmon in spawning activity, 3,000 silver salmon young, 2,000 Dolly Varden young, and 100 threespine stickleback

AVERAGE CATCH PER TRAP (n=4): silver salmon = 5.5, Dolly Varden =4.25, threespine stickleback = 7.25

EVALUATION: The entire length of the river is available for rearing and spawning. Several thousand young Salmonidae were visible throughout the lower section of the river. At the time of survey, mated pink salmon in spawning activity were observed 400 yards upstream. Approximately 1/4 mile upstream, chum salmon were observed ascending to spawn.

Boat Harbor Creek (115-10-50) Survey Date: 8/2/72

LOCATION: Lat. 58°38'23"N Long. 135°11'17"W

DESCRIPTION: Boat Harbor Creek flows 3-1/2 miles from its mountainous origin through an alpine muskeg region forming a lake upstream and down through a vein of shale rock to empty into the northwest corner of Boat Harbor. The stream is shallow from 1 foot in main channel to 3 feet deep in numerous pools along its length; the average width is approximately 10 feet.

SPECIES PRESENT: cutthroat, Dolly Varden, silver and some sculpin could be seen in the pools in the creek.

AVERAGE CATCH PER TRAP (n=3): cutthroat trout = 1.3, Dolly Varden char = 3.6, silver salmon = 3.0, sculpin = 2.0

EVALUATION: Due to its small size, its rearing capacity is limited and its contribution would be very small.

Unnamed Stream Survey Date: 8/2/72

LOCATION: Lat. 58°38'40"N Long. 135°10'W

DESCRIPTION: This small stream flows approximately one-half mile from its mountain ridge origin to empty into the north area of Boat Harbor. The stream is approximately one-half foot deep and up to 3 feet wide.

SPECIES PRESENT: cutthroat trout, Dolly Varden char, and silver salmon

FISH OBSERVED: No fish seen due to dark muskeg color

AVERAGE CATCH PER TRAP (n=2): Cutthroat trout = 2.0, Dolly Varden char = 2.5, silver salmon = 0.5

EVALUATION: Due to its very small size its rearing capacity is severely limited and its subsequent contribution would be very small. It is probably inaccessible for mature spawning Salmonidae.

Unnamed Stream (St. James Bay #1) Survey Date: 8/3/72

LOCATION: Lat. 58°36'18"N Long. 135°11'W

DESCRIPTION: This is a small creek which flows 1/2 mile into the northeast arm of St. James Bay. It originated in a small muskeg drainage and presumably may dry seasonally. Its average width is 2 feet and average depth is 5 inches.

Kissner Lake (unofficial name) Survey Date: 8/4/72

LOCATION: Lat. 58°37'40"N Long. 135°10'30"W

DESCRIPTION: Kissner Lake is a very small muskeg lake located at the head of St. James Bay and approximately 50 yards east of an unnamed stream, ADF&G No. 115-10-46. The lake is surrounded by a dense stand of Sitka spruce and alders. Abundant skunk cabbage and sedges grow in the lake's shoal areas.

SPECIES PRESENT: cutthroat trout, silver salmon, and threespine stickleback

FISH OBSERVED: No fish seen

AVERAGE CATCH PER TRAP: Not sampled

EVALUATION: This lake, although small and having abundant snags and dense bank cover, offers promise to the experimenting and adventurous angler.

Unnamed Stream (St. James Bay #2) Survey Date: 8/3/72

LOCATION: Lat. 58°36'18"N Long. 135°11'12"W

DESCRIPTION: This unnamed stream drains a small lake and empties into the northeast corner of St. James Bay. The stream is largely overgrown by skunk cabbage and sedges for most of its length. The lake of origin was formed by a three-foot-high beaver dam. The average width is 6 feet and average depth, 1 foot.

SPECIES PRESENT: Dolly Varden, silver salmon, sculpin, and threespine stickleback

FISH OBSERVED: No fish seen

AVERAGE CATCH PER TRAP (n=2): Dolly Varden = 0.5, silver salmon = 31.5, black sculpin = 0.5, and threespine stickleback = 2.0

EVALUATION: This system is highly productive in reference to its relatively small size. Excellent rearing area is available the full length of the stream. Capacity for spawners is limited due to its small size.

Unnamed Stream (115-10-46) Survey Date: 8/14/72

LOCATION: Lat. 58°38'25"N Long. 135°12'31"W

DESCRIPTION: This unnamed river flows nine miles from its interior muskeg origin to empty into the head of St. James Bay. This river makes a transition to high silt content as it flows downstream and enters the large flats at the head of the Bay. This system is characterized by numerous tributaries providing potential Salmonidae habitat.

SPECIES PRESENT: chum salmon

FISH OBSERVED: Chum salmon carcasses were seen on the tidal flats. No traps set due to the flood stage of the system.

EVALUATION: The system of tributary streams provide a lattice of potential rearing area. Large numbers of spawned out chum salmon were found in the upstream stretches of the river.

Unnamed Stream (115-10-44) Survey Date: 8/4/72

LOCATION: Lat. 58°38'N Long. 135°13'11"W

DESCRIPTION: This stream is similar to stream No. 115-10-46. These two streams are connected by a tributary stream of 115-10-44, which originates as a branch of 115-10-46. Both combine to function as a drainage system for the upland area of St. James Bay. A private logging plot was noted nearby the stream.

SPECIES PRESENT: chum salmon

FISH OBSERVED: Several chum salmon were seen swimming upstream and carcasses observed on the tidal flats. No traps were set due to the flood stage of the system.

St. James Creek (115-10-42) Survey Date: 8/4/72

LOCATION: Lat. 58°36'19" N Long. 135°14'37"W

DESCRIPTION: St. James Creek is composed of two large streams which drain the Chilkat Range to the immediate west. The system is mostly muskeg in origin. However, at time of the survey, the stream was rising to flood stage and the downstream area was choked with sediment.

SPECIES PRESENT: chum salmon

FISH OBSERVED: Estimated 200+ chum salmon carcasses were seen in the lower length of the stream. Another several hundred were attempting to swim upstream to spawn.

AVERAGE CATCH PER TRAP (n=3): silver salmon = 0.3

EVALUATION: The minnow trap sample was not representative due to heavy rain and beginning flood stage of river. Extensive spawning and rearing areas were observed in upstream tributaries. The stream is known to be an important chum salmon-producing stream.

Unnamed Stream (115-10-40) Survey Date: 8/5/72

LOCATION Lat. 58°33'30"N Long. 135°13'07"W

DESCRIPTION: This unnamed stream flows 1-1/2 miles from its mountainous origin in the Chilkat Range and empties into the west coastline of St. James Bay. Average width is 35 feet and average depth is 1-1/2 feet. A large fall rising some 20 feet high provides a significant barrier in preventing Salmonidae from passing upstream. At the time of the stream survey water velocities were swift due to a rainstrom.

EVALUATION: Possible habitat exists below the falls for Salmonidae.

Crane Lakes Study

The Crane Lakes system is located on the east coast of Mitkof Island. These lakes are accessible by a 10-minute float plane trip from Petersburg or by a non-maintained U.S. Forest Service trail from Frederick Sound. The U.S. Forest Service is presently constructing a road (Figure 11) which will run in close proximity to all four lakes. No vehicle or trail access points are planned to connect the road and lakes at this time.

These shallow lakes lie in a spruce muskeg area and are characterized by a low pH and "soft" water. In August, 1972, June Lake (Figure 12) had a pH of less than 6.5 and total hardness and alkalinity less than 17 ppm. Chemical analyses were not conducted on the remaining lakes but should be very similar.

Crane Lake (Figure 13) contains a climax population of cutthroat trout and Dolly Varden char. Sampling by minnow traps in August, 1972, confirmed the presence of coho fingerlings. This lake sustains light angler pressure generally by fly-in and access by trail from Frederick Sound. Inlets to the lake include small muskeg streams and drainage from Hill Lake.

Hill Lake is the smallest of the lakes in this muskeg drainage system and the only one which has a small shelter located on its northwest bank. It is accessible to the angler by trail from the beach along Frederick Sound. No apparent inlet or outlet streams were noted; however, numerous large muskeg pools between Hill and Crane lakes appear to provide a connecting system.

Sand Lake (Figure 14) is fed primarily by a muskeg tributary stream which drains the area to the immediate northwest of June Lake. This inlet stream was found to contain cutthroat trout above and below the beaver dam which was located one-half mile upstream of Sand Lake. The 400 yards of the inlet upstream of the lake is laden with decayed debris of trees. The outlet stream is characterized by the same condition as the inlet stream.

The lake was sampled by hook and line and found to be a good cutthroat trout

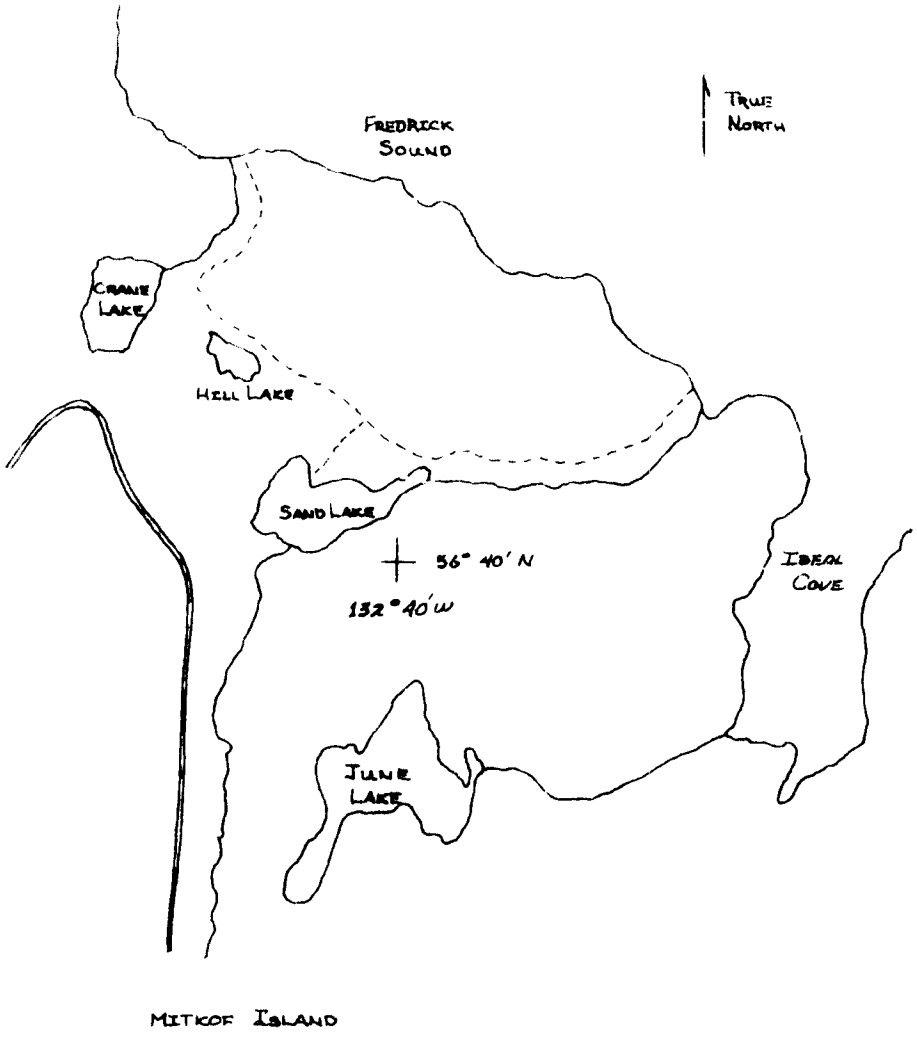


FIGURE 11. Locations of Lakes Studied in Crane Lakes Survey, Mitkof Island, 1972.

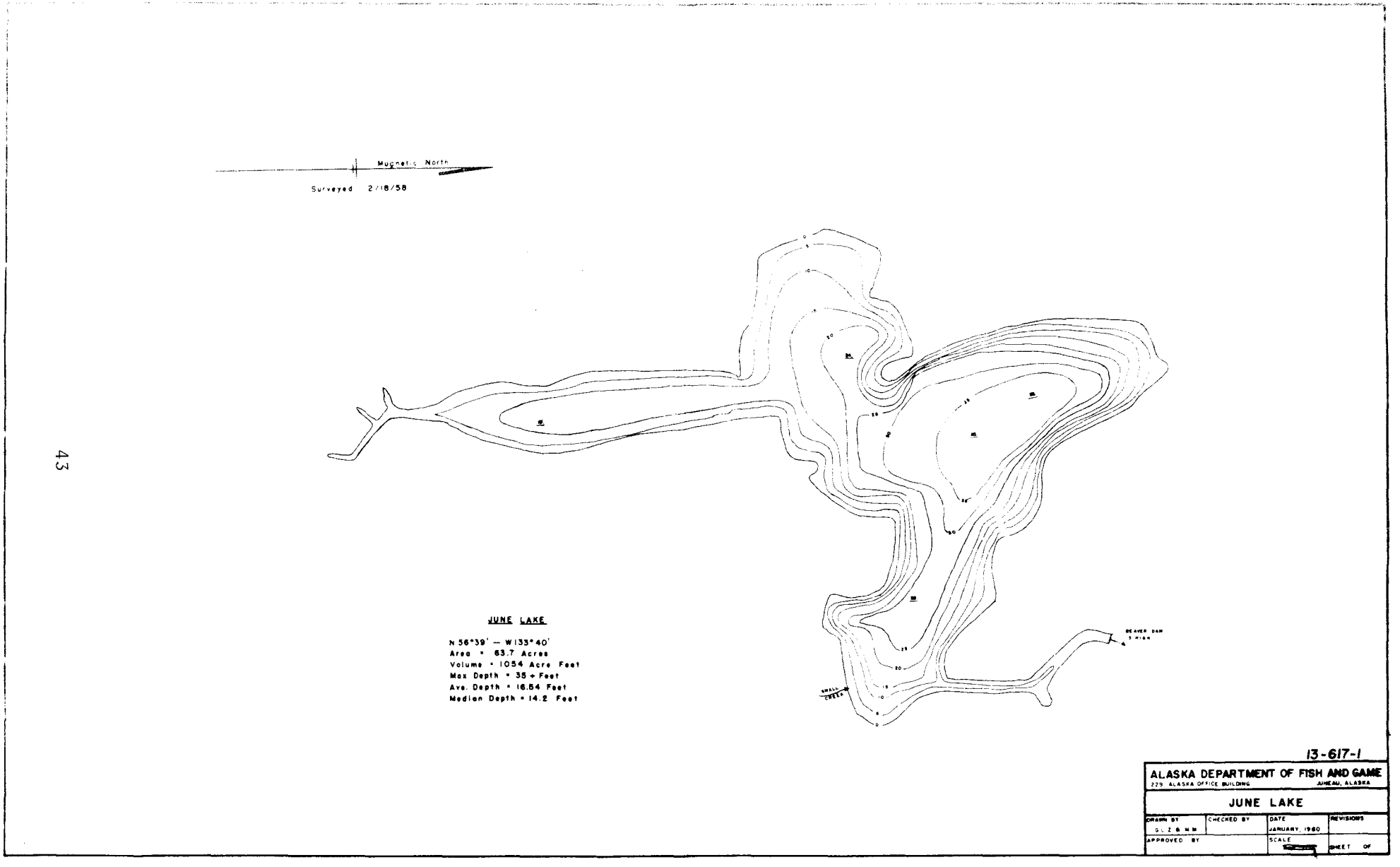
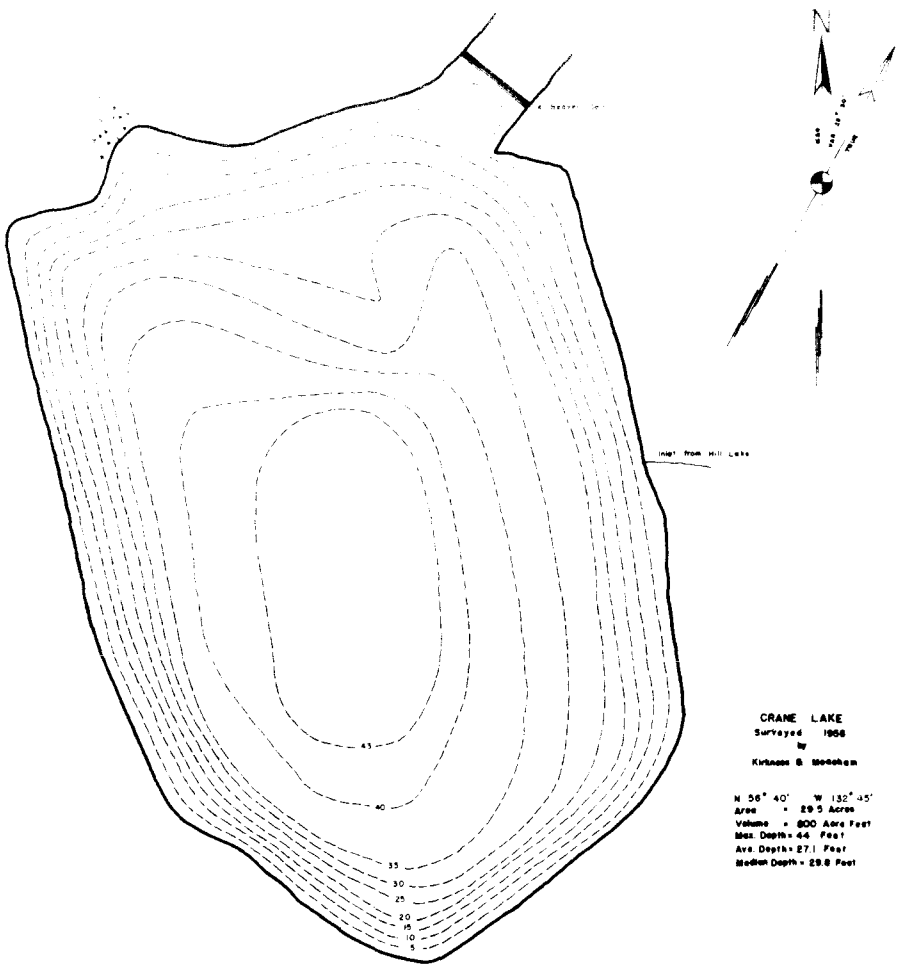
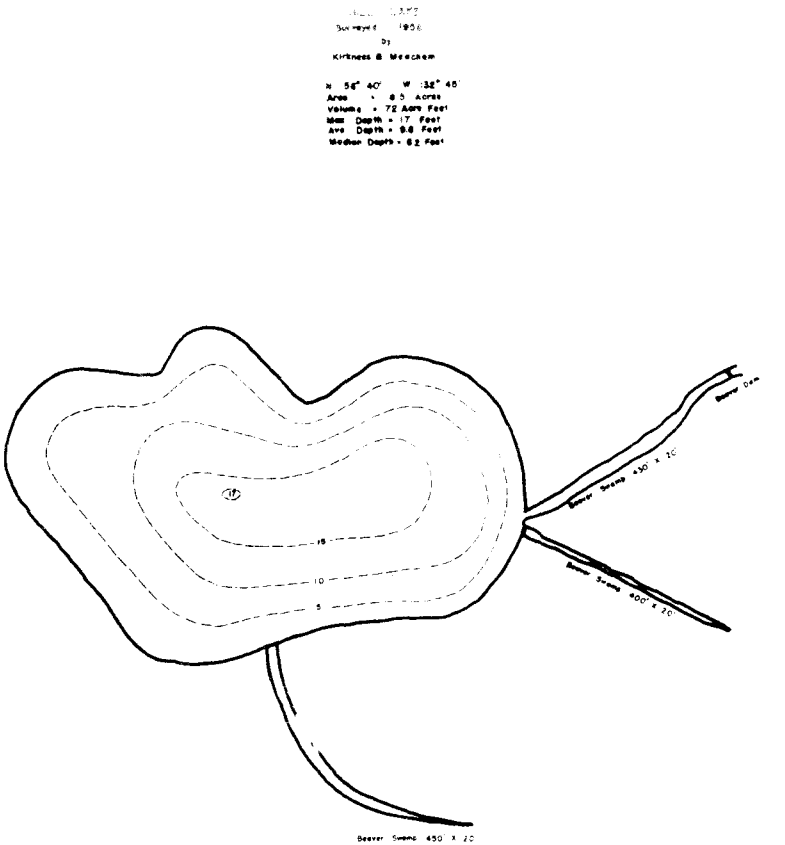


FIGURE 12. Bathymetric Map of June Lake.





13-616-1

ALASKA DEPARTMENT OF FISH AND GAME
SUPER. BUILDING JUNEAU, ALASKA

CRANE LAKE & HILL LAKE

DRAWN BY	CHECKED BY	DATE	REVISIONS
[illegible]		7 JAN 1966	
APPROVED BY		SCALE [illegible]	SHEET OF

FIGURE 13. Bathymetric Map of Crane and Hill Lakes.

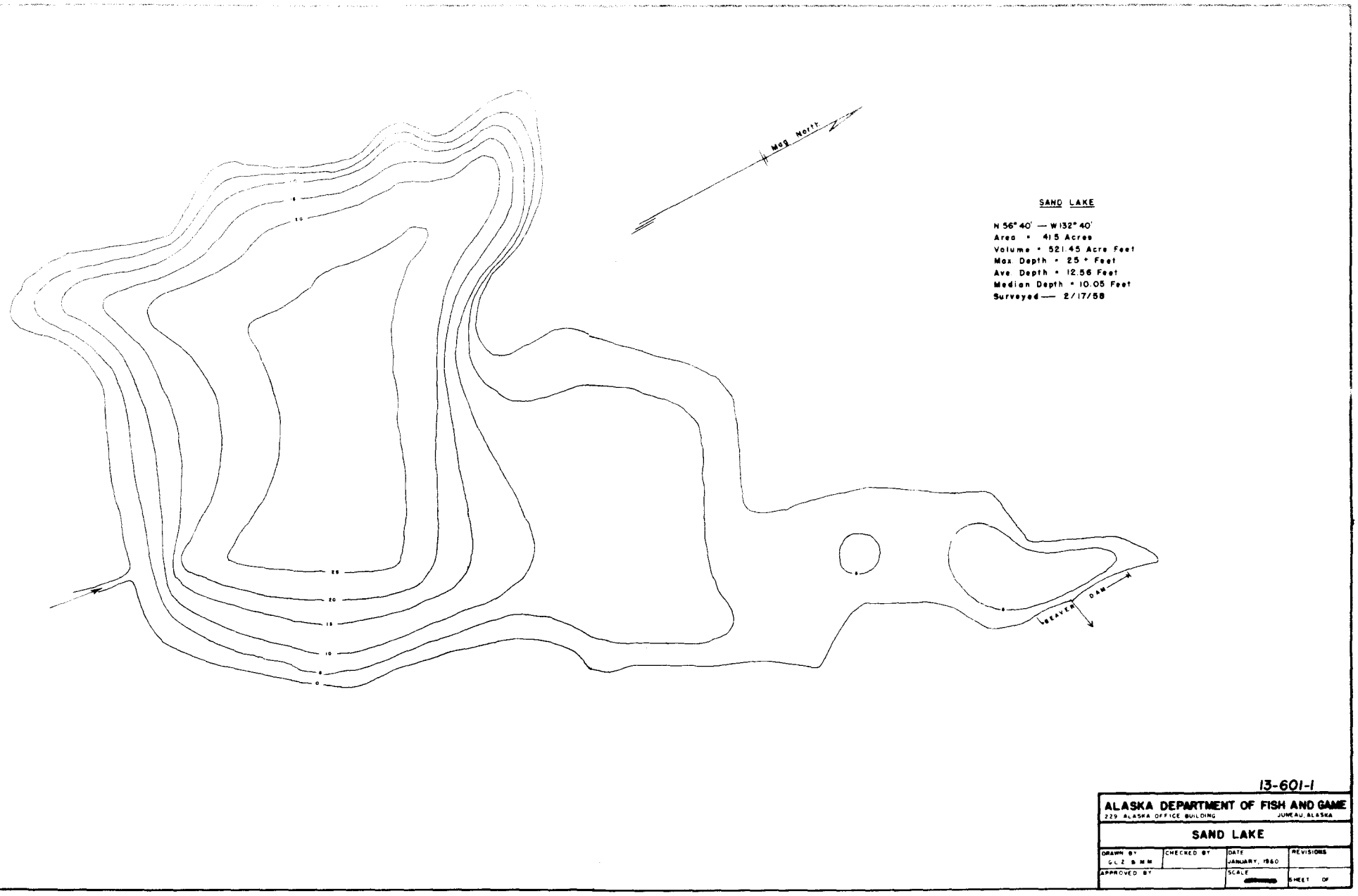


FIGURE 14. Bathymetric Map of Sand Lake.

Lake. Area residents are known to exert light fishing pressure upon this system. Public access is limited to a fly-in to Frederick Sound, and then by trail or from the access road through the logged area and following the inlet stream

June Lake is fed by several small muskeg streams. A high water level is maintained by a beaver dam located at the origin of the outlet stream. In the catch sampled by variable mesh gillnet in August, 1972, two sea-run cutthroat trout were noted, by their light coloring, as compared to the darker lake-resident cutthroat. One of the sea-run cutthroat trout had its caudal fin punched in the dorsal lobe presumably by the steelhead-cutthroat trout study personnel at Peterson Creek in 1971.

At present the lake supports a light sport fishery for cutthroat and Dolly Varden. It is difficult to fish from the bank due to close terrestrial and aquatic vegetation.

June Lake was rehabilitated with 0.006 ppm toxaphene in August, 1958. On July 3, 1959, 42,400 sockeye were introduced in an effort to establish a run. A 1969 survey of the lake indicated the sockeye run had died.

Prince of Wales Island - Road System

Figure 15 shows the Prince of Wales Island road system and the associated aquatic systems that will be available to public use. The state ferry terminal at Hollis is scheduled for completion by the summer of 1974 and should be useable by July. The M/V Chilkat will serve this terminal from Ketchikan, probably twice a week. The M/V Chilkat has a capacity to transport 15 vehicles and 59 passengers.

The route currently available for public use is that area from Hollis to Craig and Klawock. The reconstruction and gravel survace of the 6.5 road miles between Craig and Klawock is scheduled to begin about November 1, 1973, with a projected completion date of August 1, 1975.

The Big Salt Lake road, from about two miles north of Klawock to Control Lake, is currently under construction and will be open to public use upon completion in 1974. Completion of this road will also open the roads between Control Lake and Thorne Bay. All of the roads in the Thorne River-Thorne Bay area may not be maintained for vehicular traffic.

The Staney Creek road system is complete as shown but will not be open to public use until logging operations are completed.

Other roads may be constructed in the future to connect the permanent communities of Hydaburg, Kasaan, Coffman Cove, Whale Pass, and Pt. Baker

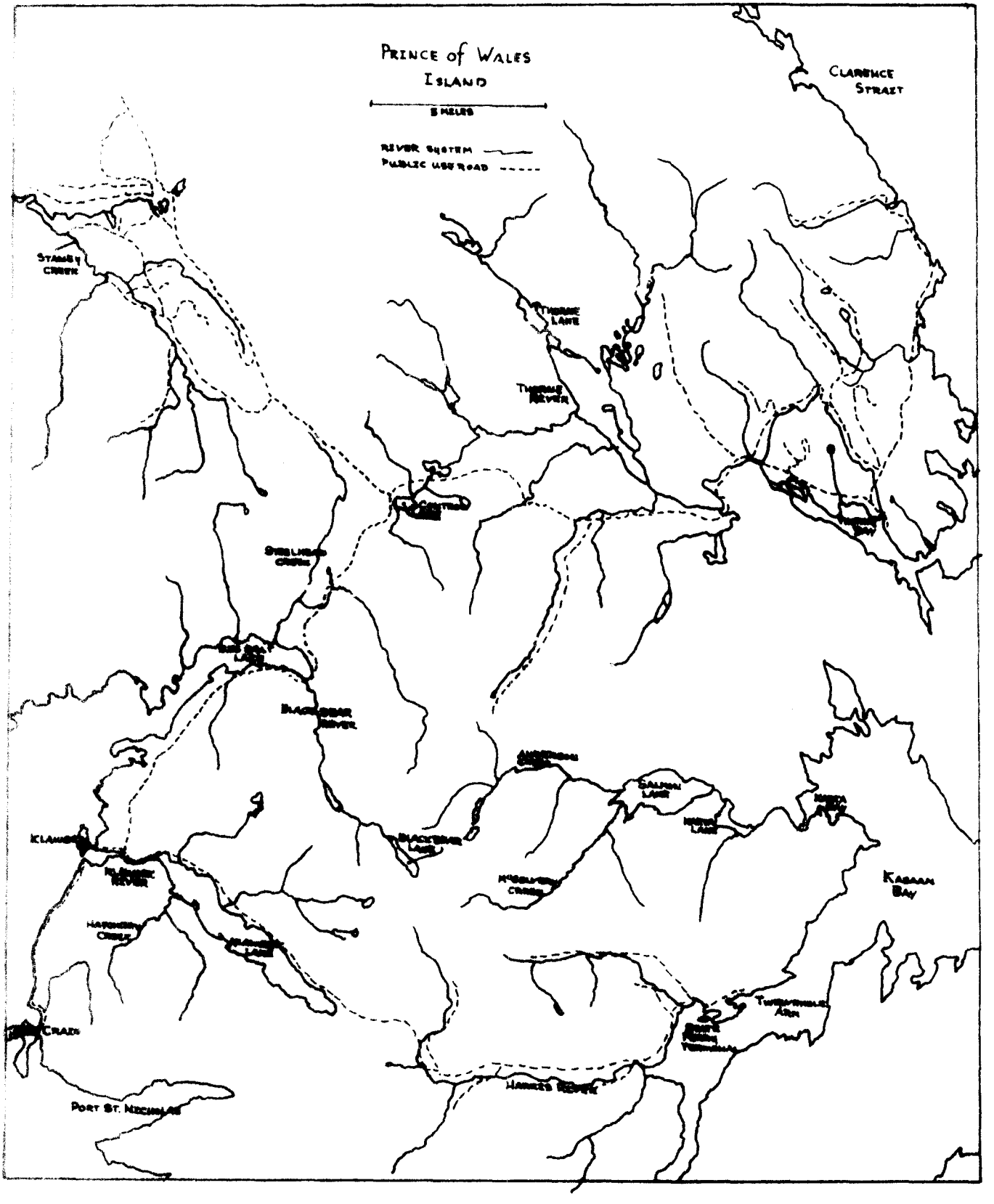


FIGURE 15. Location of Prince of Wales Island Road System

to the existing road system. There are no immediate plans for such development, but waters adjoining the routes should be appraised before road construction.

The South Tongass National Forest transportation plan lists two areas for limited access (no permanent roads). These are the Honker Divide Recreation Area and the Salmon Lake-Karta Bay Area.

High potential recreation areas made available by the present road system include Harris River, Klawock Lake, Klawock River, Big Salt Lake, Steelhead Creek, Black Bear Creek, Control Lake, Thorne River, and Staney Creek.

Creel Census

Juneau Saltwater Area Creel Census

An estimated 4,572 coho, 1,160 king, 408 pink, and 152 chum salmon were taken from June 1 to September 3 utilizing the comparable estimate (Table 6). An estimated 7,175 coho, 1,791 king, 650 pink, and 235 chum salmon were taken from June 1 to September 3 utilizing the improved estimate (Table 7). The salmon catch per angler hour was 0.100 for coho, 0.026 for king salmon, 0.010 for pink salmon, and 0.004 for chum salmon (Table 8).

During the 1972 Golden North Salmon Derby an estimated 1,817 coho (65%), 528 king (18.9%), 328 pink (11.7%), and 123 chum (4.4%) salmon were entered to compete for prize (Table 9). The catch per hour for the three-day derby was 0.222 for coho, 0.064 for king salmon, 0.040 for pink salmon, and 0.015 for chum salmon.

North Behm Canal Area Creel Census

An estimated 1,612 king salmon, 513 coho, and 443 pink salmon were caught by sport fishermen from May 2 through August 28 (Table 10). Of the 1,612 king salmon caught, 1,261 were harvested and 351 were released.

The salmon sport catch per angler hour was 0.16 for king salmon, 0.05 for coho, and 0.04 for pink salmon.

The halibut catch reported in the North Behm Canal area was 45 fish.

Ketchikan Area Creel Census

An estimated 7,575 king salmon, 9,134 coho, 6,290 pink, and 504 chum salmon were taken during the saltwater creel census period in the Ketchikan area (Table 11). The salmon catch per angler hour was 0.317 for coho, 0.147 for king salmon, 0.191 for pink salmon, and 0.009 for chum salmon (Table 12).

Table 6 Comparable Estimate of Angler Effort and Salmon Catch in the Juneau Area Saltwater Sport Fishery, June 1 - September 3, 1972.

Time Period	5	6	7	8	9	10	11	TOTAL
	6/1-6/11	6/12-6/25	6/26-7/9	7/10-7/23	7/24-8/6	8/7-8/20	8/21-9/3	
Boat Trips	560	647	880	511	724	632	720	4674
Angler Trips	1229	1426	2269	1712	1681	1915	1684	11,516
Angler Hours	3994.5	5830.0	11,000.0	5978.5	6916.0	8327.0	4433.0	46,479.5
Coho	0	297	752	489	1409	849	776	4572
King	94	147	201	125	158	290	145	1160
Pink	0	7	216	110	29	46	0	408
Chum	0	7	54	64	11	13	3	152
Total Salmon	94	458	1223	788	1607	1198	924	6292

Table 7 Estimate of Angler Effort and Salmon Catch in the Juneau Area Saltwater Fishery, June 1 - September 3, 1972.

Time Period	5	6	7	8	9	10	11	TOTAL
	6/1-6/11	6/12-6/25	6/26-7/9	7/10-7/23	7/24-8/6	8/7-8/20	8/21-9/3	
Boat Trips	734	751	1449	703	1122	881	1252	6992
Angler Trips	1560	1738	3769	1786	2590	2397	2916	16,756
Angler Hours	5332	6293	18,795	8216	11,477	10,374	11,658	72,145
Coho	0	376	1272	680	2429	1114	1304	7175
King	103	206	312	197	299	116	258	1791
Pink	0	5	350	161	82	52	0	650
Chum	0	5	87	84	31	23	5	235
Total Salmon	103	592	2021	1122	2841	1605	1567	9,851

Table 8 Juneau Area Sport Caught Salmon Catch per Hour By Species, June 1 - September 3, 1972.

Biweekly period No.	5	6	7	8	9	10	11	MEAN
Dates	6/1-6/11	6/12-6/25	6/26-7/9	7/10-7/23	7/24-8/6	8/7-8/20	8/21-9/3	
Kings per boat trip	0.146	0.259	0.228	0.275	0.265	0.535	0.202	0.265
Kings per angler trip	0.068	0.115	0.088	0.108	0.118	0.155	0.084	0.105
Kings per angler hour	0.019	0.025	0.018	0.023	0.027	0.044	0.034	0.026
Coho per boat trip	0.000	0.483	0.897	0.951	2.169	1.354	1.098	1.011
Coho per angler trip	0.000	0.215	0.345	0.375	0.967	0.391	0.456	0.400
Coho per angler hour	0.000	0.046	0.069	0.081	0.217	0.110	0.187	0.100
Pink per boat trip	0.000	0.009	0.254	0.235	0.059	0.063	0.000	0.097
Pink per angler trip	0.000	0.004	0.098	0.093	0.026	0.018	0.000	0.038
Pink per angler hour	0.000	0.001	0.020	0.020	0.006	0.005	0.000	0.010
Chums per boat trip	0.000	0.009	0.067	0.147	0.022	0.016	0.005	0.037
Chums per angler trip	0.000	0.004	0.026	0.058	0.010	0.005	0.002	0.014
Chums per angler hour	0.000	0.001	0.005	0.012	0.002	0.001	0.001	0.004
Total salmon per boat trip	0.146	0.759	1.446	1.608	2.515	1.969	1.306	1.409
Total salmon per angler trip	0.068	0.337	0.557	0.633	1.121	0.568	0.542	0.553
Total salmon per angler hour	0.019	0.073	0.111	0.136	0.252	0.160	0.222	0.139

Table 9 Number of Fishermen, Estimated Catch, and Catch Per Angler Golden North Salmon Derby, 1972.

Number of Fishermen

	Douglas	Auke Bay	Tee Harbor	Totals
7/21	683	1104	563	2350
7/22	785	1411	753	2949
7/23	841	1267	792	2900
TOTALS	2309	3782	2108	8199

Total Catch and Catch Per Angler Hour

	King	Coho	Pink	Chum	Total	Anglers
Total Salmon	528	1817	328	123	2796	8199
Fish Per Angler Hour	.064	.222	.040	.015	.341	
% Catch By Species	18.9	65.0	11.7	4.4		

Average King Weight: 9 lb.

Table 10. Estimate of Angler Effort and Salmon Catch in the North Behm Canal Sport Fishery, May 23 - August 28, 1972.

Bi Weekly Period	Angler				Fish						
	TRIPS				KINGS						
	Res.	Non-Res.	Total	Hours	Take	Release	Total	Av. Wt.	Coho	Pink	Halibut
5/23-6/4	86	156	242	1358	220	32	252	15.44	1	0	4
6/5-6/18	46	365	411	2529	302	55	357	13.30	9	29	11
6/19-7/2	51	156	207	1170	176	27	203	13.14	4	37	1
7/3-7/16	27	113	140	977	84	30	114	10.42	74	210	2
7/17-7/30	24	212	236	1432	202	52	254	9.77	123	111	9
7/31-8/13	9	171	180	1015	114	85	199	7.86	138	37	8
8/14-8/28	8	248	256	1776	163	70	233	8.48	164	19	10
TOTAL	251	1421	1672	10,257	1261	351	1612		513	443	45

Table 11 Estimate of Angler Effort and Salmon Catch in the Ketchikan Area Sport Fishery, May 22 - August 28, 1972.

Biweekly Period No.	1	2	3	4	5	6	7	
Dates	5/22-6/4	6/5-6/18	6/19-7/2	7/3-7/16	7/17-7/30	7/31-8/13	8/14-8/28	TOTAL
Boat Trips	919	925	1141	1223	1310	1134	237	6889
Angler Trips	2952	2279	2533	2615	2909	285	498	16704
Angler Hours	15575	11842	103072	28181	11552	11850	2415	184487
King	1942	1757	1504	996	724	384	268	7575
Coho	4	1013	1548	2172	1786	2148	447	9118
Pink	0	517	1794	1743	905	1197	134	6290
Chum	40	158	69	70	0	0	0	337
Total Salmon	1986	3445	4915	4981	3415	3729	849	31203

Table 12 Ketchikan Area Sport Caught Salmon Catch Per Hour By Species, May 22 - August 28, 1972.

	1 5/22-6/4	2 6/5-6/18	3 6/19-7/2	4 7/3-7/16	5 7/17-7/30	6 7/31-8/13	7 8/14-8/28	MEAN
Kings per boat trip	11.368	1.902	2.094	2.933	2.462	1.417	1.200	4.236
Kings per angler trip	3.512	0.772	0.944	1.375	1.103	0.567	0.37/	1.676
Kings per angler hour	0.671	0.147	0.183	0.143	0.278	0.134	0.118	0.311
Coho per boat trip	0.026	1.098	2.156	6.400	6.077	7.917	2.000	3.668
Coho per angler trip	0.008	2.244	0 972	3.000	2.724	3.167	0.952	0.995
Coho per angler hour	0.002	0.085	0.188	0.313	0.687	0.748	0.196	0.185
Pink per boat trip	0.000	0.561	2.500	5.133	3.077	4.417	0.600	2.327
Pink per angler trip	0.000	0.228	1.127	2.406	1.379	1.767	0.286	1.028
Pink per angler hour	0.000	0.043	0.218	0.251	0.348	0.417	0.059	0.191
Chums per boat trip	0.237	0.171	0.094	0.200	0.000	0.000	0.000	0.201
Chums per angler trip	0.073	0.069	0.042	0.094	0.000	0.000	0.000	0.060
Chums per angler hour	0.014	0.013	0.008	0.009	0.000	0.000	0.000	0.009
Total Salmon per boat trip	11.632	3.732	6.844	14.667	11.615	13.750	3.800	8.621
Total salmon per sangler trip	3.593	1.515	3.085	6.875	5.207	5.500	1.810	3.410
Total salmon per angler hour	0.686	0.289	0.597	0.717	1.313	1.299	0.373	0.634

Juneau Roadside Area Creel Census

An estimated 10,105 angler trips were spent fishing the waters adjacent to the Juneau road system between June 1 and September 3, 1972. Their total catch was estimated to be 9,152 Dolly Varden, 269 cutthroat, 56 king salmon, 112 coho, 583 pink salmon, 1,390 chum salmon, 56 sockeye salmon, 45 steelhead, and 45 halibut.

Average time per angler trip was 2.3 hours. Anglers fished an estimated 22,433 hours during the census period. Catch per angler hour was: total fish 0.526, Dolly Varden 0.408, cutthroat 0.012, king salmon 0.002, coho salmon 0.005, pink salmon 0.026, chum salmon 0.062, sockeye salmon 0.002, steelhead 0.002, halibut 0.002.

A summary of creel census information collected is presented in Table 13.

Haines Roadside Area Creel Census

An estimated 2,916 pink salmon, 2,779 Dolly Varden char, 1,813 coho salmon, 326 chum salmon, 130 king salmon, 63 Cottidae, 60 sockeye salmon, 37 halibut, and 32 cutthroat trout were caught by sport anglers in the Haines area (Table 14).

The catch per angler hour was 0.287 for pink salmon, 0.274 for Dolly Varden, 0.179 for coho salmon, 0.032 for chum salmon, 0.013 for king salmon, 0.006 for Cottidae, 0.006 for sockeye salmon, 0.004 for halibut, and 0.003 for cutthroat trout (Table 15).

Anglers utilizing Chilkoot Lake and its outlet stream were further censused to determine their residency. Of the 616 fishermen surveyed, 47.6% were from the lower 49 states, 27.4% were from the Yukon Territory, 22.7% were from Alaska, and 2.3% were from foreign countries. Vistors were asked what means they used to get to the Haines area. Of the 298 respondents, 91.5% were traveling the Alaska Marine Highway.

Economic Feasibility Study

Previous studies conducted in other areas were designed to meet the specific characteristics of those respective sport fisheries. These studies were deemed unsuitable for use in analyzing the Juneau area sport fishery due to differences in angler techniques and equipment (Anonymous 1966a; anonymous 1966b; anonymous 1967a; anonymous 1967b; anonymous 1967c; anonymous 1969; Brown et al. 1964; Carline 1972; Gordon et al. 1973; Matthews and Wendler 1968; Meyer 1972; Nobe and Gilbert 1970; Oliver 1967; Potter et al. 1972; Stevens 1966; and Stevens 1967).

FIGURE 13. Summary of Creel Census - Juneau Area Roadside Sport Fishery, June 1 - September 3, 1972. (Angler Interview Data)

Location	Fisherman Contacted	Total Hours Fished	FISH CAUGHT										TOTAL
			DV	CS	SS	PS	CT	HB	RS	RB/SH	S	KS	
Echo Cove	29	53.6	9			4	7			2			22
Cowee Cr	37	40.2	56				2						58
Sunset Cove	8	12.0						2			3		5
Sunrise Beach	26	22.0	23										23
Yankee Cove	18	14.0	3				1					1	5
Eagle R Bluffs	7	8.5											0
No Eagle R Beach	48	118.5	53							1	1		55
Eagle R	70	209.4	52	1	3								56
Windfall System	22	87.5	17										17
Amalga Hbr	11	38.0	3										3
Peterson Cr	5	17.0	10				7						17
Pearl Hbr	1	0.5	10		2								12
Shrine Is	3	2.8	1										1
Tee Hbr/Tee Cr	8	22.0	3	1									4
Lena Beach	9	6.5	1										1
Pt Louisa/Auke Rec Area	6	0.0											0
Indian Cove	1	0.5											0
Auke Nu Cr	0	0.0											0
Auke Bay	2	1.5											0
Auke Cr	11	10.2	3										3
Auke Lake	2	4.0											0
Lake Cr	15	16.3	6						4				10
Montana Cr	150	235.6	82	19									101
Steep Cr	0	0.0											0
Smugglers Cove	2	2.0	1										1
Jordan Cr	0	0.0											0
Lemon Cr	0	0.0											0
Salmon Cr	43	61.8	112										112
Juneau Breakwaters	1	3.0											0
Sheep Cr	76	69.6	5	11									16
Dupont/End Thane Rd	12	26.0	5										5
Kowee Cr	0	0.0											0
"Livingston 'Copters"	0	0.0											0
Fish Cr	216	268.8	150	62		35	3						250
Passover/No Douglas Rd	19	20.0	7										7
Picnic Cove	136	185.2	22	4	3	3		1				3	36
Peterson Cr/End No Douglas Rd	14	16.2	8										8
TOTAL	1008	1573.3	642	98	8	42	20	3	4	1 2	4	4	828

Table 14 Estimate of Angler Effort and Catch in the Haines Area Sport Fishery, June 12 - October 29, 1972.

	Letnikof Cove 6/12-6/25	Lutak Inlet 6/15-6/25	Chilkoot Lake and Outlet 6/12-10/29	Mosquito Lake 6/26-8/6	Chilkat River 6/26-10/9 10/16-10/29	TOTAL
Pink Salmon	--	--	2916	----	----	2916
Dolly Varden	50	53	2458	16	252	2779
Coho Salmon	--	--	1420	----	393	1813
Chum Salmon	--	--	200	----	126	326
King Salmon	130	--	----	----	----	130
Cottidae spp.	--	63	----	----	----	63
Sockeye Salmon	--	--	60	----	----	60
Pacific Halibut	24	13	----	----	----	37
Cutthroat Trout	--	--	----	32	----	32
Total Fish	204	129	7054	48	671	8156
Angler Days	698	229.3	8798	280	376.75	10382.05
Angler Hours	1332	290.25	12262	315	600.25	14799.5

Table 15

Haines Area Sport Fishery Catch Per Hour By Species and Aquatic System, 1972.

	Letnikof Cove	Lutak Inlet	Chilkoot Lake and Outlet	Mosquito Lake	Chilkat River	Haines Area Average
Pink salmon	--	--	0.215	--	--	0.215
Dolly Varden	0.044	0.148	0.196	0.081	0.181	0.13
Silver salmon	--	--	0.095	--	0.587	0.341
Chum salmon	--	--	0.013	--	0.16	0.087
King salmon	0.066	--	--	--	--	0.066
Cottidae spp.	--	0.247	--	--	--	0.247
Sockeye salmon	--	--	0.004	00	00	0.004
Pacific Halibut	0.013	0.049	--	--	--	0.031
Cutthroat Trout	--	--	--	0.162	--	0.162

Responses from other agencies were deemed unfeasible due to the high costs quoted (Drury 1973; Nieland 1973).

Handout questionnaires appeared to be the most suitable of all methods studied. Carione (1972) and Potter et al. (1972) found the largest return rates were obtained using return addressed mailer-type questionnaires.

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