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William A. Egan, Governor

Federal aid in fish restoration projects

Annual Progress Report for

DOLLY VARDEN SPORT FISHERY - JUNEAU AREA

by

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TABLE OF CONTENTS

Page No.

RESEARCH PROJECT SEGMENT

State: Alaska

Project No.: F-9-3 *Name:* Sport Fish Investigations of Alaska.

Study No.: R-IV *Study Title:* A Study of Dolly Varden in Alaska.

Job No.: R-IV-C *Job Title:* Dolly Varden Sport Fishery - Juneau Area.

Period Covered: July 1, 1970 to June 30, 1971.

ABSTRACT

This report presents the results of a single season effort to determine the status of Dolly Varden, Salvelinus malma, populations along the Juneau road system by means of stream surveys, the number of Dolly Varden wintering in Auke Lake, and creel census.

A total of 57 streams and lakes is included in the analysis. Most of these systems were surveyed for species present, amount of rearing and spawning area available, and fishing potential. In addition as much information as possible from other sources is included in this analysis.

A total of 6,215 out-migrant sea-run Dolly Varden were counted at the Auke Creek weir. Approximately 3,000 of these fish were between 10 and 20 inches in fork length. Of the Dolly Varden censused along the Juneau road system, 5.5% had spent the winter in Auke Lake. The census at Montana Creek revealed 12.7% of the catch were from Auke Lake.

Of 581 fish censused, Dolly Varden made up 88% of the total catch. The Dolly Varden catch per angler hour was 0.54.

Recommendations for research and management of Dolly Varden in the Juneau area are presented.

RECOMMENDATIONS

Research

A creel census program designed to determine total numbers of fishermen and fish caught along the Juneau road system should be initiated.

The distribution of Dolly Varden in Mendenhall Lake should be determined. The fishing potential of this lake, its outlet, and Eagle and Herbert Rivers should be determined, along with methods of fishing glacial waters.

The abundance of non-migratory cutthroat, Salmo clarki, in Auke Lake should be determined.

Methods of catching Auke Lake red salmon, Oncorhynchus nerka, on sport gear in salt water should be determined. The average annual red salmon escapement of approximately 7,000 fish could possibly allow for harvests of 2,000 - 5,000 fish, and still provide adequate escapement for maintaining the population. This number exceeds the total estimated annual king salmon, O. tshawytscha, sport catch for the Juneau area and the total catch of coho salmon, O. kisutch, in some years; and would be a major contribution to the overall sport fishery of the Juneau area. Apparently these red salmon enter the Auke Bay area prior to commencement of the commercial fishery. Hence, their returning numbers could be more predictable from an index of smolts. Red salmon are available to the angler in Auke Bay before coho and at a time when king salmon fishing is at a low harvest level. Their potential value as a sport fish is further enhanced by their availability in Auke Bay, a relatively protected area where people could safely fish from small skiffs.

According to Narver (1970), British Columbia trollers often gear-up specifically for red salmon. The most common gear consists of a large flasher with a red Hoochie (plastic squid) about 30 inches behind. Sometimes a red wool on a silver hook is also used. These and other methods of catching red salmon in salt water should be tried.

Management

In general, this study indicates no need for any immediate changes in the management of Dolly Varden along the Juneau road system. Rearing Dolly Varden appeared well distributed and abundant throughout most stream systems. There was no indication that the population wintering in Auke Lake was being over harvested. Also, Mendenhall Lake which is not being fished, was discovered as a possible major wintering area for Dolly Varden.

It should be noted that without a comprehensive creel census program designed to determine annual harvests and catch success for Dolly Varden, we cannot be sure if the populations are maintaining themselves or not.

Baade (1961) reported a catch of 2,421 Dolly Varden and a catch per angler hour of 1.2 in 1960. This is twice the 0.54 Dolly Varden per angler hour computed in 1970. Unfortunately sufficient data for comparison was not collected in other years so a catch trend for Dolly Varden cannot be established.

Dolly Varden is the major species sought by land-based fishermen along the Juneau road system. This fishery appears to be on the increase each year and some general concepts of Dolly Varden behavior should be realized for the successful management of this species in the future. These are:

1. Auke, Mendenhall, and Windfall lakes are probably the wintering areas for the majority of the Dolly Varden being fished north of Juneau. These potential fishery systems should be managed primarily for Dolly Varden to maintain the wintering populations. Dolly Varden caught south of Juneau (e.g. Dupont) are probably using the Taku River watershed as a wintering area.

2. Streams such as Fish, Sheep, and Salmon creeks have fairly successful Dolly Varden fisheries; however, these systems provide little or no rearing area and Dolly Varden being caught probably overwinter in other systems. If a put-and-take fishery was to be established (e.g. planting of smolts), these systems would be best for experimentation.

3. Montana Creek, and Eagle and Herbert Rivers are probably the major producers of Dolly Varden found in streams and lakes along the Juneau road system. These systems have the greatest amount of rearing area available for the fish. Their populations may be from 1,000 - 5,000 fish.

4. Other important systems include Peterson (North Douglas Island), Switzer, and Lemon Creeks. These systems are believed to be medium producers of Dolly Varden with populations of 200 - 1,000 fish.

5. Many of the smaller streams such as Shrine, Vanderbilt, and Jordan Creeks may not in themselves produce significant numbers of Dolly Varden but in aggregate may exceed the numbers produced by some larger streams. Although these systems may be incapable of sustaining a fishery, it should be realized they are contributing fish to fishermen on other streams and lakes along the Juneau road system. This contribution is due to the Dolly Varden's habit of moving from one stream system to another, after their migration to sea as smolts, and wintering in lakes. As an example, a Dolly Varden from Jordan Creek may be caught in saltwater off the North Douglas Road, in Salmon Creek, in Auke Lake, or while entering or leaving the lake. These smaller streams may have populations of only 10 - 100 fish.

Housing developments, pollution, improper culvert placement, and other land-use activities are evident along many of these streams. Continued misuse of the natural stream physical and biological features can eventually reduce or eliminate their fish production.

6. Because of significant fisheries for Dolly Varden in saltwater, some consideration should be given to a saltwater bag limit similar to the freshwater bag limit. Their habit of concentrating in certain saltwater areas makes a given population as vulnerable to sport fishing as in the stream itself.

Auke Lake:

In general, we recommend that the Auke Lake system be managed to maintain its present species on a sustained yield basis. The numbers of red salmon, Dolly Varden, and possibly non-migratory cutthroat trout are in sufficient abundance to sustain a significant sport fishery. It is doubtful we could significantly improve the quality or quantity of fishing these species presently provide. Some enhancement of the system could possibly be achieved following a thorough ecological investigation. However, any enhancement of the system should be of an experimental nature and carefully evaluated before being implemented on a production basis.

OBJECTIVES

1. To determine the status and potential of the Dolly Varden sport fishery along the Juneau road system.

2. To determine the number of Dolly Varden wintering in Auke Lake and the contribution these char make to the fisheries in the Juneau area.

INTRODUCTION

To successfully evaluate the Dolly Varden sport fishery along the Juneau road system, a three-part research program was considered necessary. The study consisted of: (1) surveying watersheds within the Juneau road system; (2) evaluating the numbers of Dolly Varden wintering in Auke Lake; and (3) a creel census of the Juneau area.

Watershed surveys were conducted to determine available spawning and rearing areas for Dolly Varden within the road system and evaluate the accessibility of the streams to fishermen.

Evaluation of the Dolly Varden population utilizing Auke Lake as a wintering area was necessary to determine the numbers of fish present, as well as their contribution to the Juneau sport fishery.

The creel census was used to obtain an indication of angler success for Dolly Varden along the Juneau road system, in addition to the specific contribution of the Auke Lake population.

TECHNIQUES USED

Watershed Surveys

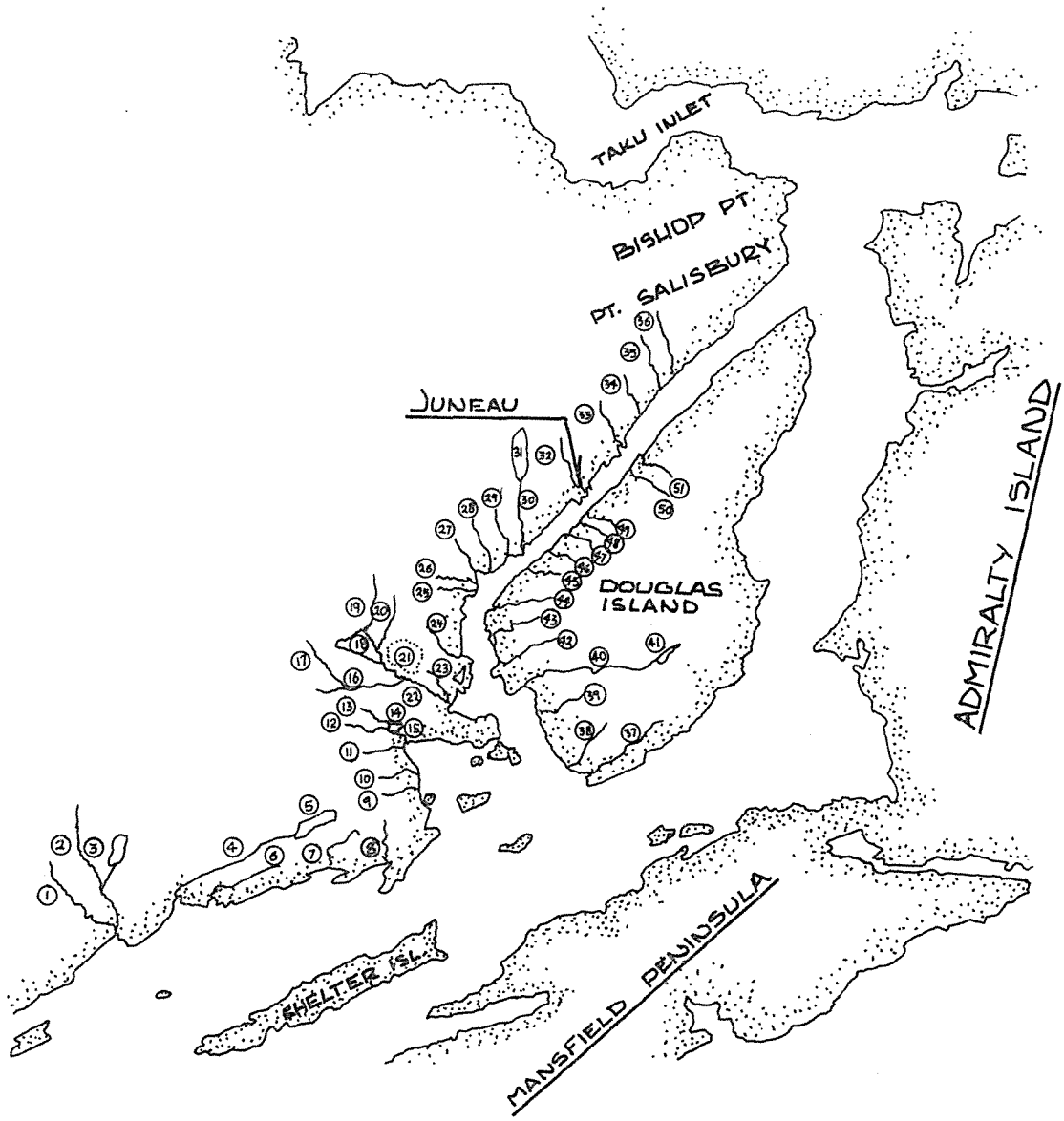
Surveys were conducted by walking each stream and sampling for about two hours with double-ended conical entrance minnow traps baited with fresh salmon eggs. During the surveys, notation was made of species present, a description of the stream and surrounding area, the number and quality of spawning and rearing areas, and any migratory fish blocks or probable blocks. To evaluate the rearing areas observed, a system to enumerate the areas was adopted. Under this system, rearing areas created by partially or completely submerged logs or stumps were called "logs", and those areas created by pools, sloughs, or undercut banks were listed under their respective headings. All sampled fish were enumerated and identified; some were taken for age determination. Primary emphasis was placed on anadromous populations; consequently, the surveys were generally concluded when a fish block was reached. Initially, the surveys were to include only those streams open to anadromous fish and on the road system. A decision was made to include all streams on the road system and lakes near the Juneau area (Figure 1). Although all areas were not actually surveyed during the 1970-1971 field season, a literature search was conducted. This report includes all available data on each system.

Auke Lake

Evaluation of the numbers of Dolly Varden using Auke Lake as a wintering area was made possible by trapping all out-migrants. The salmon counting weir on Auke Creek, the only outlet of Auke Lake, was converted to an out-migrant Dolly Varden weir and trap with 5/8-inch mesh screening. The weir was fished continuously from March 19 to June 14, 1970. No high water problems were encountered, and the counts probably represent the total out-migration. The trap was fished each night during the major migration period and early each morning to decrease molestation of the fish, as the weir was easily accessible to the general public. The fish were anesthetized with MS-222, identified, enumerated, and measured. In addition, all Dolly Varden were marked by fin clipping (RV). All coho smolts were enumerated and a sample of these fish was retained for length and age determination.

Creel Census

A creel census was conducted, as time permitted, at major Dolly Varden fishing areas (Figure 2). Due to a conflict with the watershed surveys, the census was not conducted on a standard schedule or a continuous basis. Consequently, the census is not statistically valid but information on fishing pressure and success in various areas was obtained, as well as information concerning the distribution of marked Auke Lake fish.



1. Eagle River
2. Herbert River
3. Windfall Lake
4. Peterson Creek
5. Peterson Lake
6. Shrine Creek
7. Tee Creek
8. Lena Creek
9. Auke Nu Creek
10. Wadleigh Creek (Waydelich Creek)
11. Bay Creek
12. Lake Creek
13. Unnamed (Lake II -Creek)
14. Auke Lake
15. Auke Creek
16. Montana Creek
17. McGinnis Creek
18. Mendenhall Lake
19. Nugget Creek
20. Steep Creek
21. Glacier Lake
    Morraine Lake
    QT Lake
    Louie Lake
    Norton Lake
    Dredge Lake
    Marshall Ponds
22. Mendenhall River
23. Duck Creek
24. Jordan Creek
25. Unnamed
26. Unnamed
27. Switzer Creek
28. Lemon Creek
29. Vanderbuilt Creek
30. Salmon Creek
31. Salmon Creek Reservior
32. Gold Creek
33. Snowslide Creek
34. Crossbay Creek
35. Sheep Creek
36. Little Sheep Creek
37. Peterson Creek (Outer Point Creek)
38. Elevenmile Creek
39. Cove Creek
40. Fish Creek
41. Cropley Lake
42. Ninemile Creek
43. Johnson Creek
44. Hendrickson Creek
45. Neilson Creek
46. Falls Creek
47. Eagle Creek
48. Grant Creek
49. Kowee Creek
50. Lawson Creek
51. Bear Creek

FIGURE 1 LOCATIONS OF STREAMS AND LAKES INCLUDED IN SURVEY, JUNEAU AREA, 1970.

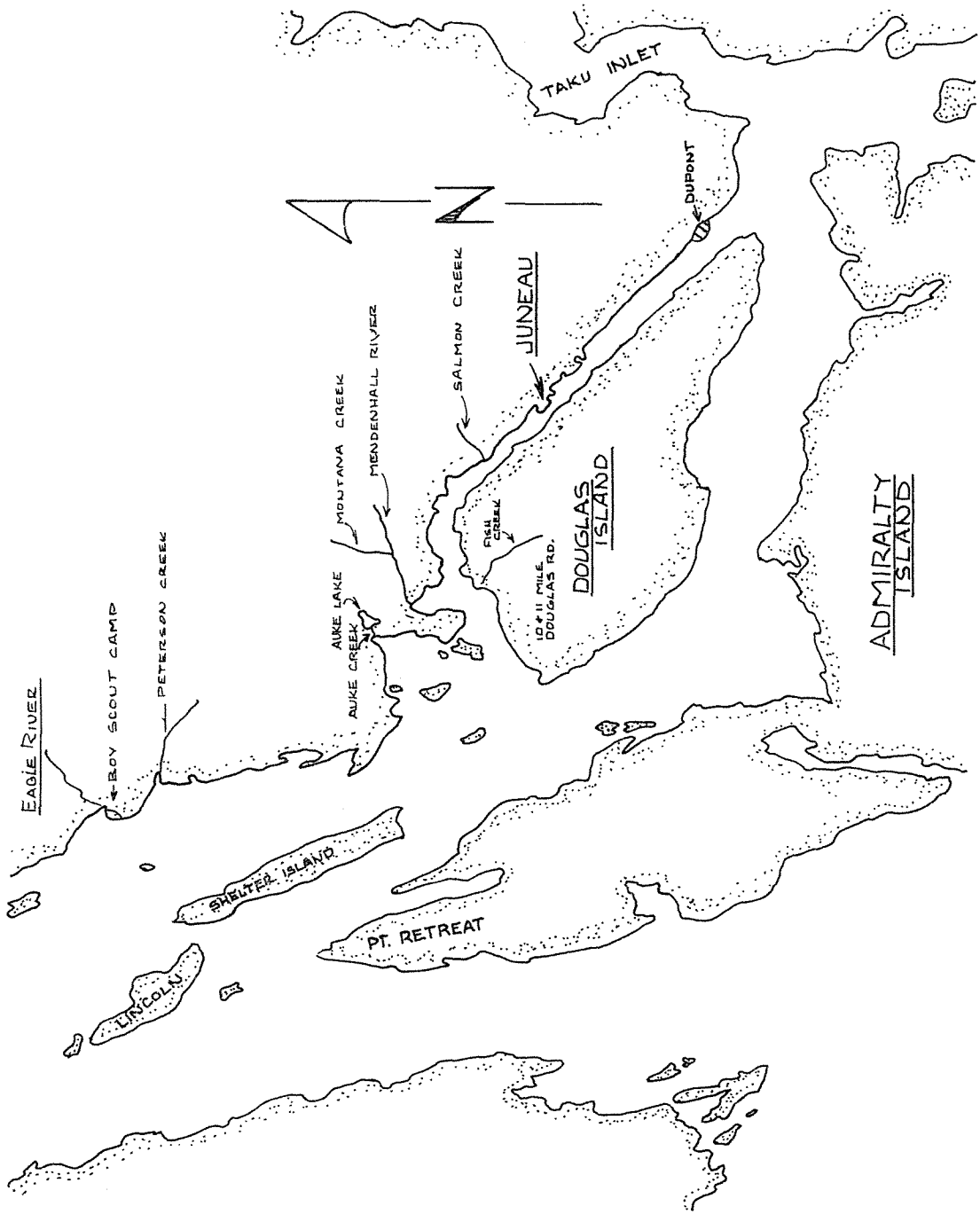


FIGURE 2 CREEL CENSUS AREA LOCATIONS, JUNEAU AREA, 1970.

FINDINGS

Watershed Surveys

The following surveys present all known and available information on each system. An attempt was made to include all lakes and streams within the Juneau road system; however, a few small unnamed streams with intertidal blocks were not included.

The Treadwell Glory Hole, Douglas Island, is not included. Although this area has been reported to offer fairly good fishing, numerous old cars were dumped there during the summer of 1970. Subsequent observations revealed oil slicks on the water and the present fishing potential is questionable.

When present, the ADF&G stream identification number is included.

AUKE CREEK (111-50-42) Survey Date: 7/16/70

Location: Lat. 58°22'55" Long. 134°38'30" (12 miles NW of Juneau)

Description: Auke Creek, the outlet of Auke Lake, flows about 0.3 miles to Auke Bay. The water is clear but has a brown color. The stream is approximately 10 feet wide and 1½ feet deep. The upper section has been improved by the addition of experimental spawning beds creating resting pools. The Glacier Highway crosses the creek just below the lake outlet. A concrete flume runs along one side of the creek for most of its length and supplies water to the nearby National Marine Fisheries Service (NMFS) Laboratory. A small hatchery was located on the creek which was constructed by the Territorial Sportsmen in 1954. Subsequently a new hatchery has been constructed by the National Marine Fishery Service and the Alaska Department of Fish and Game. The stream has good bank cover and is readily accessible by road from the Juneau area. A short access road to the hatchery makes accessibility to the stream and its mouth very easy. Since 1963, the NMFS (formerly Bureau of Commercial Fisheries) has maintained a salmon counting weir on the creek. Auke Creek has been closed periodically to salmon fishing since 1967. The creek has also been known as Aylward Creek and Auke River (Orth, 1967).

Barriers: None

Species Present: Dolly Varden, Salvelinus malma; cutthroat trout, Salmo clarki; red salmon, Oncorhynchus nerka; pink salmon, O. gorbuscha; coho salmon, O. kisutch; chum salmon, O. keta; stickleback, Gasterosteus aculeatus; and sculpins, Cottus sp.

Rearing Habitat:

Number of Areas: Logs 2, sloughs 1, undercut banks 1, pools 17.

Fish Observed:

Unknown	
Fry	Fingerling
350	300

(Due to dark, brown color of water, viewing conditions were poor.)

Average Catch/Trap (n=7): Dolly Varden = 1.0, coho = 60.4, Stickleback = 24.1, cottid = 1.1.

Evaluation: The rearing potential of this creek appears to be good. Even though the creek is fairly short, it provides substantial rearing area for coho. The spawning beds in the upper section have created the major rearing areas in the system.

Spawning Area:

Salmon Counts:

Date	Fish Observed
6/24/60	2000 Red
7/06/60	No Fish
6/27/62	No Fish
7/23/62	100 Red
8/20/62	2492 Red
10/16/62	134 Coho

(The following counts are from NMFS weir, for daily counts see Bailey, 1971.)

1963	6391 Red
1964	5465 Red
1965	6889 Red
1966	10986 Red
1967	5909 Red
1968	7164 Red
1969	6131 Red
1970	7034 Red

Evaluation: The very limited amount of spawning area in the creek is utilized by chum and pink salmon. There are also some intertidal spawning areas.

Planting History: None known.

Fishing History: According to Baade (1961), of 1,407 anglers checked fishing the Juneau area during 1960, 2.0% were fishing in Auke Creek. In 1966, a census of anglers fishing for red salmon at the mouth of Auke Creek revealed an estimated 685 fishermen caught 199 red salmon. During 1970, 63 anglers were checked while fishing Auke Creek. In 229

hours of fishing they had caught 67 fish for a catch per angler hour of 0.29.

References: Anonymous, 1968 (Chemical data)
Baade, 1961 (Fishing history)
Bailey, 1971 (Salmon counts)
Bucaria, 1968 (Salmon info.)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, Historical data)
Wadman, 1962 (Description)

Auke Lake Survey Date Not Surveyed

Location: Lat. 58°23' Long. 134° 38' (12 miles NW of Juneau)

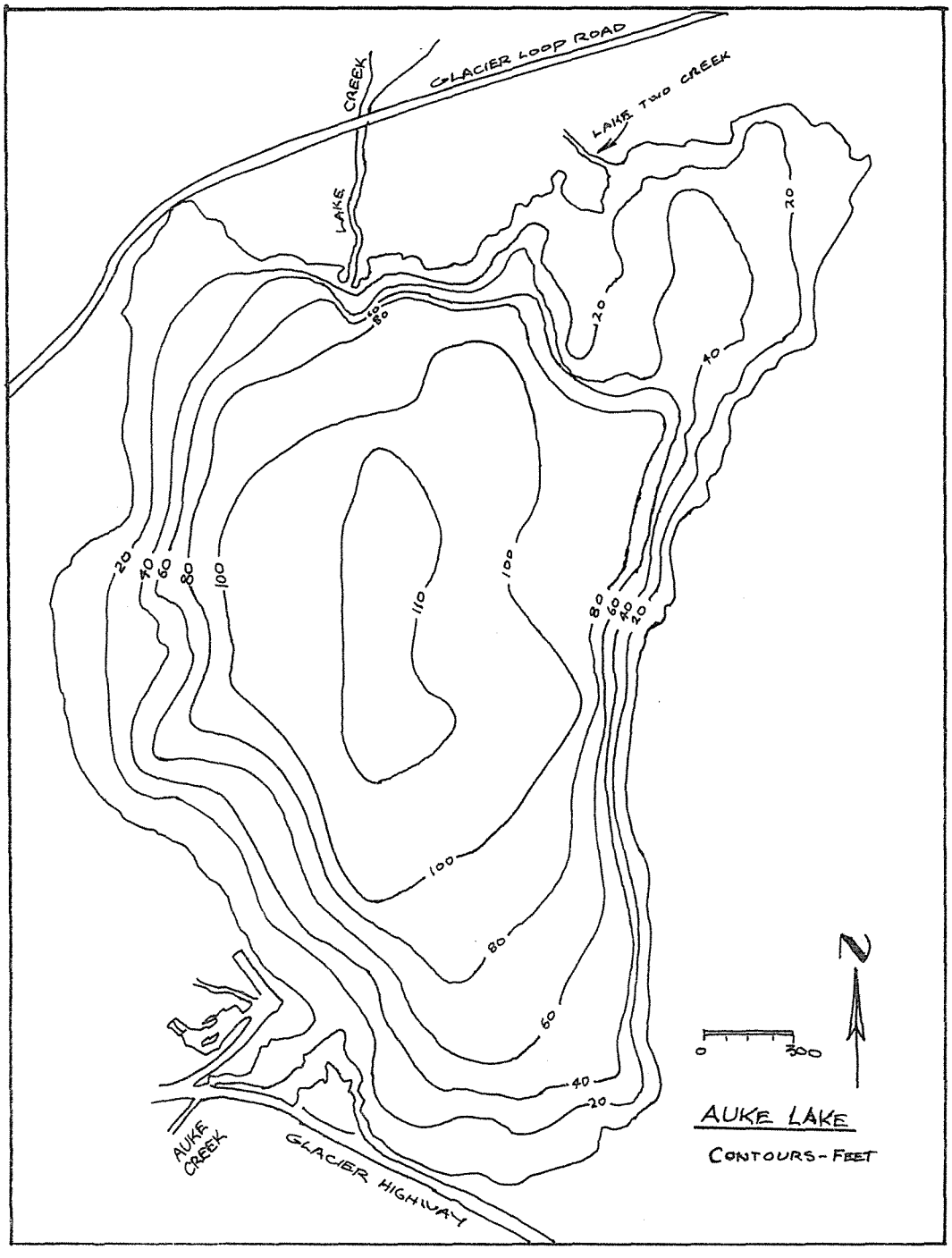
Description: Auke Lake is about one mile long and 3/4-mile wide and its greatest depth is 103 feet (see map). The water is clear, but brown color, and the lake bottom is predominantly mud with heavy layers of organic ooze. There is an abundance of pond lilies and eel grass around the lake perimeter. It has one outlet, Auke Creek, and two permanent inlets, Lake Creek, and Lake Two Creek (each creek is discussed separately). An extensive investigation of the physical, chemical and biological parameters of Auke Lake has been carried out by the National Marine Fisheries Service (Bureau of Commercial Fisheries) at the Auke Bay Biological Laboratory since 1962. The lake is located at the 35-foot elevation, and is bordered by the Glacier Highway, and the Mendenhall Loop Road. Although some sections of the shoreline are private property, public access is provided at the state access area off the Glacier Highway. Auke Lake was originally called Aylward Lake by early miners after Edward Aylward who, in 1884, located mining claims in the vicinity. The present name is derived from the Auk Indians, a subdivision of the Tlingit Indians (Orth, 1967).

Barriers: None in the outlet stream.

Species Present: Dolly Varden; cutthroat; brook trout, *S. fontinalis*; grayling, *Thymallus arcticus*; red, coho and pink salmon; stickleback; and cottids.

Rearing Habitat: Auke Lake provides rearing area for sockeye and coho salmon. It is questionable whether cutthroat and Dolly Varden use it for rearing. However, the lake does serve as an important wintering area for Dolly Varden.

Spawning Areas: The spawning areas in the lake are limited, however, two areas of sockeye lake spawning have been found (Bucaria, 1968). The majority of the spawning in the system occurs in the two inlet streams.



CONTOUR MAP OF AUKE LAKE (from Bucaria, 1968).

Planting History:	Date	Number of Fish
	1931	1050 brook trout
	1950	275 grayling

Both plants appear to have been failures, as there have been no reported catches of brook trout or grayling.

In addition to the above two plants, mention was made of plants of Dolly Varden; steelhead, Salmo guirdneri; and cutthroat prior to 1952, (Anon., 1952b); however, no records of these plants could be found.

Fishing History: A survey in 1961 was taken during the period May 20 through June 2 on Auke Lake. The results were 33 anglers caught 51 fish for a catch per angler hour of 1.55. An additional survey during 1961 revealed a catch of .095 fish per angler hour for 41 anglers during the period of June and July (Baade, 1962). During 1970, 28 anglers were checked on the lake. They had caught 33 fish in a period of 119 hours giving a catch per angler hour of 0.28.

References: Anonymous, 1950 (Planting), 1952b (Description)
Baade, 1961 (Description, fishing history)
Baade, 1962 (Fishing history)
Bailey, 1971 (Description, salmon info.)
Bucaria, 1968 (Salmon info.)
Heckart, 1969 (Planting)
Orth, 1967 (Location, historical data)
Wilding, 1939 (Description)

Auke Nu Creek (111-50-35) Survey Date: 7/23/70

Location: Lat. 58°23'00" Long. 134°39'57" (11 miles north of Juneau)

Description: Auke Nu Creek drains a watershed of approximately one square mile, flows under the Glacier Highway, and empties into the north side of Auke Bay. The stream has an average depth of about 1½ feet and width of 10 feet. The water is clear, but dark brown color, and stream flow is rapid. The stream bottom consists primarily of bed rock. Access from the highway is via a steep bank heavily covered with brush and loose rocks. The first 1/8 mile up from the mouth, the stream flows through a canyon which has very heavy brush cover. Approximately half way up the canyon, the stream starts to "stair-step" forming falls; however, these falls did not appear to be fish blocks. Above the canyon, the stream flows across about 1/16 mile of tableland with shallow banks and light brush cover. At the head of the tableland another canyon is encountered, extending approximately 1/8 mile. The survey was terminated at an impassible falls. Difficult fisherman access would probably limit fishing. The only

tributary enters about 200 yards from the mouth and is accessible to fish for only about 200 yards.

At the confluence of the tributary and main stream there is an abandoned, flooded mine shaft.

The stream name is derived from a Tlingit Indian name "Auk Nu" meaning "Auk Fort" (Orth, 1967).

Barriers: Impassible falls about 1/4-mile upstream form a barrier to fish.

Species Present: Dolly Varden, pink salmon, cottids.

Rearing Habitat:

Number of Areas: Main stream - logs: 12, sloughs: 0, undercut banks: 5, pools: 10; Trib. - logs: 4, sloughs: 0, undercut banks: 0, pools: 2.

Fish Observed: Fish observation was not possible due to high water and dark brown coloration.

Average Catch/Trap (n=5): Dolly Varden = 1.0, cottids = 0.4

Evaluation: Rearing potential of the system is fair. Most pools observed were at bases of small falls and the log jams were generally large. Although the water was high at the time of survey, there appeared to be sufficient rearing areas and these areas would probably improve during normal flow. Examination of sampled fish, revealed Dolly Varden of 84-129 mm and 2-3 years old which would suggest an anadromous population.

Spawning Area:

Salmon Counts:

Date	Fish
9/01/68	15 pinks
8/25/69	None

Evaluation: There appears to be a good intertidal salmon spawning area for about 50 yards. The main stream and tributary offer only poor-to-fair spawning due to the large percentage of bedrock and large boulders present.

Planting History: None known.

Fishing History: Unknown. This system has been closed to salmon fishing since 1962.

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical info.)

Bay Creek Survey Date: 7/22/70

Location: Lat. 58°23'16" Long. 134°38'50" (10 miles NW of Juneau)

Description: Bay Creek is approximately one-half mile long and drains an area of about one-half square mile before enptying into the northeast corner of Auke Bay. The stream is small, with an average width of 2 1/2 feet and depth of 4 inches. The water is clear, but dark brown color. There is a large amount of new residential construction near the mouth and a new school was recently completed a short distance up from the mouth. The stream crosses under the Glacier Highway in a wooden flume with only about 1 1/2-to-2inch water depth. The stream is slow moving with many medium-to-large boulders. The bank cover is heavy and at times completely covers the stream. There are numerous windfalls across the stream making accessibility somewhat difficult. The stream originates in a marsh area about 1/2 mile from tidewater. There is only one very small tributary entering about 1/8 mile up from the mouth.

Barriers: The flume located under the Glacier Highway could be a possible low water block.

Species Present: Dolly Varden, coho salmon.

Rearing Habitat:

Number of Areas: Logs 20, sloughs 11, undercut banks 10, pools 10.

Fish Observed: Dolly Varden

Fry	Fingerling
1	2

Average Catch/Trap (n=5): Dolly Varden = .6, coho = 3.2

Evaluation: This stream appears to have fair rearing areas for its size. Although it is small, the numerous logs and heavy bank cover afford good protection. Fish counts were low due to water color.

Spawning Areas:

Salmon counts: None available.

Evaluation: There is fair intertidal spawning for a distance of approximately 50 yards. The stream itself offers

poor-to-fair spawning for approximately the first 1/4 mile. The rest of the system, to the headwaters, appears to provide no adequate areas for spawning.

Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Bear Creek Survey Date: Not Surveyed

Location: Lat. 58°16'45" Long. 134°23'35" (0.7 miles SE of Juneau)

Description: Bear Creek is a relatively small creek flowing for about 1 1/2 miles across Douglas Island before emptying into Gastineau Channel. The stream mouth is located in the city of Douglas. In its lower reaches, the creek flows through a small city park. The City of Douglas has a 40 foot water supply dam on the creek about 3/4 mile from the mouth. The creek was named in 1882 and has also been called Mission Creek.

Barriers: There is a block at tidewater.

Species Present: Unknown (brook trout have been reported in the reservoir).

Rearing Habitat: The stream was not surveyed due to a block at tidewater.

Spawning Area: Possibly very limited intertidal spawning. Stream spawning potential is unknown.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Cove Creek (111-50-71) Survey Date: 6/26/70

Location: Lat. 58°19'42" Long. 134°36'56" (North Douglas)

Description: Cove Creek flows approximately one mile and empties into Fritz Cove on the north side of Douglas Island (Orth, 1967). Accessibility appears to be very difficult due to a steep terrain.

Barriers: Falls at tidewater form total fish block.

Species Present: Unknown (Resident populations may exist above falls.)

Spawning Areas:

Salmon Counts: None available.

Evaluation: No spawning areas below falls, not surveyed above.

Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, description)

Cropley Lake Survey Date: Not Surveyed

Location: Lat. 58°15'50" Long. 134°31'15" (5 miles SW of Juneau)

Description: Cropley Lake is located on Douglas Island about two miles southwest of Table Top Mountain. The lake is relatively small, 0.2 miles across, and is the origin of Fish Creek. The lake was used as a stabilizing reservoir in connection with the Treadwell Ditch, but proved to be of little value in the winter, when it was most needed, due to its high elevation (approximately 1,800 feet), (Anon., 1947). The lake is named after Issac Cropley, who came to Juneau in 1887 and worked for many years for a local mining company (Orth, 1967). Lake Cropley is located in the Tongass National Forest thus allowing free public access.

Barriers: There is a total fish block on the outlet stream.

Species Present: Gill nets set in the lake revealed a population of stunted Dolly Varden.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1947 (Historical data)
Orth, 1967 (Location, historical data)

Cross Bay Creek Survey Date: 7/17/70

Location: Lat. 58°16'32" Long. 134°21'17" (1.7 miles SE of Juneau)

Description: Cross Bay Creek flows down the face of Gastineau Peak and empties into Gastineau Channel 1.7 miles southeast of Juneau. The stream flows over Suicide Falls just prior to flowing under Thane Road. The name was probably derived from the Cross Bay lode claim located nearby in 1896 (Orth, 1967).

Barriers: Falls at tidewater form a total fish block.

Species Present: Unknown

Rearing Habitat:

Number of Areas: Stream not surveyed above falls.

Fish Observed: No observations made.

Average Catch/Trap: There were no traps set.

Evaluation: No rearing areas are present as the stream gradient is too steep and flow too rapid. Entire stream appears to be either rapids or falls.

Spawning Areas:

Salmon Counts: None available.

Evaluation: There is possible intertidal spawning.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

Dredge Lake Survey Date: Not Surveyed

Location: Lat. 58°24'00" Long. 134°33'30" (8.7 miles NW of Juneau)

Description: Dredge Lake was created as a result of gravel excavation during World War II. The lake is about four acres in size, has clear water, and is about six feet deep. The shoreline is totally gravel and has a gentle slope. The lake is located at about the 15-foot elevation and the single outlet drains into the Mendenhall River after a length of about one mile. The lake is reached by road, and lies within the National Forest.

Barriers: None

Species Present: Rainbow, brook trout, coho salmon.

Rearing Habitat: There appears to be fair overall rearing areas in lake and outlet stream for the size of the system.

Spawning Area: There is adequate spawning area in the outlet stream (Anon., 1953c).

Planting History: Date: 6/19/53; Fish: 2,000 brook trout (Anon., 1953b). The success of this plant is doubtful.

Fishing History: Unknown

References: Anonymous, 1953b (Planting)
Anonymous, 1953c (Description)
Orth, 1967 (Location and historical data)

Duck Creek (111-50-60) Survey Date: Not Surveyed

Location: Lat. 58°24' Long. 134°27' (7.8 miles NW of Juneau)

Description: Duck Creek is a fairly small stream which begins in a spring and flows for about 3 1/2 miles through the lower Mendenhall Valley before emptying into Gastineau Channel near the Juneau airport. Throughout its length, the creek flows through developed and developing residential areas in the valley. As a result, there is pollution in the creek. In addition, the creek is extremely accessible, as it flows parallel to the Mendenhall Loop Road for much of its length. Various small ponds are present throughout the system. The stream is slow flowing, and is discolored by iron in the lower reaches. The creek was named by Daniel Foster in 1885. It has also been called Knudson Creek and Sand Bar Creek (Orth, 1967).

Barriers: None

Species Present: Dolly Varden, coho salmon.

Rearing Habitat: There are numerous rearing areas throughout the stream as well as in the ponds located in the system. However, the rearing value of the stream is being seriously threatened by pollution.

Spawning Areas: There are spawning areas between the various ponds located in the system. However, these areas are also being threatened by pollution and streambed rechanneling due to construction.

Planting History:

Date	No. Fish	
6/19/53	3100 Brook trout	(Anon., 1953b)
8/02/57	1100 Rainbow	(Anon., 1958a)

Date	No. Fish	
7/19/58	1500 Rainbow	(Anon., 1958b)
1960	2000 Rainbow	(Wadman, 1971)
5/20/70	1600 Coho	(Marriott, 1971)

Fishing History: The creek may receive heavy pressure due to location in a high population area. No records are available of the actual numbers of anglers.

References: Anonymous, 1953c (Description)
Anonymous, 1953b, 1958a, 1958b (Planting)
Marriott, 1971 (Planting)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)
Wadman, 1971 (Planting)

Eagle Creek (111-40-92) Survey Date: 6/24/70

Location: Lat. 58°18'50" Long. 134°27'25" (2 miles NW of Juneau)

Description: Eagle Creek is located on North Douglas Island and flows for a distance of about three miles, to drain a watershed of approximately three square miles. It empties into Gastineau Channel near a trailer court. The water velocity is quite swift, and accessibility to the stream is poor due to steep cliffs on both sides. The stream apparently supplies water to the trailer court located near its mouth. The local name for the creek first appeared in mining records about 1884.

Barriers: There were two log jams and a small falls that could possibly be blocks at low water. A definite block at a large falls occurs at about 1/4-mile upstream.

Species present: Dolly Varden, coho salmon

Rearing Habitat:

Number of Areas: Logs 4, sloughs 0, undercut banks 0, pools 6.

Fish Observed: None

Average Catch/Trap (n=2): Dolly Varden = 2.5, coho = 0.5

Evaluation: Overall rearing potential is poor. Most pools observed were shallow and in fast water. There is little or no bank cover, and few areas of reduced current were observed. The Dolly Varden population appears to be anadromous, with lengths 95-134 mm, and ages II-III.

Spawning Areas:

Salmon Counts: None available.

Evaluation: Spawning area, in general, is poor. Most of streambed is exposed slate with little or no gravel. There could be intertidal spawning.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical info.)

Eagle River (111-50-05) Survey Date: 8/26/70

Location: Lat. 58°31'20" Long. 134°48'00" (20 miles NW of Juneau)

Description: Due to its large size and glacial water, Eagle River itself was not surveyed, but some of the tributaries were surveyed. Eagle River originates in an unnamed lake at the base of Eagle Glacier. It flows about five miles and empties into Lynn Canal. The water has a high glacial silt content making observation of the bottom impossible. There is a public picnic area located near the river's mouth. Eagle River has also been called Glacier River and Sitk Creek (Orth, 1967).

Barriers: There is a possible barrier (20' cataract) approximately 200 yards downstream from the lake.

Tributary Descriptions: (Tributaries are numbered from mouth upstream, on north side of river only.)

Tributary #1 - Small, 3-6 feet in width, 1-8 inches deep, with barrier falls about 100 feet above mouth. There are three small pools for rearing and about six brushy areas. No fish were observed and one trap was set for about eight hours with no fish captured.

Tributary #2 - (Located shortly upstream from first tributary.) It is a small trickle 1-3 feet wide, about 2 inches deep, about 100 feet long, and has a muddy bottom. Two unknown fish were observed. There are some rearing areas near logs in the creek, but no spawning areas. No traps were set.

Tributary #3 - (Located about 1/8 mile upstream from Trib. #2.) This stream flows through at least two miles of meadows with sloughs and beaver dams present. The slough areas provide potential rearing areas. There were about 12 Dolly Varden,

12-20 inches in length, observed in the stream. In addition, numerous fingerling Dolly Varden, coho salmon, and possibly cutthroat trout, along with two adult chum salmon and numerous stickleback, were observed. No traps were set.

Tributary #4 - A small, 6-10 feet wide and 4-8 inches deep, clear water stream at about two miles upstream from Glacier Highway bridge. This is a very scenic stream with fair accessibility. Good spawning gravel is present, and several fair rearing areas under logs and undercut banks. Fish were seen in all rearing areas. Total fish observed were 6 coho fingerling, 8 coho fry, and 10 Dolly Varden fry. Two traps were set, capturing a total of 18 coho, 17 Dolly Varden, and 3 stickleback.

Tributary #5 - A very small stream (1-2 feet wide and shallow) located about three miles above the bridge. There appears to be some spawning and rearing potential. No traps were set and no fish were seen. This stream may occasionally dry up.

Tributary #6 - This is a slow flowing stream about 4-6 feet in width, located about four miles upstream from the bridge. It appears to have some good rearing areas, and some fair spawning areas. One trap was set capturing four Dolly Varden, 2-3 inches in length which were apparently not resident fish.

Tributary #7 - This stream is 5-10 feet wide and has good rearing potential and some spawning potential. No traps were set.

Tributary #8 - A small stream only 1-2 feet wide. It has poor rearing potential and some spawning potential. No traps were set.

Triburary #9 - A 2-3 foot wide stream with some rearing potential. No traps were set.

Tributary #10 - This stream is about 4 1/2 miles from the highway bridge and is 4-10 feet wide. There is good spawning potential and some rearing potential. Numerous Dolly Varden fry were observed. No traps were set.

Rearing Habitat:

Number of Areas: See tributary descriptions.

Fish Observed: See tributary descriptions.

Average Catch/Trap (n=4): (Total - Tributaries 1, 4, and 6) coho = 4.50, Dolly Varden = 5.25, stickleback = .75

Evaluation: See tributary descriptions.

Spawning Areas:

Salmon Counts: None available.

Evaluation: See tributary descriptions.

Planting History: None known

Fishing History: Due to the easy access from Juneau, Eagle River sustains high fishing pressure. During 1970, in the area from the highway bridge to the mouth, 53 anglers were checked who fished a total of 76 hours and had a total catch of 66 fish, giving a catch per angler hour of 0.86.

References: Anonymous, 1968 (Chemical data)
Cramer and Bergstrand, 1965 (Tidelands classif.)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Historical info., location)

Eleven Mile Creek Survey Date: 6/26/70

Location: Lat. 58°19'10" Long. 134°38'30" (8.6 miles west of Juneau)

Description: Eleven Mile Creek is located on North Douglas Island and flows for about one mile, draining a watershed of approximately 1 1/4 square miles, before emptying into the south side of Fritz Cove.

Barriers: Falls at tidewater form a total block.

Species Present: Unknown

Rearing Habitat:

Number of Areas: Stream not surveyed above falls.

Fish Observed: No observations made.

Average Catch/Trap: No traps set.

Evaluation: No rearing areas present below falls.

Spawning Areas:

Salmon Counts: None available

Evaluation: No spawning areas were evident below falls.

Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Falls Creek Survey Date: 6/26/70

Location: Lat. 58°19'25" Long. 134°28'45" (2.9 miles NW of Juneau)

Description: Falls Creek is 5-12 feet wide, 6-12 inches deep and flows for about two miles on north Douglas Island before emptying into Gastineau Channel. It drains a watershed of a little over one square mile. The water has a brown color.

Barriers: Probable high water block at 5-foot vertical drop which occurs at culvert under North Douglas Road. About 200 yards upstream from culvert is a 4-foot falls which is a possible block at low water.

Species Present: Dolly Varden, cutthroat trout

Rearing Habitat:

Number of Areas: Logs 2, slough 0, undercut banks 0, pools 3.

Fish Observed: None

Average Catch/Trap (n=3): Dolly Varden = 5.0, cutthroat = 0.66

Evaluation: Some rearing area is available above the highway, but the majority of the creek flow is swift, and there are few areas where rearing fish could escape the current. Dolly Varden examined revealed a probable anadromous condition with lengths of 96-128 mm and ages II-III years.

Spawning Areas:

Salmon Counts: None available.

Evaluation: Possible spawning area exists in large gravel between high tide mark and the lower end of the culvert. There is a large intertidal area which also contains large gravel. No apparent spawning areas exist above the culvert.

Planting History: There is no record of any plants; however, the stream should be looked at with possible future plants in mind.

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Fish Creek (111-50-69) Survey Date: 6/22/70

Location: Lat. 58°19'50" Long. 134°35'30" (7 miles NW of Juneau)

Description: Fish Creek originates in Cropley Lake on north Douglas Island. It flows about six miles, while draining a watershed of approximately 14 square miles, and empties into the south side of Fritz Cove. The normal flow has been estimated at 50 cfs (Wadman, 1962). The stream is easily accessible by road from Juneau. The lower three miles receive heavy fishing pressure. A trail traverses near the stream for 2 1/2 miles. At this point the trail is well away from the stream. The first 1/4 mile is intertidal and located below the highway bridge. This section is accessible to fishermen and receives heavy pressure.

There are three tributaries. The first tributary is located just above the road and is about 300 feet long. It is slough-like with a silty mud bottom. The second tributary is located about 1 1/4 miles upstream. It is small with a block about 25 feet upstream from its mouth; unknown fry were observed in its lower reaches. The final tributary, located about two miles upstream, is small. A fish block is located at its confluence with the main stream. Approximately 3/4-mile upstream, Fish Creek flows around an island, about 1/8-mile long, thus forming a fairly large anabranch.

Fish Creek's name first appeared in mining records about 1885, when the creek was claimed as a water supply for the Treadwell Mines. It subsequently became the northern end of the Treadwell Ditch (Orth, 1967).

Barriers: There is a possible low water block at a log falls about 1 1/2 miles upstream. Approximately three miles above the mouth are a canyon and series of rapids which could prove to be a velocity block during certain flows.

Species Present: Dolly Varden, cutthroat, coho, chum and pink salmon, sculpin and stickleback.

Rearing Habitat:

Number of Areas: Logs 2, sloughs 0, undercut banks 3, pools 15.

Fish Observed: 84 coho fry.

Average Catch/Trap (n=6): Dolly Varden = .16, coho = 3.14

Evaluation: The overall rearing potential of the stream is poor. There is some rearing possibly in the lowest tributary near the road, and in the anabranch of the main stream. The remainder is riffle area with fast water.

Spawning Areas:

Salmon Counts:

Date	Fish Observed	Length of Survey
7/23/52	3500 unknown	1.0 mile
7/26/54	200 chum	0.7 mile
8/09/56	500 pink	0.2 mile
	250 chum	
7/17/57	37 chum	0.5 mile
8/10/57	300 chum	-
6/24/60	No fish	-
7/23/61	200 unknown	-
7/25/61	500 unknown	-
8/06/62	500 pink	-
	1500 chum	
8/17/62	736 chum	-
	68 pink	
9/03/64	946 pink	2848 yards
	107 chum	
8/20/65	600 pink	1 mile
	800 chum	
7/28/66	158 chum	800 yards
8/11/66	few fish	-
8/26/66	1500 $\pm$ mixed pink & chum	-
9/08/66	150 pink	-
	12 chum	
7/26/67	532 chum	-
8/09/67	750 pink	-
	4500 chum	
7/16/68	few fish	-
7/17/68	77 chum	-
8/14/68	6000 pink	-
8/27/68	3170 pink	1.0 mile
	245 chum	
	300 unknown	
8/07/69	5500 pink	-
	1200 chum	
8/25/69	18020 pink	2.0 mile
	900 chum	
8/18/70	7000 $\pm$ pink	-
	150 chum	

Evaluation: There is excellent intertidal spawning for salmon (Huizer, et.al., 1970). The rest of the streambed consists mainly of large gravel and/or bedrock which offer poor spawning areas.

Planting History: None known

Fishing History: The intertidal areas, and lower reaches of the main stream are heavily fished. In 1970, a total of 56 anglers were checked with 94 fish, resulting in 0.86 fish per angler hour. The majority of the fishermen checked were fishing within the intertidal area. It is recommended that the left trail leading to the intertidal fishing area be marked, as certain sections are under private ownership.

References: Anonymous, 1968 (Chemical data)
Cramer, 1964 (State land selection)
Huizer, et. al., 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)
Wadman, 1962 (Species present, description)

Glacier and Moraine Lakes Survey Date: Not surveyed

Location: Both lakes are located in the Mendenhall Valley about 16 miles north of Juneau.

Description: The two lakes lie in the moraine area of the Mendenhall Glacier. They are of recent origin due to the glacier's retreat. The two lakes are connected by a small stream approximately 100 yards in length. The upper lake, Glacier, drains an area of approximately 15 acres, and the lower lake, Moraine, drains an area of approximately 4 acres.

Glacier Lake has an area of about 5.5 acres, a maximum depth of 27 feet, and a bottom comprised of glacial gravel, sand, and mud. There is one intermittent inlet, and one outlet draining into Moraine Lake (Allin and Baade, 1957).

Moraine Lake has an area of approximately 3.9 acres. Its deepest point is 14 feet, and the bottom is comprised of glacial mud, boulders and gravel. The inlet drains Glacier Lake. The outlet contains a trickle dam which blocks fish movement at low water. The outlet flows into the Mendenhall River (Allin and Baade, 1957). Both lakes were named at the beginning of the experimental fertilization project in 1955 (Baade, 1955).

Barriers: None natural. However, the outlet of Moraine Lake contains a trickle dam.

Species Present: Both lakes - prior to application of rotenone: coho, Dolly Varden, stickleback. After application of rotenone: coho, stickleback, rainbow trout, grayling, Dolly Varden, and cutthroat trout.

Rearing Habitat: Most of the area in both lakes could be successfully used for rearing by the species present.

Spawning Areas: Spawning area is nil in Glacier Lake and confined to about 200 feet of the inlet stream in Moraine Lake.

Fertilization: On June 7, 1956, emulsified rotenone was introduced to both lakes in an attempt to remove the existing fish populations (Baade, 1958). The concentration was calculated at 50 ppm which was considered to be a lethal amount. However, shortly after application, stickleback and at least one 10-12 inch fish were observed in Moraine Lake. Fish present at the time of the treatment included: native Dolly Varden, fingerling coho salmon, stickleback, and a two-year class of rainbow. Prior to fertilization, 6,400 rainbow fry were planted in Glacier Lake and 4,200 in Moraine Lake. Glacier Lake was left unfertilized as a control. On August 20, 1956, Moraine Lake was fertilized with 24 pounds of potassium superphosphate and 141 pounds of sodium nitrate (giving concentrations respectively of 0.44 ppm and 0.22 ppm). The immediate results appeared to be an increase in plankton present in the fertilized lake as compared to the control. No long range evaluation was found of this project.

Planting History:

Date	Glacier	Moraine	
1954	8000 RT	(Total for both lakes)	(Baade, 1958)
1955	2500 RT	(Total for both lakes)	(Baade, 1958)
1956	6400 RT	4200 RT	(Baade, 1958)
1960	5000 RT	6000 RT	(Wadman, 1971)
1961	5000 RT	5000 RT	(Wadman, 1971)
1962	0	0	(Wadman, 1971)
1963	5000 RT	5000 RT	(Wadman, 1971)
1964	0	0	(Wadman, 1971)
1965	5000 RT	10000 GR	(Wadman, 1971)
1966	0	0	(Wadman, 1971)
1967	0	0	(Wadman, 1971)
1968	30000 GR	20000 GR	(Heckart, 1969)

The original grayling plants failed to take, and the most recent plants are still under observation.

Fishing History: A total of 1,407 fishermen interviewed in 1960, 0.06% were fishing Glacier Lake, and 0.64% were fishing Moraine Lake. Wadman (1963) indicated angler utilization as "moderate" for Glacier and Moraine Lakes during the 1962 season.

References: Allin and Baade, 1957 (Description)
Baade, 1955, 1958 (Fertilization)
Baade, 1960 (Fishing history)
Baade, 1961 (Fishing pressure)
Heckart, 1969 (Grayling plantings)
Wadman, 1963 (Description)
Wadman, 1971 (Planting history)

Gold Creek Survey Date: Not Surveyed

Location: Lat. 58°18' Long. 134°25' (in Juneau)

Description: Gold Creek originates in the ice field on the north slope of Sheep Mountain. It flows for five miles, first through Silver Bow Basin, then Last Chance Basin, and finally through the northern part of the City of Juneau before emptying into Gastineau Channel. The lower section of the creek flowing through the city was confined to a concrete flume, along the original channel bed, in the early 1960's. There is a small diversion dam for hydroelectric power at the lower end of Last Chance Basin, and some of the water supply for Juneau is obtained from Gold Creek. Access to the creek is excellent, with Basin Road extending partially into Last Chance Basin. The creek was probably named by Richard Harris and Joe Juneau when they discovered gold in it in 1880 (Orth, 1967). In 1967, a fish kill of undetermined origin occurred about one mile upstream. Department personnel investigated and found a kill of 500 to 1000 Dolly Varden ranging in length from 2-8 inches.

Barriers: The flume through the city and the diversion dam above flume form fish blocks.

Species Present: Resident Dolly Varden, brook trout

Rearing Habitat:

Number of Areas: Not surveyed.

Fish Observed: No observations made.

Average Catch/Trap: No traps set.

Evaluation: No rearing area is available in lower reaches of the stream. Rearing areas are present for resident populations in upper areas.

Spawning Area:

Salmon Counts: None available. However "it used to be one of the great salmon creeks in Gastineau Channel" reports Austin (1971).

Evaluation: No spawning areas available in lower reaches of stream.

Planting History: The following plants were recorded for Gold Creek or its tributaries.

12/17/52 - >60,000 eyed king salmon eggs (Spring Creek - trib. to Gold Creek) (Anon., 1952a)

6/23/53 - 4,000 brook trout fry (Gold Creek) (Anon., 1953b).

12/13/53 - >50,000 eyed king salmon eggs (Spring Creek) (Anon., 1953a).

Both salmon plants were failures, and few, if any, brook trout are available at this date.

Fishing History: In 1960, of 1,407 anglers checked on the Juneau road system, Gold Creek accounted for 4% of the total (Baade, 1961).

References: Anonymous, 1947, 1952b (Description)
Anonymous, 1952a, 1953a, 1953b (Planting history)
Anonymous, 1968 (Chemical data)
Austin, 1971 (Salmon runs)
Baade, 1960, 1961 (Fishing history)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical info.)

Grant Creek Survey Date: 7/06/70

Location: Lat. 58°18'20" Long. 134°27'00" (1 mile NW of Juneau)

Description: Grant Creek is located on Douglas Island and is about one mile in length. It drains a watershed of approximately 0.20 square miles and flows into Gastineau Channel. Its average width is about two feet, average depth about four inches, and the water is clear. There is private property along both sides of the stream in its lower reaches. The bank cover is very heavy and there are numerous windfalls across the stream making accessibility very difficult. Shortly above the road is a man-made, plastic covered wooden flume. The flume is about 8 feet long, 2 1/2 feet wide, and has a slope of about 2 to 1 and it empties into a cement pool. The system appears to be a water collection source. The name of Grant Creek was first used by John McLaughlin and Matt McMalon in a mining claim in 1884 (Orth, 1967).

Barriers: The man-made slough is a probable block at low water. Numerous log jams are also probable low water blocks. About 5/8 mile upstream there is a chute approximately 100 yards long with a series of small falls and no resting pools. This is very probably a fish block.

Species Present: Dolly Varden

Rearing Habitat:

Number of Areas: Logs 13, sloughs 0, undercut banks 0, pools 13.

Fish Observed: None

Average Catch/Trap (n=4): Dolly Varden = 0.75

Evaluation: The overall rearing area is poor. The pools encountered were small, shallow and offered no rearing area. The sampled fish indicated an anadromous Dolly Varden population (length 117-126 mm, ages II-III years).

Spawning Areas:

Salmon Counts: None available.

Evaluation: There is approximately 75 yards of fair intertidal spawning area. The main stream offers very little spawning area due to lack of gravel and exposed bedrock.

Planting History: None known

Fishing History: Unknown. Any attempts to increase fishing pressure could run into problems with local residents who use the stream for their water supply.

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Historical info., location)

Hendrickson Creek (111-40-98) Survey Date: 6/28/70

Location: Lat. 58°20'30" Long. 134°31'20" (5 miles NW of Juneau).

Description: Hendrickson Creek flows for a little over one mile on Douglas Island and empties into Gastineau Channel. The stream is a source for two private water supplies. The first consists of 2 1/2 foot dam located about 200 yards upstream from tidewater. The second supply is approximately 1/8 mile upstream. There is good bank cover throughout the length of the stream. The gradient starts to increase as soon as the creek crosses under the North Douglas Road. As the gradient increases, accessibility becomes increasingly difficult. About one mile from the mouth, the stream is very narrow (2-4 feet wide) and the gradient again increases. The creek was named after Henry Hendrickson, an early miner and fisherman who homesteaded on the creek (Orth, 1967).

Barriers: There were numerous log jams, some of which might be barriers at low flows. Neither water supply appeared to be a block.

Species Present: Dolly Varden and cutthroat trout.

Rearing Habitat:

Number of Areas: Logs 30, sloughs 0, undercut banks 11, pools 9.

Fish Observed: None

Average Catch/Trap (n=4): Dolly Varden = 4.5, cutthroat = 2.5

Evaluation: The majority of the rearing area for the system was located within the first 1/8 mile due to an increase in gradient. Most Dolly Varden were captured in the first 1/4 mile, while most of the cutthroat were captured between 3/4 and 1 mile upstream. Specimens examined indicated an anadromous Dolly Varden population (length 74-150 mm, ages II-IV years) and a resident population of cutthroat (length 103-135 mm, ages II-V years).

Spawning Areas:

Salmon Counts: None available

Evaluation: Some intertidal spawning is possible. The only spawning areas available are distributed between tidewater and the culvert under the North Douglas Road, a distance of about 1/4 mile. No significant spawning areas were found above the road.

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

Herbert River Survey Date: 8/27/70

Location: Lat. 58°31'20" Long. 134°48'00" (20 miles NW of Juneau)

Description: Herbert River flows out of an unnamed lake at the base of Herbert Glacier; after a distance of four miles, it empties into Favorite Channel. A small lake is located about 2 1/2 miles upstream from the mouth. Numerous beaver dams are dispersed between the small lake and the headwater lake at the base of the glacier. A trail provides access along the river. Near the lake at the base of the glacier is a fairly large backwash area which appears to provide fishing potential. The river gets its name from Herbert Glacier named by Lt. Cdr. H. B. Mansfield, U.S.N., in 1890, in honor of the Honorable Hilary Abner Herbert. Hilary Herbert was a lawyer; Colonel, CSA, 1861-65;

member of Congress 1877-93; and Secretary of the Navy in the Cabinet of President Cleveland, 1893-97 (Orth, 1967).

Barriers: None

Species Present: Dolly Varden, red and coho salmon, and stickleback.

Rearing Habitat:

Number of Areas: Numerous beaver dam areas between 2 1/2 and 4 miles upstream.

Fish Observed: 25 adult red salmon. Numerous coho and sockeye fingerling, and Dolly Varden fry.

Average Catch/Trap: One trap set four hours, no fish.

Evaluation: There are good rearing areas between the small lake about 2 1/2 miles upstream and the lake at the base of the glacier. The lake at the base of the glacier may be a wintering area for Dolly Varden.

Spawning Areas:

Salmon Counts: None available.

Evaluation: Some small side tributary streams offer fair, but limited, spawning areas. There is also limited lake spawning for red salmon.

Planting History: None known

Fishing History: No historical records were found on fishing pressure on the system. In 1970, only two anglers were checked. Neither had any fish after one hour of fishing.

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

Johnson Creek (111-50-65) Survey Date: 7/6/70; 7/9/70

Location: Lat. 58°20'25" Long. 134°32'45" (5.6 miles NW of Juneau)

Description: Johnson Creek flows about one mile on Douglas Island, then crosses under the North Douglas Road and meanders across about 1 1/4 miles of grass flats before emptying into Gastineau Channel. The flatlands have good access and seem to provide possible fishing for sea-run Dolly Varden. Access above the road is fair, with some brushy areas at first. However, as one continues upstream, the area

becomes open and park-like. Five tributaries were encountered (see descriptions below). At the time of the survey the water was dark brown color.

Tributary Descriptions: (Numbered from mouth up and distance from mouth)

#1 - 800 yards - not surveyed; small, slough-like.

#2 - 1000 yards - not surveyed; small, slough-like.

#3 - 1 7/8 miles - left side of main stream. Generally slough and riffle areas - debris pile about 150 yards upstream appears to be block.

#4 - 2 miles - left side. Very small - no rearing potential. May become dry during summer season.

#5 - 2 1/4 miles - right side - small and steep with poor rearing potential. Debris pile 70 yards upstream is a probably fish block.

Species Present: Dolly Varden, cutthroat, coho salmon.

Rearing Habitat:

Number of Areas: Logs 24, sloughs 11, undercut banks 25, pools 34. In addition, the entire first mile across the flats is a series of deep pools and sloughs (this area wasn't included in counts).

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
6	0	0	0	11	1

Fish observation conditions were extremely poor due to dark brown color of water. Unknown 8-9 inch fish were observed at about two miles upstream (possibly cutthroat).

Average Catch/Trap (n=12): Dolly Varden = 1.25, cutthroat = 2.42, coho = 0.08

Evaluation: The section of stream on the grass flats has many slough areas which would make good rearing. Most pools observed in the stream above the road were small, but overall rearing potential is good with numerous undercut banks and logs present. Sample fish examined indicated what appeared to be a resident cutthroat population (lengths

68-145 mm, ages I-VII years), and an anadromous Dolly Varden population (length 70-113 mm, ages II-III or IV years).

Spawning Areas:

Salmon Counts: None available.

Evaluation: The entire grass flat would be possible salmon spawning areas. The stream area above the road offered good spawning potential. Many areas of good gravel were connected by a series of small falls and/or slough areas.

Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Jordan Creek (111-50-62) Survey Date: 3/20-25-70

Location: Lat. 58°21'25" Long. 134°34'10" (9 miles NW of Juneau)

Description: Jordan Creek flows approximately three miles through the lower end of the Mendenhall Valley prior to emptying into a lagoon near the Juneau airport on Gastineau Channel. There are two tributaries to the system. One flows off Thunder Moutain and enters the main stream immediately upstream from the Glacier Valley School. This tributary has poor rearing potential, and has a probable barrier falls about 350 yards upstream. The stream appears to be subject to very high flows. The second tributary is small and after about 200 yards the stream grade becomes steep. This tributary also has poor rearing potential. Access to the main stream above Glacier Highway is poor. Not only are the banks brushy, but certain bank sections are in private ownership. Access to the lower stream section below the highway is somewhat better as the stream changes into a slough-like area. There is some access restriction in this stream section due to close proximity of the airport. Rechannelization of an approximate 1,000-foot section of the stream on the downstream side of the old Glacier Highway occurred in 1970. Pollution in the form of wash water discharge was noted throughout the lower sections of the system during the survey. An examination of the site revealed milky white effluent discharge with a temperature of 106°F. Further analysis by the NMFS Laboratory at Auke Bay revealed concentrations of Perchlorethelene from 0.43 to 0.77 ppb (McHugh, 1971).

Jordan Creek was named by Daniel Foster and M. Y. Hunt in 1895.

Later it became known as Livingston Creek, and then was renamed Jordan Creek in 1903 by Thomas Knudson (Orth, 1967).

This stream has been closed to salmon fishing since 1962.

Barriers: None

Species Present: Dolly Varden, coho salmon, stickleback.

Rearing Habitat:

Number of Areas: Logs 14, sloughs 26, undercut banks 13, pools 52.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
44	4	877	458	1,503	1

Also, approximately 10,000 stickleback were observed in decreasing numbers from mouth to headwaters. (Note: Some unknown fry could have been the result of a recent plant of coho fry.)

Average Catch/Trap (n=8): Dolly Varden = 0.63, coho = 1.75, stickleback = 22.4

Evaluation: The overall rearing potential of the system appears to be good. There could be considerable competition between the stickleback and rearing fish. If pollution of the stream continues unchecked, its rearing capabilities may be seriously reduced.

Spawning Areas:

Salmon Counts:

Date	Fish Observed
8/18/62	none
1966	200 $\pm$ coho
10/14/69	60 coho

Evaluation: Overall spawning appears to be somewhat limited due to the small amount of gravel present. The majority of system has mud bottom and slough-like stream bottom conditions. Spawning conditions are fair to about 1/2 mile above the mouth, then deteriorate.

Planting History:

Date	Number Planted	
6/30/53	3000 brook trout	(Anon., 1953b)
5/20/70	4800 coho	(Marriott, 1971)

(Note: Fry from the 1970 plant were probably observed during stream survey.)

Fishing History: Unknown

References: Anonymous, 1953b (Planting history)
Anonymous, 1968 (Chemical data)
Anonymous, 1971 (Salmon counts)
Marriott, 1971 (Planting history)
McConaghy, 1969 (Hydrologic data)
McHugh, 1970 (Pollution)
Orth, 1967 (Location, historical data)

Kowee Creek (111-40-90) Survey Date: 6/23/70

Location: Lat. 58°17'50" Long. 134°25'55" (0.5 miles SW of Juneau)

Description: Kowee Creek flows in a northeasterly direction on Douglas Island for about 2 1/2 miles before emptying into Gastineau Channel near West Juneau. The stream drains a watershed of approximately 2 3/4 square miles and the water is clear. The stream flows under the North Douglas Road, and consequently is easily accessible from the Juneau or Douglas population centers. Access status to the stream is restricted as both banks of the creek, from the bridge to beyond the falls, are privately owned (Macaulay, 1971). The creek was named in honor of Kowee, a chief of the Auk Tlingit Indians, who reportedly had his summer home at the mouth of the creek. Kowee is also credited with guiding Joe Juneau and Dick Harris to their gold find at Silver Bow Basin in 1880. The creek has also been known as Cowee Creek, Kow-eeh Creek, and Kowie Creek (Orth, 1967).

Barriers: Impassible falls about 200 yards upstream from mouth.

Species Present: Unknown

Rearing Habitat:

Number of Areas: The only rearing area observed was the pool at the base of the falls.

Fish Observed: None

Average Catch/Trap: No traps were set.

Evaluation: Rearing areas are nil due to a short length of accessible stream. The only probable rearing area would be the pool at the base of the falls, the rest of stream is riffle areas, with considerable current.

Spawning Areas:

Salmon Counts: None available. However, according to Mr. Macaulay, owner of the land surrounding the stream, small numbers of salmon do spawn in the system.

Evaluation: The overall spawning area is somewhat limited, due to a short length of accessible stream. There is a possible intertidal spawning area of 75-100 yards.

Planting History: None known

Fishing History: Unknown

References: Macaulay, 1971 (Property ownership)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

Lake Creek (111-50-44) Survey Date: 5/7/70

Location: Lat. 58°23'30" Long. 134°38'00" (10 miles NW of Juneau)

Description: Lake Creek is approximately four miles in length and drains into Auke Lake forming the main inlet to the lake. At the time of the survey, the water was brown colored. Little aquatic vegetation was present and access was limited due to private property along both banks. There is little bank cover in the system. Only one tributary was encountered which was too steep for fish.

Barriers: A possible block exists at a 5-foot falls 1 1/4 miles upstream. A definite fish block occurs at a 6-8 foot falls about 1 1/2 miles upstream.

Species Present: Dolly Varden; cutthroat trout; coho, red and chum salmon.

Rearing Habitat:

Number of Areas: Logs 3, sloughs 0, undercut banks 1, pools 25.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
2	0	0	35	6	1

Average Catch/Trap (n=8): Dolly Varden = 0.6, cutthroat = 0.4, coho = 4.8

Evaluation: Overall rearing potential is poor for the system. The streambed is cobbled and there are no good rearing undercut banks. Tributaries or sloughs are absent and only a few side channels exist. Most of the pools observed were poor rearing areas.

Spawning Areas:

Salmon Counts:

Date	Fish Observed	Length of Survey
1940	Heavy red salmon concentration	0.5 miles
8/15/45	3000 Red	0.5 miles
8/09/51	1000 Red	0.2 miles
6/27/52	250 Red	0.2 miles
7/20/54	No fish	-
8/17/54	78 Red	-
1955	3500 Red	1.0 miles
7/06/57	5 Red	-
7/26/57	33 Red	0.7 miles
7/27/57	117 Red	-
	3 Chum	
8/28/59	2000 Red	-
6/24/60	2000 Red	-
7/06/60	No fish	-
6/27/62	No fish	-
7/23/62	100 Red	-
8/20/62	2492 Red	-
10/16/62	134 Coho	-
8/08/63	850 Red	0.5 miles

Evaluation: Good spawning conditions extend from the mouth upstream for about one mile. Spawning areas become poor until the fish block is reached. A local resident claims to have seen large cutthroat move into the system during the spring. Bucaria (1968) records adult reds spawning in the system.

Planting History: None known

Fishing History: According to Baade (1961), of a total of 1407 anglers checked on the Juneau road system during 1960, 3.1% were fishing Lake Creek. During the stream survey in 1970 no indications of fishing activity in the system were noticed.

References: Anonymous, 1968 (Chemical data)
Baade, 1961 (Fishing history)
Bailey, 1971 (Salmon spawning, hydrologic data)

Bucaria, 1968 (Description, salmon spawning)
Huizer, et. al., 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Lawson Creek (111-40-89) Survey Date: 6/23/70

Location: Lat. 58°17'12" Long. 134°24'36" (1 mile S of Juneau)

Description: Lawson Creek, located on Douglas Island, is about two miles long. It drains a watershed of approximately three square miles before flowing into Gastineau Channel. No aquatic vegetation is present. The bank cover is good, with brush near the stream edge. A trail extends along the stream edge providing good accessibility, and the land appears to be open to the public. The streambed consists of fine gravel and sand, with some exposed slate. The creek was named in honor of William Lawson, a skilled carpenter and boatbuilder in Juneau during the 1880's (Orth, 1967).

Barriers: A total fish block occurs at a falls approximately 1/2-mile upstream.

Species Present: Dolly Varden, pink salmon, brook and cutthroat trout.

Rearing Habitat:

Number of Areas: Logs 0, sloughs 0, undercut banks 0, pools 3.

Fish Observed: None

Average Catch/Trap (n=2): Dolly Varden = 2.0

Evaluation: Overall rearing potential is poor. The streambed is mainly rocky with no undercut banks or slough areas. The current is too swift for mainstream rearing.

Spawning Areas:

Salmon Counts:	Date	Fish Observed
	8/20/68	20 Pink
	8/25/69	25 Pink

Evaluation: Fair intertidal spawning areas are present for about 300 yards. There is poor-to-fair spawning for about the first 1/4 to 3/8 mile upstream. Fine gravel and sand are located in some areas of the streambed.

Planting History: 6/20/53, 1000 brook trout (Anon., 1953b). This planting appears to have been a failure, as no brook trout were present in the system on the survey date.

Fishing History: Unknown, during the survey there were indications of fishing activity.

References: Anonymous, 1953b (Planting history)
Anonymous, 1968 (Chemical data)
Anonymous, 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

Lena Creek Survey Date: 7/27/70

Location: Lat. 58°23'40" Long. 134°44'45" (13 miles NW of Juneau)

Description: Lena Creek flows for approximately one mile in a northwesterly direction before emptying into Lena Cove on Favorite Channel. The water has a slight brown color and the stream drains a watershed of a little more than 1/2 square mile. Accessibility is somewhat difficult due to the dense brush cover. Land ownership is unknown. The streambed consists mainly of large rocks and exposed bedrock. No tributaries were encountered during the survey. There is one anabranch about 200 yards long.

Barriers: Impassible falls are present about 250 yards upstream from the mouth. There were also two other possible low flow blocks downstream.

Species Present: Dolly Varden, cutthroat trout, and coho salmon.

Rearing Habitat:

Number of Areas: Logs 5, sloughs 0, undercut banks 0, pools 12.

Fish Observed: None

Average Catch/Trap (n=2): Dolly Varden = 9.0, cutthroat = 9.5, cottids = 2.0

Evaluation: Overall rearing potential is poor. There are no undercut banks nor slough areas, and of the pools observed, only two would be considered fair rearing areas. The majority of fish captured were located downstream from the culvert under the Glacier Highway. Sample fish indicate an anadromous population of Dolly Varden.

Spawning Areas:

Salmon Counts: None available.

Evaluation: Overall spawning potential is poor, due to lack of good gravel cover and exposed bedrock. There is possible limited intertidal spawning in beach gravel.

Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Lemon Creek (111-40-10) Survey Date: 5/13/70

Location: Lat. 58°21' Long. 134°30' (4.8 miles NW of Juneau)

Description: Lemon Creek flows for about six miles before draining into Gastineau Channel. The creek is fed by several large glaciers covering nearly one-third of the watershed. The total watershed area is approximately 25 square miles. Due to its glacial origin, the creek has a heavy concentration of glacial silt. Accessibility to the creek is fairly good, with a trail paralleling it. The creek runs clear during the winter; however, it becomes glacial-colored as melting begins with warm weather.

The creek was reportedly named for John Lemon who did some placer mining in 1879 (Orth, 1967).

NOTE: Due to the high water level and glacial silt content of the creek, a detailed survey was not possible. The survey was taken from the mouth to upstream of the lower canyon, a distance of about three miles.

Species Present: Dolly Varden; coho, chum, and pink salmon.

Barriers: None within the survey area.

Rearing Habitat:

Number of Areas: Observed rearing areas in the main stream were limited due to high water. Significant rearing areas are available in the tributaries.

Fish Observed: Approximately 300 total Dolly Varden and about 250 total coho.

Average Catch/Trap (n=4): Dolly Varden = 3.5, coho = 1.0

Evaluation: Overall rearing potential appeared to be poor in the main stream due to the lack of pools, undercut banks, and slough areas. The main stream had a rapid current which would limit rearing. Rearing fish were observed above the canyon. The tributaries appear to support significant numbers of rearing fish.

Spawning Areas:

Salmon Counts:	Date	Fish Observed	Length of Survey
	9/21/46	1 chum	1/2 mile
	8/15/68	2 chum	1 1/2 mile

Evaluation: Unknown. However, the substrate appears to be suitable for spawning in most areas of the stream.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1947 (Description)
Anonymous, 1968 (Chemical data)
Huizer, et. al., 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical info.)

Little Sheep Creek Survey Date: 7/17/70

Location: Lat. 58°14'40" Long. 134°17'30" (5 miles SE of Juneau)

Description: Little Sheep Creek, slightly over one mile in length, flows into Gastineau Channel after draining a watershed of approximately 1/2 square mile. It has an average width of four feet and depth of one foot. It is reached by the Dupont Trail which begins at the end of Thane Road south of Juneau. Accessibility is difficult. The streambed must be used as access to private property on both banks of the creek. One private water supply source was encountered between tidewater and trail level.

Barriers: A complete fish block occurs at a point where the trail crosses the creek, about 300 yards upstream from mouth.

Species Present: Unknown

Rearing Habitat:

Number of Areas: Logs 4, sloughs 0, undercut banks 0, pools 4.

Fish Observed: Only one (unknown) fingerling.

Average Catch/Trap (n=2): No fish.

Evaluation: Overall rearing potential is poor. The section of stream between tidewater and the fish block is very steep and consists of a series of falls and small pools. There appeared to be no areas in which rearing fish would be protected from current.

Spawning Areas:

Salmon Counts: None available.

Evaluation: Intertidal spawning is possible for a distance of about 50 yards. The stream itself offers no spawning areas.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Louie Lake Survey Date: Not Surveyed

Location: Lat. 58°21'30" Long. 134°33'48"

Description: Louie Lake, located in the Mendenhall Valley, is about five feet deep and 1/3-acre in surface area. The outlet stream is about 1 3/4 miles in length and flows down a gentle grade to empty into the Mendenhall River. The lake banks have gentle slopes and are mainly mud. The lake water is clear. Louie Lake was named by Robert Baade in 1953 (Anon., 1953c). An access trail parallels along the outlet stream.

Barriers: None

Species Present: Rainbow, brook trout and stickleback.

Rearing Habitat: Only limited rearing area is available in the lake.

Spawning Areas: Very meager spawning areas are present in the lake.

Planting History:

Date	Number of Fish	
6/19/53	1000 brook trout	(Anon., 1953b)
1963	5000 Rainbow	(Wadman, 1971)

Date	Number of Fish	
1965	5000 Rainbow	(Wadman, 1971)
1967	5000 Rainbow	(Heckart, 1968)
1968	2500 Rainbow	(Heckart, 1969)

Fishing History: Unknown

References: Anonymous, 1953b (Planting)
Anonymous, 1953C (Description)
Heckart, 1968, 1969 (Planting)
Wadman, 1971 (Planting)

Marshall Ponds Survey Date: Not Surveyed

Location: Mendenhall Valley

Description: The Marshall Ponds are two relatively small, shallow bodies of water located just off the Mendenhall Loop Road. At the present time a housing development is being constructed near them.

Species Present: Rainbow trout, stickleback.

Rearing Habitat: Very limited.

Spawning Areas: Possible lake bottom spawning areas.

Planting History:

Date	Number of Fish	
8/02/57	1100 Rainbow	(Anon., 1958a)
7/19/58	1000 Rainbow	(Anon., 1958b)
1960	2000 Rainbow	(Wadman, 1971)
1961	1000 Rainbow	(Wadman, 1971)
1963	1000 Rainbow	(Wadman, 1971)
1967	3000 Rainbow	(Heckart, 1968)
1968	5000 Rainbow	(Heckart, 1969)

Fishing History: Unknown

References: Anonymous, 1958a, 1958b (Planting)
Heckart, 1968, 1969 (Planting)
Wadman, 1971 (Planting)

Mendenhall Lake Survey Date: Not Surveyed

Location: Lat. 58°24'30" Long. 134°34'30" (3 miles N of Juneau Airport)

Description: Mendenhall Lake, located at the foot of Mendenhall Glacier, forms the headwaters of the Mendenhall River. The lake is glacial. It is easily reached via the Mendenhall Glacier Road. The lake serves as a migration route for numerous fish spawning in its various inlets. The lake itself was not surveyed, but most of its inlets were. The lake derives its name from Mendenhall Glacier, named after Prof. Thomas C. Mendenhall, of the USC&GS. The lake has also been known as McCush Lake after Neil McCush who had mining property near it (Orth, 1967).

Barriers: There are no barriers on the outlet river.

Species Present: Dolly Varden; rainbow trout; red, coho, and chum salmon; cottids; and stickleback.

Rearing Habitat: Mendenhall Lake is a wintering area for Dolly Varden, and rearing area for coho and red salmon. Although no traps were set, gill nets have been placed in the lake with the following results (all fish taken were Dolly Varden):

Date	Net Hrs.	No.	Wt. Range (lbs.)	Length Range (in.)
4/14/70	24	18	0.5 - 2.0	9 - 20
7/03/70	12	1	-	11 3/4
7/14/70	24	4	-	11 - 18
7/21/70	24	14	-	11 - 20
8/09/70	24	14	-	11 - 20

(40 feet of 3-inch stretch mesh net was used.)

Spawning Areas: The main spawning areas available are in the various inlet streams to the lake.

Planting History: None known in the lake itself.

Fishing History: Unknown, but the area is readily accessible by auto, and could offer a fair fishery.

References: Orth, 1967 (Location, historical data)

Mendenhall Lake Tributaries

NOTE: The following four streams are tributaries to Mendenhall Lake. They flow into the east side of the lake and are reached via a trail beginning at the parking area. Tributary #2 was not surveyed.

Tributary #1 Survey Date: 8/18/70

Location: East shore of Mendenhall Lake.

Description: Access to the stream mouth is excellent via a Forest Service trail. Accessibility up the stream itself is difficult due to the lack of a trail and heavy brush. The lower reaches of the creek consist of a flat glacial valley. The stream is very shallow, narrow, and clear. The bottom consists of medium to course gravel, and vegetation cover is extremely heavy, at times completely covering the overstory of the stream channel. At about 1/4-mile the stream becomes "Braided" for about 250 yards, and then starts "stair stepping" up the side of a hill. Banks begin to rise in this section and brush begins to thin out. At this point the bottom consists of some exposed slate and large boulders. The stream continues to "stair step" into a small canyon and its gradient increases. The bottom is primarily exposed slate with a few large boulders. The bank cover is thin, allowing easy walking. The stream continues up into a canyon becoming very steep with entirely exposed slate bottom, about at one mile upstream. No tributaries are present.

Barriers: There is a fish block in the form of waterfalls about one mile upstream.

Species Present: Dolly Varden; rainbow trout; coho, and red salmon.

Rearing Habitat:

Number of Areas: Logs 10, sloughs 0, undercut banks 11, pools 27.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
62	0	55	62	12	16

Also one possible 6-inch rainbow was observed.

Average Catch/Trap (n=3): Dolly Varden = 6.33, coho = 0.66

Evaluation: The rearing potential in the first 1/2-mile section of stream is poor; no rearing areas are beyond this section as the stream has no pools or slough areas. The first 1/2-mile section has some small pools and shallow undercut banks; however, sheltered areas are insufficient to offer good rearing. Sampled fish indicated an anadromous Dolly Varden population (length: 89-113 mm, age I-III).

Spawning Areas:

Salmon Counts: None available. However, on the date of survey, 10 adult red salmon were observed.

Evaluation: Overall spawning potential is poor and restricted to the lower reaches of the stream. Upstream about 1/2-mile the streambed becomes exposed slate with large rocks dispersed throughout.

Planting History: None known

Fishing History: Unknown

Tributary #3 Survey Date: 8/18/70

Location: East shore, Mendenhall Lake

Description: The stream crosses the Forest Service trail, allowing easy access to the mouth. Accessibility upstream is limited by very dense brush for the first 1/4-mile. The streambed consists of medium to large gravel and the stream channel averages about 5 feet wide and 4-8 inches deep. No tributaries were encountered.

Barriers: A series of falls about 1/2-mile upstream form a fish block.

Species Present: Dolly Varden; cutthroat trout; red and coho salmon.

Rearing Habitat:

Number of Areas: Logs 0, sloughs 0, undercut banks 4, pools 16.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
20	3	9	25	20	5

Average Catch/Trap (n=2): Dolly Varden = 3.5, coho = 8.0 cutthroat = 0.5

Evaluation: Overall rearing potential is poor due to lack of sloughs and suitable undercut banks. Most pools observed were small and shallow and would not offer adequate rearing areas.

Spawning Areas:

Salmon Counts: None available. On date of survey, one adult red salmon, and four large (12-14 inches) Dolly Varden were observed in the lower reaches.

Evaluation: Spawning areas are poor and limited to areas near the stream mouth.

Planting History: None known

Fishing History: Unknown

Tributary #4 Survey Date: 8/18/70

Location: Lat. 58°25'28" Long. 134°35'07" (east shore Mendenhall Lake)

Description: This stream is narrow (average width four feet) and shallow (average depth six inches) and is reached by the Forest Service trail. The trail bridges the creek about 1/4-mile upstream from the mouth. The bottom of the stream consists of medium to course gravel and the water is clear. The banks are very low with heavy growth making accessibility difficult. After the stream is crossed by the trail, it starts stair-stepping up a hill. At this point the bottom is mainly exposed shale and bank cover is dense. Between 1/4-and 1/2-mile upstream, a small tributary, or anabranch, enters the creek (unable to follow this branch far enough to determine whether it was a tributary or an anabranch). Both the main stream and branch become very steep at this point.

Barriers: A fish block occurs at a series of falls at about 1/2-mile upstream.

Species Present: Dolly Varden, rainbow trout, and coho salmon.

Rearing Habitat:

Number of Areas: Logs 0; sloughs 0; undercut banks, few very poor; pools, few, poor.

Average Catch/Trap (n=1): Dolly Varden = 3.0, coho = 1.0, rainbow = 1.0

Fish Observed: Only fish observed was one coho yearling.

Evaluation: The overall rearing potential for the system is poor. The current is swift and no areas are present to allow fish escapement.

Spawning Areas:

Salmon Counts: None available. During the survey, one adult red salmon was observed.

Evaluation: There are fair spawning areas from the stream mouth to the base of the falls.

Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data, location)

Tributary #5 Survey Date: 8/18/70

Location: East shore, Mendenhall Lake

Description: This stream averages about five feet wide and 6 inches deep, and has clear water. It is reached via the Forest Service trail, but accessibility upstream is poor due to heavy bank cover. The streambed consists of medium to coarse gravel. There is a falls at the point where the trail crosses the creek about 1/4-mile upstream.

Barriers: Falls at trail crossing are a total block.

Species Present: Dolly Varden, coho and red salmon.

Rearing Habitat:

Number of Areas: Logs 0, sloughs 0, undercut banks 8, pools 7.

Fish Observed: Only fish observed were two unknown fingerling.

Average Catch/Trap (n=2): Dolly Varden = 6.0, coho = 4.5

Evaluation: Little or no rearing areas are present in this system. It is almost a straight run from the falls to the mouth. Pools and undercut banks observed were very small and offered no rearing area.

Spawning Areas:

Salmon Counts: None available. During the survey one adult red salmon was observed.

Evaluation: There are fair spawning areas from the stream mouth to the base of the falls.

Planting History: None known

Fishing History: Unknown

Mendenhall River (111-50-50) Survey Date: Not Surveyed

Location: Lat. 58°21'30" Long. 134°36'00" (8 miles NW of Juneau)

Description: The Mendenhall River, a large glacial river, heads in Mendenhall Lake and flows eight miles to the Gastineau Channel. The river is crossed by the Glacier Highway over the Brotherhood Bridge and the Mendenhall Loop Road bridge. Although the river was not surveyed due to its size and glacial water, it is included because it forms a major migratory route for fish on the Juneau road system. The river derives its name from the Mendenhall Glacier (see description of Mendenhall Lake) and has also been known as Glacier River (Orth, 1967).

Barriers: None

Species Present: Dolly Varden; rainbow trout; red, coho, chum and pink salmon; cottids; stickleback.

Rearing Habitat: It has limited rearing areas, mainly in the mouths of the various tributaries.

Spawning Areas: The main spawning area is supplied by the various tributaries to the river. (No salmon counts available.)

Planting History: None known

Fishing History: Mendenhall River affords a fair fishery and is easily accessible by road. It has some potential for bank plunk-type fishing.

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

McGinnis Creek Survey Date: 7/31/70

Location: Lat. 58°26'30" Long. 134°38'40" (12.5 miles NW of Juneau)

Description: McGinnis Creek is the main tributary to Montana Creek. Due to its size, it was treated as a separate stream. It flows about three miles before emptying into Montana Creek. It averages about 10 feet in width, 3 1/2 feet in depth, and the water had an extremely high glacial silt content. In general, the stream contains a steep gradient; the bottom consists of large boulders, and the current is swift giving rise to numerous rapid areas. Accessibility is poor due to very heavy brush on the banks. In the upper reaches the stream becomes increasingly steeper. The creek was originally named "McInnis River" in 1881 by John McInnis and Edward Brennon who staked claims near there. It was also known as "McKinnis Creek". Its present name first appeared in 1903 on a USGS survey (Orth, 1967).

Barriers: There is a possible fish block at falls about 1 1/2 miles upstream.

Species Present: Coho and chum salmon; Dolly Varden.

Rearing Habitat:

Number of Areas: Logs 16, sloughs 0, undercut banks 2, pools 21.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
13	0	43	1	2	0

(Observation conditions were poor due to silt in water.)

Average Catch/Trap: No traps were set due to high water conditions and swift current.

Evaluation: Overall rearing conditions for the stream are poor. There is a lack of slough areas and side channels to allow the rearing fish an opportunity to escape the main stream current.

Spawning Areas:

Salmon Counts: Included in Montana Creek counts. On date of survey, numerous adult chum salmon were observed in the lower reaches of the stream.

Evaluation: There are very good spawning areas in the lower section. Spawning conditions in the upper sections were not observed due to depth and silty water condition.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrological data)
Orth, 1967 (Location, historical data)

Montana Creek (111-50-52) Survey Date: 8/3-5/70

Location: Lat. 58°22'54" Long. 134°35'47" (8 miles NW of Juneau)

Description: Montana Creek, the largest tributary to the Mendenhall River, originates in a mountain meadow area and flows approximately seven miles, draining a watershed of about 15 square miles. The upper reaches of the stream are characterized by numerous rapids and small pools. The streambed consists of small gravel to large boulders and

the banks have good growth. About three miles of the stream area are easily accessible by a well defined trail running parallel to the stream and originating at the end of the Montana Creek Road. The next 2 1/2-mile section is readily accessible by the Montana Creek Road, which parallels it. This section of stream consists of rapids and numerous deep pools. At the lower reaches of this section, the stream flows through a canyon, which provides probably good fly fishing. Leaving the canyon, it enters a swamp-like area where numerous anabranches are formed. This area has very poor accessibility due to its swamp-like characteristics and numerous blow-downs. The stream becomes slow flowing and deep. After the stream crosses the Mendenhall Loop Road it has a short section (2 1/4 miles) easily accessible to fishermen. It appears the banks have been graded; however, the land on both sides appears to be privately owned. The final 1 1/2-2 mile section flows through a very poorly accessible area. The banks are mud and overgrown with dense underbrush consisting primarily of devil's club. The stream is too deep for wading. The stream mouth is accessible for fishing by a trail starting at the Brothhood Bridge and following the Mendenhall River. The flow of the system has been estimated at 150 cfs (Wadman, 1962). This stream has also been called Brennan River (Orth, 1967).

Barriers: No barriers were encountered throughout the entire length of the stream.

Species Present: Dolly Varden; cutthroat trout; pink, red, chum, and coho salmon; sculpin and stickleback.

Rearing Habitat:

Number of Areas: Logs 60, sloughs 22, undercut banks 56, pools 126.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
22	0	55	0	2,957	0

Average Catch/Trap (n=20): Dolly Varden = 6.5, coho = 3.6, cutthroat = .25, cottids = .35

Evaluation: In general, the overall rearing potential for the system is fair to good. Rearing fish were observed throughout the system, with a slightly greater proportion observed in the upper reaches (i.e. last three miles) of the stream; however, a large portion of the lower section had poor viewing conditions due to silt. The rearing areas were distributed uniformly throughout the system with a slight increase in the proportionate numbers of

pools in the upper reaches. Examination of sample fish indicates a resident population of Dolly Varden with lengths of 109-138 mm and ages of V-VII years.

Spawning Areas:

Salmon Counts:

Date	Pinks	Chum	Length of Survey
8/15/45		8000	5.0 mi.
7/15/51		9	1.5 mi.
8/09/51	scattered throughout		1.0 mi.
6/27/52		2	0.2 mi.
8/01/53		15000	2.5 mi.
8/14/53	4	10	0.5 mi.
11/05/53	(6 coho)		0.5 mi.
7/20/54		1	-
8/17/54		150	-
7/16/60		Many	-
8/10/62		100	-
7/22/66		331	1000 yards
8/11/67		400	-
7/12/68		800	2.0 mi.
8/09/68		250	0.5 mi.
7/23/69		500	0.5 mi.
8/25/69		10	2.0 mi.

In addition, four red salmon and numerous chum salmon were observed during the course of survey in 1970.

Evaluation: Although adult salmon were observed as far as 5 1/2 miles upstream, the prime spawning area is probably located from about 2-4 1/2 miles upstream. This area would, in general, include the section from the canyon, upstream to about one-half mile beyond the end of the road. Above this area, there is insufficient suitable spawning riffle area; below it, the streambed appears to be too muddy.

Planting History:

1/05/52 - 66,000 eyed king salmon eggs (Anon., 1951)
12/17/52 - >60,000 eyed king salmon eggs (Anon., 1952a)
12/13/53 - >50,000 eyed king salmon eggs (Anon., 1953a)
5/20/70 - 5,268 coho fry (Marriott, 1971)

The king salmon plants were failures and it is too early to determine the success of the coho plant.

Fishing History: Although certain sections of Montana Creek are heavily utilized by the public, its fishing pressure has been compared to the entire Juneau area on only two occasions. In 1952, it accounted for 10% of the total fishing pressure (Anon., 1952c), and in 1960, of

1,407 anglers checked, 21.8% were fishing Montana Creek (Baade, 1961). In 1970, 26 anglers were checked at Montana Creek with a total catch of 63 Dolly Varden. The catch per angler hour was 1.28.

References: Anonymous, 1951, 1952a, 1953a (Planting history)
Anonymous, 1952b (Description, species present)
Anonymous, 1952c (Fishing history)
Anonymous, 1968 (Chemical data)
Baade, 1960 (Species present, description)
Baade, 1961 (Fishing history)
Baade, 1962 (Species present)
Cramer, 1962 (Road ROW)
Cramer, 1964 (Land selection zone)
Huizer, et. al., 1970 (Salmon counts)
Marriott, 1971 (Planting history)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical info.)
Wadman, 1962 (Description, salmon timing)

Neilson Creek (111-40-96) Survey Date: 6/29/70

Location: Lat. 58°19'55" Long. 134°30'00" (3.7 miles NW of Juneau)

Description: Neilson Creek, located on North Douglas Island, flows for about 1 1/2 miles before emptying into Gastineau Channel near the heliport operated by Livingston Helicopters, Inc. It has poor bank cover, and accessibility is good via a trail parallel to the creek up to the falls. Accessibility is poor beyond the falls. The streambed consists of sand and gravel in lower reaches, changing to exposed slate as the falls are reached.

Barriers: Total fish block about 300 yards upstream in form of 25-30 foot falls.

Species Present: Dolly Varden.

Rearing Habitat:

Number of Areas: Logs 1, slough 0, undercut banks 0, pools 3.

Fish Observed: None

Average Catch/Trap (n=2): Dolly Varden = 5.0

Evaluation: The overall rearing potential is poor due to lack of side channels and protected areas. Almost the entire stream is riffle area. The pools observed were at the base of the falls and at both ends of the culvert under the road. Examination of sample fish revealed lengths of 87-113 mm and ages of II years, which would suggest an anadromous Dolly Varden population.

Spawning Areas:

Salmon Counts: None available.

Evaluation: Possible intertidal spawning areas are available. Overall spawning potential for the stream is poor due to large amounts of exposed slate in the upper accessible stream section.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

Ninemile Creek (111-50-67) Survey Date: 6/29/70

Location: Lat. 58°20'10" Long. 134°34'30" (6.4 miles NW of Juneau)

Description: Ninemile Creek is located on North Douglas Island and flows in a northwesterly direction to Gastineau Channel. It has approximately one-half mile of intertidal area. The stream is crossed by the North Douglas Road just above the 1/2-mile point. The water is brown in color and the average width is about 2 1/2 feet with the average depth about 8-10 inches. It has heavy moss growth on the stream bottom throughout the system. Accessibility is very poor due to brushy banks and numerous windfalls and no trails or clearings to allow easy fishing. There are no tributaries.

Barriers: No definite blocks were encountered; however, log jams located at 5/8 mile, 3/4 mile, 1 mile, and about 1 1/4 miles could be fish blocks at various stream flows. Also, the culvert under the road could be a low water block.

Species Present: Dolly Varden, cutthroat trout.

Rearing Habitat:

Number of Areas: Logs 12, sloughs 0, undercut banks 5, pools 12.

Fish Observed: No fish were observed.

Average Catch/Trap (n=4): Dolly Varden = 1.25, cutthroat = 5.75

Evaluation: The overall rearing potential for the stream, considering its size, is fair. The flow is slow enough to allow rearing in the mainstream.

There appears to be sufficient sheltered areas. The main limiting factor appears to be stream size. The fish samples examined indicate what appears to be a resident cutthroat population (lengths 70-135 mm, ages II-V years), and an anadromous Dolly Varden population (lengths 75-115 mm, ages II-III years).

Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Norton Lake Survey Date: Not Surveyed

Location: Lat. 58°21'20" Long. 134°34'12"

Description: Norton Lake is a shallow (About five feet) lake of about two surface acres. It is located about 15 feet in elevation, 1 3/4 miles above the Mendenhall River. The water is clear and it has no real tributary streams. Seepage is the main source of inlet water. The lake was named by Robert Baade during his survey in 1953 (Anon., 1953c).

Barriers: The only barrier on the outlet stream would be possible low flow.

Species Present: Rainbow, brook trout, stickleback.

Rearing Habitat: There is limited rearing in the lake, but none in the outlet stream, as it is sandy and shallow.

Spawning Area: Some spawning areas are available in the seepages in the gravel bottom of the lake.

Planting History:

Date	No. Fish	
6/19/53	1000 brook trout	(Anon., 1953b)
1963	5000 rainbow	(Wadman, 1971)
1965	5000 rainbow	(Wadman, 1971)
8/03/67	5000 rainbow	(Heckart, 1968)
7/23/68	1000 rainbow	(Wadman, 1971)

Fishing History: Unknown

References: Anonymous, 1953b (Planting)
Anonymous, 1953c (Description)
Heckart, 1968 (Planting)
Wadman, 1971 (Planting)

Nugget Creek (111-50-57) Survey Date: Not Surveyed

Location: Lat. 58°25'30" Long. 134°32'00" (9 miles NW of Juneau)

Description: Nugget Creek heads in Nugget Glacier and flows in a general westerly direction for about 5 1/2 miles to the base of the Mendenhall Glacier. The creek drains a watershed of approximately 15 square miles. It is easily accessible via a well defined trail starting at the Forest Service Visitor Center near the Mendenhall Glacier. A trail crosses the creek in its lower reaches. Approximately 1/2 mile upstream from the trail crossing, an old 25 foot high log crib dam constructed by the Juneau Gold Mining Company is present. During early spring, the water level is low and clear; however, by June the water becomes very glacial and high. The creek was named by Sam E. Butts who had a placer claim on it in 1900 (Orth, 1967).

Barriers: Unknown

Species Present: Dolly Varden

Rearing Habitat: Traps were set in the system up to the three-mile point in March, 1970, but no fish were captured. On a later trip in June, 1970, although no traps were set, 10 Dolly Varden about eight inches long were observed at only one point, about two miles above crib dam (Metsker, 1971). The rearing potential of the system appears to be nil.

Spawning Areas: Unknown

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1947 (Description)
Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Metsker, 1971 (Trap info.)
Orth, 1967 (Location, historical data)

Peterson Creek (111-50-10) Survey Date: 8/11/70

Location: Lat. 58°29'45" Long. 134°46'45" (19 miles NW of Juneau)

Description: Peterson Creek has its headwaters on Auke Mountain. After flowing in a northwesterly direction for approximately seven miles, it empties into Salt Lake, a saltwater lagoon on Favorite Channel. Peterson Lake is the major lake on the stream. The lower reaches of the creek flow through open fields, and this creek section is slow

flowing and deep. Access is restricted because of the surrounding private land. About 3/4 mile from its mouth, the stream flows under the Glacier Highway. The stream enters the trees about one mile upstream and widens out (to about 12 feet) and becomes shallow (about one foot deep). For about the next 1/4 mile, it consists of riffle areas with fine to medium gravel cover. The bank cover is good, however, it does not impede accessibility. Following the riffle section, the stream enters a canyon headed by a falls. The only area of difficult accessibility is the canyon. Six small to medium tributaries were encountered but none were surveyed. Peterson Creek was named for John G. Peterson, a Juneau businessman and miner. It has also been called Cheechako Creek (Orth, 1967).

Barriers: Total fish block at approximately 1 1/2 miles upstream in the form of 50-foot falls.

Species Present: Dolly Varden; steelhead trout; cutthroat trout; coho, chum, and pink salmon; starry flounder, Platichthys stellatus; stickleback; and sculpin.

Rearing Habitat:

Number of Areas: Logs 4, sloughs 1, undercut banks 5, pools 11.

Fish Observed: No rearing fish were observed - poor observation conditions.

Average Catch/Trap (n=18): Dolly Varden = 4.67, rainbow = 1.44, coho = 13.28, cottid = 1.89

Evaluation: The overall rearing potential of the system is fair. Although the lower reaches offer no rearing areas, the sections above the highway do offer limited areas. In addition, some rearing areas are offered in the upper two tributaries.

Spawning Areas:

Salmon Counts:

Date	Fish Observed	Length of Survey
9/16/45	10,000 Pink	1.5 miles
	2,000 Chum	
8/19/48	1,000 Chum	-
8/01/53	25 Chum	0.7 miles
8/28/53	50 Chum	0.7 miles
11/01/53	13 Coho	0.5 miles
9/01/59	100 Chum	-

Date	Fish Observed	Length of Survey
9/18/59	100 Pinks 700 Coho 200 Chum	2.0 miles
7/06/60	No fish	
8/22/60	Est. of several thousand (Pink & Chum)	
8/18/61	Est. of several hundred	
8/06/62	No fish	
8/27/62	100 Pink 1,500 Chum	
8/27/63	16 Pink 25 Chum	

In addition, 28 dead chum were observed on the date of the stream survey.

Evaluation: There are fair to good spawning areas in the section of stream between the lower end of canyon and where it enters the trees. The section of stream flowing through the grasslands has a muddy bottom which would restrict spawning.

Planting History: None known (See Petersen Lake report).

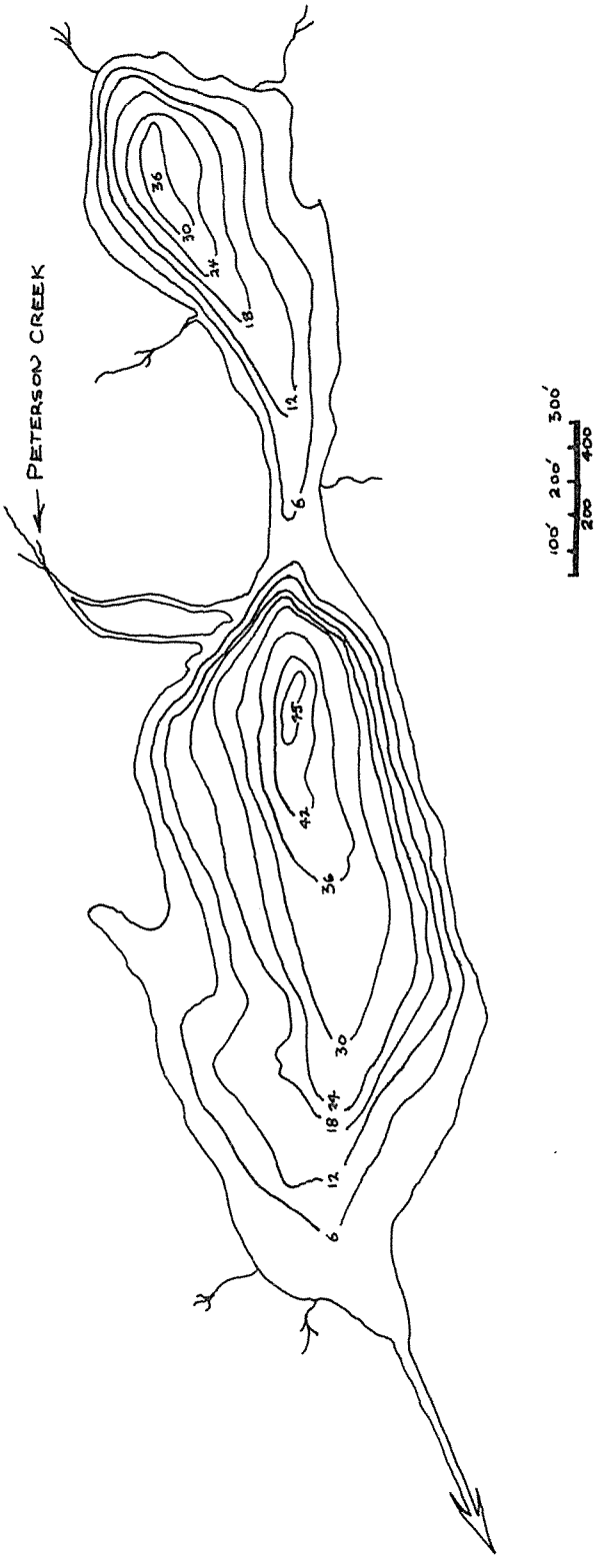
Fishing History: Fishing pressure on the system is moderate. In 1967, 25 fishermen were checked with a total catch of 11 steelhead. This gave a catch of approximately 0.5 fish/angler hour. During 1970, 12 fishermen were checked with a total catch of 23 fish (6 rainbow trout, 2 steelhead trout, and 15 cutthroat trout). This resulted in a catch of 1.02 fish/angler hour.

References: Anonymous, 1947 (Description)
Anonymous, 1968 (Chemical data)
Cramer, 1962 (Land selection)
Huizer, et. al., 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)
Wadman, 1962 (Description, species present)

Peterson Lake Survey Date: Not Surveyed

Location: Lat. 58°26'45" Long. 134°44'00" (17 miles NW of Juneau)

Description: Peterson Lake is located on Peterson Creek approximately four miles from tidewater. The lake's surface is approximately 695 feet above sea level and has an area of 52.2 acres. The maximum depth is 45 feet and total volume is 877 acre feet (see map). The



CONTOUR MAP OF PETERSON LAKE (from Wadman, 1971).

lake is divided into two basins, connected by a shallow area. There are seven inlet streams, the main one, Peterson Creek and six smaller ones. The lake is reached by a trail running 4 1/2 miles from the Glacier Highway. The lake lies completely within the Tongass National Forest, thus giving free public access. It was named after John G. Peterson, as was Peterson Creek, and has also been referred to as Reservior Lake (Orth, 1967).

Barriers: A total fish block on the outlet stream is approximately 2 1/2 miles from the lake.

Species Present: Dolly Varden, native; steelhead trout (introduced after rehabilitation).

Rehabilitation: On June 6, 1961, rehabilitation of Peterson Lake was undertaken. Powdered rotenone was used. During the rehabilitation, the lake supported a small population of stunted Dolly Varden. The timing of the rehabilitation coincided with the period when no adult salmon would be in the lower creek. The rehabilitation resulted in an estimated total kill of 7,000 fish in the lower stream; 75% were coho fry, 10% Dolly Varden, 10% sculpin and stickleback, 3% steelhead fry, and 2% cutthroat (Wadman, 1971). Following detoxification, steelhead-type rainbow trout were planted in hope of establishing a run in the lower creek. Subsequent plantings have been made.

The lake was sampled with minnow traps in 1962 and three of the 1961 plant steelhead were captured, ranging in size from 2 1/2 to 3 5/16 inches; no reinfestation was found or observed. These size ranges indicate a slow growth rate (Wadman, 1963). The plantings appear to be at least partially successful, with catches of 15-20 adult steelhead being recorded each year in the lower section of Peterson Creek. In 1970, a gill net set produced a catch of 62 Dolly Varden (mean length 157 mm) and 7 rainbow trout (mean length 200 mm).

Planting History:
1961 - 14,300 steelhead (Wadman, 1963)
1962 - 16,500 steelhead (Wadman, 1963)
1963 - 21,000 steelhead (Wadman, 1971)
1964 - 25,000 steelhead (Wadman 1971)
1965 - 17,000 steelhead (Wadman, 1971)
1966 - 17,000 steelhead (Heckart, et. al., 1967)
1967 - 12,000 steelhead (Heckart, 1968)
1968 - 15,000 steelhead (Heckart, 1969)

Fishing History: Unknown

References:
Anonymous, 1947 (Description)
Cramer, 1964 (State land selection)
Heckart, 1967, 1968, 1969 (Plantings)

Orth, 1967 (Description)
Wadman, 1963, 1971 (Plantings)
Wadman, 1971 (Rehabilitations)
Wilding, 1939 (Description)

Peterson Creek (111-50-75) Survey Date: 6/11-12/70
(Outer Point Creek)

Location: Lat. 58°17'44" Long. 134°40'28" (Approx. 9 1/2 miles W of Juneau.

Description: Peterson Creek, located on the west side of Douglas Island, flows in a northerly direction to Fritz Cove. It drains a watershed of approximately four square miles. The bank cover is excellent and accessibility extremely easy. It has a fairly large intertidal area. The stream meanders through about 1 1/4 miles of meadows before entering virgin stands of Hemlock. In this meadow area the stream is about 6-8 feet wide and varies in depth from a few inches over riffle areas, to a few feet in pool areas. The banks are covered with tall grass. At about one mile, a small foot bridge across the creek connects to a trail leading to the end of the North Douglas Road. It is very easy walking along the stream banks in the wooded section. The stream continues for about 2 1/2 miles, progressively getting smaller until it finally braids out into small trickles. Six tributaries were encountered on the survey. Each offered rearing areas and each was similar to the main stream regarding accessibility. All tributaries were accessible to fish for about 1/2 to 3/4 mile, then became mere trickles. A large beaver dam was on the first tributary about 1/4 mile upstream impounding a fair-sized pond.

Peterson Creek is also known as Outer Point Creek.

Barriers: The only possible barriers were numerous beaver dams. These should be checked during in-migration to see if they are blocks. If they are, only small sections should be removed as they are creating good rearing areas.

Species Present: Dolly Varden; cutthroat trout; coho, pink and chum salmon; and cottids.

Rearing Habitat:

Number of Areas: Logs, numerous; sloughs 0; beaver dams 8; undercut banks, numerous; pools, numerous.

Fish Observed: (entire system)

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
303	21	3,711	119	498	81

Average Catch/Trap (entire system) (n=9): Dolly Varden = 16.9, coho = 2.7, cutthroat = 0.9, cottids = 0.9

Evanuation: Mainstream - the rearing potential throughout the entire main stream is excellent. Fish were found in the mainstream up to about two miles above tidewater.

Rearing evaluation of the tributaries are as follows:

#1 - excellent (especially in pool behind beaver dam).

#2 - good, numerous pools and undercut banks.

#3 - good, numerous pools and stream "braids" thus creating good rearing areas.

#4 - fair, some pools and undercut banks, one small beaver dam.

#5 - fair, some pools and undercut banks.

#6 - good, quite a few pools and undercut banks.

Spawning Areas:

Salmon Counts:

Date	Fish Observed	Length of Survey
7/20/54	50 chum	1.0 mile
6/24/60	No fish	
7/19/60	No fish	
8/18/60	No fish	
8/10/61	Unknown number present	
8/30/63	115 pink	
	285 chum	
8/27/68	800 pink	
8/04/69	200 pink	intertidal
8/25/69	165 pink	1 1/3 miles
8/05/70	75 pink	1/2 mile
8/13/70	1500 pink	1/2 mile
	250 chum	
8/27/70	1250 pink	

Evaluation: Intertidal area and about the first 100 yards of stream may provide fair spawning for pinks and chum. The stream up to about 1 1/2 miles consists of silt and mud bottom or fine gravel, with little available spawning area. Beyond the 1 1/2 mile point, there are frequent small (6-10 feet) sections of potential spawning areas, between the pools, for Dolly Varden, cutthroat, and coho. Numerous riffle areas are in all the tributaries between the pools, for Dolly Varden, cutthroat, and coho. Numerous riffle areas are in all the tributaries between the pools, providing further spawning areas.

Planting History: 5/20/70 - 7,200 coho fry (Marriott, 1971).

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
Cramer, 1964 (State land selection)
Huizer, et. al., 1970 (Salmon counts)
Marriott, 1971 (Planting)
McConaghy, 1969 (Hydrologic data)

QT Lake Survey Date: Not Surveyed

Location: Lat. 58°20'00" Long. 134°33'30"

Description: QT Lake is a shallow (about seven feet deep) lake about 2/3 acre in size. It is located in the Mendenhall Valley about 20 feet in elevation. The banks are gently sloped and predominately mud. The water is clear and there is no outlet. The lake is located within the National Forest and has free public access. The name was applied by Robert Baade in 1953 because "it is well hidden" (Anon., 1953c).

Barriers: No outlet.

Species Present: Rainbow trout

Rearing Habitat: Limited in the lake.

Spawning Areas: Very limited spawning area in seepages.

Planting History:

Date	Number of Fish	
1960	2000 rainbow	(Wadman, 1971)
1961	1000 rainbow	(Wadman, 1971)
1963	1000 rainbow	(Wadman, 1971)

Date	Number of Fish	
1964	1000 rainbow	(Wadman, 1971)
1967	2000 rainbow	(Heckart, 1968)
1968	2500 rainbow	(Heckart, 1969)

Fishing History: Unknown

References: Anonymous, 1953c (Description)
Heckart, 1968, 1969 (Planting)
Wadman, 1971 (Planting)

Salmon Creek (111-40-15) Survey Date: 7/02/70

Location: Lat. 58°19'50" Long. 134°28'20" (3 miles NW of Juneau)

Description: Salmon Creek originates in an unnamed glacier on the northeast side of Mount Juneau. After feeding Salmon Creek Reservoir, it flows about three miles into Gastineau Channel. A falls occurs about 1/8 mile above tidewater. The section surveyed (tidewater to falls) contained good bank cover, and the streambed consisted of sand and medium sized gravel. It has easy accessibility by walking up the stream, however, private land borders the lower stream reaches. The Glacier Highway crosses the stream at the high tide mark. The stream has been closed to salmon fishing since 1962. An annual children's fishing derby is held during the Dolly Varden in-migration. The stream was named by Richard Harris and Joe Juneau in 1880. The name probably is derived from the Indian name "Tilhini" meaning "dog salmon" which appeared on some early maps (Orth, 1967).

Barriers: Falls about 20 feet high form a total fish block about 1/8 mile from tidewater.

Species Present: Dolly Varden; coho, chum and pink salmon; and cottids.

Rearing Habitat:

Number of Areas: Logs 1, sloughs 0, undercut banks 0, pools 3.

Fish Observed: Only cottids were observed.

Average Catch/Trap (n=2): Dolly Varden = 7.5, coho = 1.0, cottids = 24.5

Evaluation: Overall rearing potential of stream is poor. Two large pools are below the falls and one smaller one is behind a log jam just downstream from falls. These three pools, along with some sheltered areas along the banks, offer limited rearing areas. Sample fish examination revealed an anadromous Dolly Varden population (lengths 103-145 mm, ages all II years).

Spawning Areas:

Salmon Counts:

Date	Fish Observed	Length of Survey
9/21/40	Pinks & Chums in stream	
7/20/51	150 chum	0.2 mi.
8/08/51	400 chum	"
8/18/51	500 pink	"
	1470 chum	
8/02/52	few chum	"
8/01/53	0 pink	"
	chums good	
8/24/53	0 pink	"
	few chum	
8/28/53	0 pink	"
	few chum	
7/20/54	150 chum	
8/17/54	1000 chum	
8/19/55	2500 chum	2.0 mi.
8/05/56	1000 chum	0.5 mi.
7/20/57	1500 chum	
9/10/57	2500 chum	
8/22/58	225 pink	
	1000 chum	
8/05/59	1500 chum	0.2 mi.
9/01/60	600 pink	
	many dead chum	
7/25/61	500 chum	
8/17/62	99 pink	
	269 chum	
8/08/63	300 chum	
9/04/64	365 pink	0.2 mi.
	32 chum	
7/29/65	16 chum	150 Yds.
8/18/65	200 chum	0.2 mi.
8/11/67	20 pink	to bridge
	150 chum	
8/30/67	300 chum	0.2 mi.
8/12/68	810 pink	"
8/14/68	2000 pink	"
8/12/69	280 pink	"
	70 chum	
8/28/69	344 pink	"
	8 chum	

Evaluation: It has good spawning areas throughout almost the entire length of accessible stream. The streambed, from inter-tidal area to falls, consists of gravel

and some sand which afford spawning areas to chum, pinks, coho salmon, and Dolly Varden.

Planting History: None known

Fishing History: Of a total 1,407 anglers checked along the Juneau road system during 1960, 50.9% were fishing Salmon Creek. In 1970, eight fishermen were checked with a total catch of 13 fish. The catch per angler hour was 1.15 fish. In addition, even though the fishing area is limited, there have been as many as 50 fishermen observed at one time on the creek.

References:
Anonymous, 1947 (Description)
Anonymous, 1968 (Chemical data)
Baade, 1960 (Species present)
Baade, 1961 (Fishing pressure)
Huizer, et. al., 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)
Wadman, 1962 (Description)

Salmon Creek Reservoir — Survey Date: Not Surveyed

Location: Lat. 58°20'30" Long. 134°24'20" (2.7 miles N of Juneau)

Description: Salmon Creek Reservoir is a man-made lake about one mile in length, located about three miles upstream from the mouth of Salmon Creek. The reservoir has an area of 210 acres and is at the 1188-foot elevation. It is created by a constant angle, concrete, arch-type dam, 170 feet high, with a crest of 648 feet including the spillway. The reservoir has a storage capacity of 19,000 acre feet. The dam was constructed by the Alaska Gastineau Mining Company in 1915 to provide hydroelectric power for Juneau. The reservoir can be reached via a well defined three mile trail starting at the powerhouse on the Glacier Highway. The reservoir is fed by Salmon Creek which also forms the only outlet (over the spillway).

Barriers: There is a total fish block (falls) on the outlet stream only 1/8 mile above tidewater.

Species Present: Dolly Varden, brook trout.

Planting History: Date: 1927; number planted: 13,150 brook trout (Wadman, 1962). This plant was very successful and provides a good fishery. Wadman (1962) states a stomach analysis of sample brook trout revealed a predominance of Cladocera, Diptera, and Tricoptera.

Fishing History: Results from a voluntary report box located on the Salmon Creek Trail from May 22 to August 30, 1960 revealed:

Angling pressure: Total anglers - 86
Total angler hours - 425
Total catch - 687
Catch per angler hour - 1.61

Size Range: brook trout, 5-15 inches; average range, 7-10 inches. Information concerning residency, sex of licensee, as well as type of fishing was obtained (Baade, 1961). Although no other census records are availble, the lake receives moderately heavy fishing pressure during the summer months, and good ice fishing during the winter.

References: Anonymous, 1947, 1952b (Description)
Baade, 1960, 1961 (Fishing history)
Baade, 1962 (Species present)
Orth, 1967 (Location, description)
Wadman, 1962 (Description, planting)

Sheep Creek (111-40-28) Survey Date: 7/17/70

Location: Lat. 58°15'40" Long. 134°19'30" (4.5 miles SE of Juneau)

Description: Sheep Creek originates from an unnamed glacier. After flowing about three miles in a westerly direction and draining a watershed of about six square miles the stream empties into Gastineau Channel. It has a steep cascade falls about 200 yards from the mouth; and no further survey of the stream was conducted. The stream is crossed by the Thane Road just below the falls. There is good accessibility to the base of falls and intertidal area. The creek was named by Joe Juneau and Richard Harris in 1880, after they killed several mountain sheep near it (Orth, 1967).

Barriers: Total block in form of cascade falls about 200 yards from mouth of stream.

Species Present: Dolly Varden; pink and chum salmon; and sculpins.

Rearing Habitat:

Number of Areas: Only one pool in area surveyed.

Fish Observed: No rearing fish were seen.

Average Catch/Trap (n=1): Dolly Varden = 5.0

Evaluation: Rearing area in accessible section is poor. Only possible area is a fairly large pool below the falls; the remainder is riffle area and intertidal. No undercut banks or side channels are present.

Spawning Areas:

Salmon Counts: (On date of survey: adult salmon of unknown species were observed in pool below falls, few in number.)

Date	Fish Observed	Length of Survey
8/10/51	100 pink	0.2 miles
	700 chum	
7/29/53	0 pink	0.2 miles
	200 chum	
7/16/60	12 chum	
9/01/60	300 pink	
	many dead chum	
8/17/61	50 pink	
	50 chum	
8/17/62	3 pink	
	60 chum	
9/03/63	240 pink	
	18 chum	
1964	16 pink	
	6 chum	
9/08/66	550 pink	
8/30/67	200-300 chum	
8/14/68	840 pink	
	560 chum	
8/27/68	355 pink	
	25 chum	
8/26/69	692 pink	
	30 chum	

Evaluation: It has fair intertidal spawning for salmon on a gravel bar several hundred yards long. There is very limited spawning area in the remaining streambed.

Planting History: On 7/15/53, 2,000 brook trout fry were planted above the falls (Anon., 1953b). This plant was apparently a failure as there appears to be no brook trout present at this time.

Fishing History: According to Baade (1961), of a total of 1,407 fishermen checked in 1960, 17.5% of them were fishing in Sheep Creek; most were apparently in the lower sections below the falls. During 1968, 15 fishermen were checked, but no fish were caught. All were fishing below the falls. During the migration of the Dolly Varden, a moderate fishery does develop in the intertidal area. The stream also provides a fair fishery for resident Dolly Varden above the falls.

References: Anonymous, 1947 (Description)
Anonymous, 1953b (Planting)
Anonymous, 1968 (Chemical data)

Baade, 1960 (Species present)
Baade, 1961 (Fishing history)
Huizer, et. al., 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)
Wadman, 1962 (Description)

Shrine Creek Survey Date: 7/27/70

Location: Lat. 58°28'15" Long. 134°47'00" (18 miles NW of Juneau)

Description: Shrine Creek flows in a northwesterly direction for about two miles before emptying into Favorite Channel near the shrine at St. Terese. The water is brown color. The stream drains a watershed of approximately one square mile. There is a concrete dam about 100 yards from the beach used as a private water supply. About 1/2 mile from the mouth, a tributary enters the mainstream. This is a very small tributary crossing under the Glacier Highway just before joining the main stream. Just prior to crossing under the highway is a falls on the tributary which could be a block to fish. The main stream parallels the Glacier Highway on the beach side for about 1 1/2 miles. Fair accessibility progressively worsens as you walk upstream. About the 1 3/4 mile point, the survey was discontinued due to the large number of windfalls across the creek. The bank cover is dense and the streambed consists of medium gravel and sand. The creek derived its name from the Shrine of St. Terese located near its mouth.

Barriers: The water supply dam could be a block at low flows. Also, the numerous log jams could block at certain flows.

Species Present: Dolly Varden, cutthroat, coho salmon, cottids.

Rearing Habitat:

Number of Areas: Logs 104, sloughs 11, undercut banks 59, pools 115.

Fish Observed: (Poor conditions - brown water)

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
20	6	58	12	128	81

Average Catch/Trap (n=11): Dolly Varden = 5.18, coho = 3.0, cutthroat = 3.36, cottids = 0.09

Evaluation: The overall rearing potential of the stream is good. The numerous undercut banks and log jams, as well as anabranches and side channels, offer ample rearing area

throughout the entire length surveyed. The physical stream conditions continued beyond the end of the surveyed section. From sampled fish there appears to be a resident population of cutthroat in the system, (lengths 65-140 mm, ages III-V years) and also a possible anadromous Dolly Varden population (lengths 80-96 mm, ages II years).

Spawning Areas:

Salmon Counts: None available.

Evaluation: The spawning potential of the system appears to be fair in the lower reaches. Limited intertidal spawning exists. The 1/2-3/4 mile section has good spawning gravel; however, after the stream crosses the Glacier Highway, the bottom turns to silt, sand, and mud and has no further available spawning area.

Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Snowslide Creek Survey Date: 7/17/70

Location: Lat. 58°16'55" Long. 134°22'15" (2 miles SE of Juneau)

Description: Snowslide Creek drains the west side of Gastineau Peak and flows about one mile in a southwesterly direction to Gastineau Channel. The water is clear. The stream is crossed by the Thane Road near the falls. It was named in 1894 by Anton Liljestrand because of the frequent snowslides that occur in the area (Orth, 1967).

Barriers: Falls form total fish block at tidewater.

Species Present: Unknown

Rearing Habitat:

Number of Areas: None below falls. Not surveyed above.

Fish Observed: None

Average Catch/Trap: No traps set.

Evaluation: There was no rearing area below falls. Unknown about upper reaches.

Spawning Areas:

Salmon Counts: None available

Evaluation: There is possible limited intertidal spawning.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

Steep Creek (111-50-56) Survey Date: 7/30/70

Location: Lat. 58°25' Long. 134°34' (10 miles NW of Juneau)

Description: Steep Creek is located on the north side of Heintzleman Ridge and flows three miles in a northwesterly direction to Mendenhall Lake. The water is clear and the stream has an average width of 5 1/2 feet and an average depth of 1 1/2 feet. The lower sections of the stream are crossed by the Mendenhall Glacier Road. Access status is open as the stream lies entirely within the National Forest. A 12 foot falls and total barrier is located about 500 yards from the stream mouth. The survey was not continued beyond the falls. The streambed consists of medium gravel and bank cover varies from light to medium. An anabranch about 400 yards from the mouth is about 200 yards long. The creek has been closed to salmon fishing since 1962.

Barriers: The 12 foot falls upstream is a probable fish block.

Species Present: Dolly Varden; pink, coho, and red salmon.

Rearing Habitat:

Number of Areas: Logs 0, sloughs 0, undercut banks 6, pools 7.

Fish Observed:

Unknown	
Fry	Fingerling
93	8

Average Catch/Trap (n=4): Dolly Varden = 0.5, coho = 0.5

Evaluation: Rearing potential for the surveyed section appears to be good. There are numerous pools and undercut banks. Additional area is located in the anabranch.

Spawning Areas: (On day of survey, 857 reds were observed.)

Salmon Counts:

Date	Fish Observed	Length of Survey
7/15/51	15 red	300 yards
8/08/51	250 chum	300 yards
	300 red	
8/09/51	75 chum	300 yards
	150 red	
8/02/52	100 chum	1/4 mile
	300 red	
8/01/53	10 chum	400 yards
	50 red	
8/14/53	75 red	300 yards
8/28/53	No fish	
7/20/54	9 red	
8/17/54	165 red	
1956	200 pink	
7/16/60	No fish	
8/07/62	1000 red	
8/19/62	316 red	
1963	No survey	
1964	1000 red	
7/22/66	several thousand red	
7/29/66	218 red	
1967	No survey	
8/09/68	500 red	1/2 mile
7/27/69	900 red	
	4 chum	
8/02/69	750 red	

Evaluation: It has fair to good spawning areas from mouth of creek to falls. There are numerous riffle areas with gravel ranging in size from medium to large.

Planting History: None known

Fishing History: Unknown

References:
Anonymous, 1968 (Chemical data)
Huizer, et. al., 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Switzer Creek (111-40-07) Survey Date: 7/20/70

Location: Lat. 58°21'45" Long. 134°30'10" (5 miles NW of Juneau)

Description: Switzer Creek is a relatively small stream about one mile in length (average width of 3 feet and depth of 2 1/2 feet). It drains a watershed of about 3/4 square miles and meanders across a large tidal area before emptying into Gastineau Channel. The water is clear and the current is generally moderate. The stream is crossed by the Glacier Highway just above the intertidal area. The first approximate 1/4 mile is intertidal area. The stream meanders through this area, with a gravel bottom for most parts, and large pools inter-dispersed throughout. The banks are mud with a heavy grass cover. After crossing under the highway, the stream winds through an open meadow area for about another 1/4 mile. In this section the stream is slough-like with mud banks heavily covered with grass. The bottom is mainly silt with small areas of gravel. About 3/8 miles from the mouth, a tributary is encountered. This fork originates in a wooded area and has a barrier falls about 3/8 mile from its mouth. After winding through the meadow area, Switzer Creek enters the woods about 1/2 mile from its mouth. Just as the creek enters the woods, a large pond about 5-8 feet deep and about 35' x 80' in size is encountered. The stream continues through the wooded area for about 1/4 mile. The creek originates in a fairly large marsh pond located in a logged area. In general, the stream is very accessible. Access status to the meadow section is limited due to private property bordering the creek. Switzer Creek has been closed to salmon fishing since 1962. A second small tributary was encountered about 1/2 mile from the mouth, but it was not surveyed.

Barriers: None on main stream.

Species Present: Dolly Varden, cutthroat trout, coho and chum salmon, cottid.

Rearing Habitat:

Number of Areas: Logs 39; sloughs, numerous; undercut banks 11; pools, numerous.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
17	6	27	5	15	15

Throughout much of the meadow area, the stream was too deep for good viewing (also bottom was dark mud).

Average Catch/Trap (n=9): Dolly Varden = 8.22, cutthroat = 0.1, coho = 3.0, cottid = 0.2

Evaluation: The overall rearing potential of the system is excellent for its size. The numerous pools and undercut banks in the slough areas offer fine rearing areas. However, the rearing potential of this stream is very critical due to the type of banks. Since they are predominantly mud, they are very susceptible to cave-in and any development near the stream could very possibly affect the rearing potential.

Spawning Habitat:

Salmon Counts:	Date	Fish Observed
	8/15/68	1 unknown dead
	5/25-26-27/69	Many at mouth

Evaluation: The system has spawning potential. The large intertidal area offers numerous spawning sites, and the main stream as well as tributaries have numerous spawning riffle areas above the wooded section.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1968 (Chemical data)
Anonymous, 1971 (Salmon counts)
McConaghy, 1969 (Hydrologic data, location)

Tee Creek Survey Date: 8/14/70

Location: Lat. 58°23'45" Long. 134°44'45" (15 miles NW of Juneau)

Description: Tee Creek flows for about one mile draining a watershed of about 1/4 square mile before emptying into Tee Harbor. The water is dark brown in color. The stream is crossed by the Glacier Highway at tidewater resulting in approximately a 20-foot vertical drop out of a culvert. Above the culvert is a falls about 20 feet in height. The creek was not surveyed above the falls. The creek derives its name from Tee Harbor (Orth, 1967).

Barriers: The vertical drop from the culvert under the Glacier Highway forms a block at tidewater. The falls above the culvert are also a block.

Species Present: Unknown

Rearing Habitat: The section to the culvert had no rearing areas. The upper sections of the stream are unknown.

Spawning Areas: Very little spawning potential is available. There is only about 40 feet of possible intertidal area and none in the main creek up to the barrier falls.

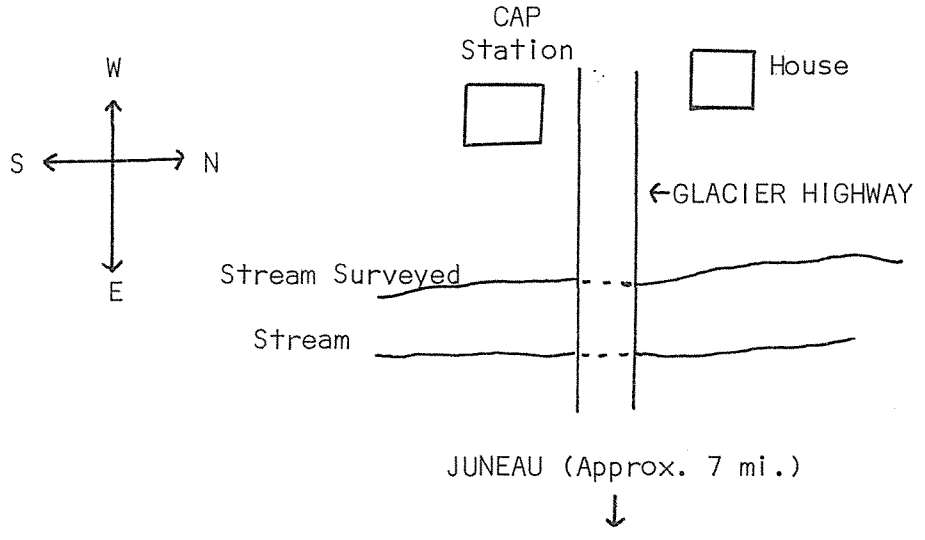
Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Unnamed Survey Date: 8/17/70

Location: (Just east of C.A.P. Station on Glacier Highway 7 miles N of Juneau)



Description: This small (4-foot wide, 6-inch deep) clear water stream flows in an easterly direction draining the south side of Heintzleman Ridge before emptying into Gastineau Channel just east of Sunny Point. The lower reaches of the stream are very shallow and flow through about 1/8 mile of grassland area. At the 1/8-mile point upstream above the mouth the creek flows through a culvert under the Glacier Highway. Shortly after the culvert, the creek enters a wooded area and the banks become very brushy limiting access. For about the next 1/4-mile (until the 1/2-mile point) is a large clearing on the right bank and numerous trees have been felled across the stream. About 1/2 mile from the mouth, a man-made raceway and coffer dam was en-

countered. At this point the stream commences "stair-stepping" up the hillside and the bottom is primarily exposed slate. A fair trail commences at a wooden bridge located about 1/2 mile above the mouth and parallels the stream for about 1/4 mile. The gradient continues to increase and the stream flows over numerous falls and log jams. The stream banks turn into canyon walls with many windfalls. One small insignificant tributary was encountered.

Barriers: Numerous log jams and the man-made barrier could be possible blocks at low flows. A 5 foot falls without a pool at the base is located about 3/4 mile upstream and is a probable fish block.

Species Present: Dolly Varden

Rearing Habitat:

Number of Areas: Logs 0; sloughs 0; undercut banks 0; pools, few, too small.

Fish Observed: 21 unknown fry.

Average Catch/Trap (n=4): Dolly Varden = 1.33

Evaluation: Rearing potential for system is nill. No sloughs or undercut banks are present to offer protected rearing areas. Also the few pools observed were too small for rearing.

Spawning Areas:

Salmon Counts: None available.

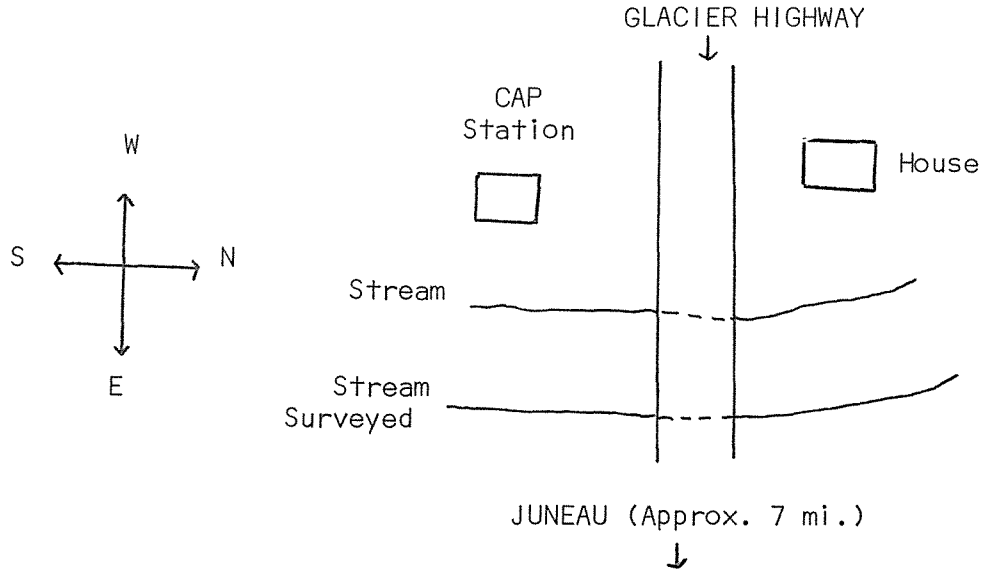
Evaluation: Spawning area is limited to the intertidal area and lower reaches of stream. Spawning potential in these areas is considered fair to good. The stream gravel is replaced by exposed slate farther upstream.

Planting History: None known

Fishing History: Unknown

Unnamed Survey Date: 8/19/70

Location: (Just east of C.A.P. Station on Glacier Highway 7 miles out of Juneau - see diagram.)



Description: This relatively small (average width 5-6 feet, average depth 2-8 inches) stream flows in a generally easterly direction, draining the south face of Heintzleman Ridge before emptying into Gastineau Channel just east of Sunny Point. In the lower reaches (0-1/4 mile) the stream is fairly swift running with many logs indiscriminately felled across the creek. A private road has been built across the streambed. The stream enters the National Forest between 1/4-1/2 mile above its mouth. The gradient increases with many small pools at the base of small falls. As the stream continues, the gradient continues to increase, with many stair-step falls, riffle areas, and large boulders. The water is clear. Access status is limited as the lower reaches appear to be bordered by land under private ownership.

Barriers: A possible fish block occurs 3/4 mile upstream in the form of a 4 1/2 foot falls, with no pool at its base.

Species Present: Dolly Varden, coho salmon.

Rearing Habitat:

Number of Areas: Logs 20+, slough 0, undercut banks 3, pools 16+.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
0	2	0	3	2	5

Average Catch/Trap (n=4): Dolly Varden = 6.0, coho = 1.25

Evaluation: The lower areas offer poor rearing due to swift current and lack of protected areas. Rearing areas increase slightly farther upstream as more pools and undercut banks become available. Most logs observed did not offer rearing areas, and overall rearing potential would probably be poor.

Spawning Areas:

Salmon Counts: None available

Evaluation: Spawning potential would be poor with possibly intertidal areas.

Planting History: None known

Fishing History: Unknown

Unnamed (Lake Two Creek) Survey Date: 7/15/70

Location: Located just east of Lake Creek (10 miles NW of Juneau).

Description: This unnamed creek is a short distance east of Lake Creek and is crossed by the Mendenhall Loop Road. The name Lake Two Creek was used by Bucaria (1968) in his study of Auke Lake. Lake Two Creek is a small creek averaging 4 feet wide and 4-6 inches deep. The water is slightly brown in color. The first 100 yards of the stream is bordered by private property on both sides and the bank cover is extremely dense. The Loop Road crosses the stream about 100 yards from its mouth. At about 1/8 mile there is a man-made slough and private water supply source. The bank cover thins slightly as the stream enters the wooded area. About 1/4 mile upstream is a large clearing for some type of development. As a result of this clearing, trees have been indiscriminately felled across the stream channel. Most of the streambed consists of large to small gravel. There was only one tributary, a very small and perhaps seasonal one, about 5/8 mile upstream.

Barriers: There are no certain barriers but two log jams, at 3/4 mile and 7/8 mile, are probable blocks.

Species Present: Dolly Varden, cutthroat trout, pink and red salmon.

Rearing Habitat:

Number of Areas: Logs 31, sloughs 12, undercut banks 26, pools 26.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
38	0	78	2	213	0

Viewing conditions were poor due to the dark brown color of water.

Average Catch/Trap (n=6): Dolly Varden = 9.2, coho = 7.8, cutthroat = 0.2

Evaluation: The overall rearing potential for this creek is excellent. The slow current, added to the numerous undercut banks and logs, creates excellent rearing conditions throughout the length of the stream for both Dolly Varden and coho.

Spawning Areas:

Salmon Counts:

Date	Fish Observed	
1963	100 red	(Bucaria, 1968)
1964	17 red	(Bucaria, 1968)

Evaluation: There is fair spawning in the lower reaches of the creek for red salmon (Bucaria, 1968). The entire length of the surveyed stream could probably be utilized by Dolly Varden and coho, as there is good spawning gravel throughout.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1952b (Description)
Bailey, 1971 (Salmon info.)
Bucaria, 1968 (Location, salmon counts)

Unnamed (111-40-42) Survey Date: 8/21/70
(Vanderbilt Creek)

Location: Lat. 58°20'43" Long. 134°29'48" (5 miles NW of Juneau)

Description: This creek flows around the north side of Vanderbilt Hill and empties into Gastineau Channel. The stream meanders through a grass covered intertidal flatlands for about 1/8 mile. The Glacier Highway crosses just above the high tide mark. A tributary crossing

under the highway is subjected to possible pollution discharge from the motel and church located on both banks. The main stream continues on for about 1/4 mile, becoming progressively smaller, until it finally becomes braided and terminates in a marshy area. A second tributary enters at about 3/8 mile upstream. This tributary is very small and insignificant. Accessibility up the stream is good; however, private land borders the lower sections. The stream derived its name from John W. Vanderbilt who lived in the vicinity and was a watchman for one of the mining claims on Lemon Creek (Orth, 1967).

Barriers: None

Species Present: Dolly Varden, coho salmon.

Rearing Habitat:

Number of Areas: Most of the stream surveyed would make good rearing areas.

Fish Observed:

Dolly Varden		Coho		Unknown	
Fry	Fingerling	Fry	Fingerling	Fry	Fingerling
3	0	0	0	10	10

Average Catch/Trap (n=4): Dolly Varden = 1.75, coho = 5.50

Evaluation: The entire length of the stream offers rearing area. Numerous undercut banks and slow current areas offers rearing areas for coho and Dolly Varden.

Spawning Areas:

Salmon Counts: None available.

Evaluation: Fair spawning areas are present in the intertidal areas. The areas are limited in the main stream above the bridge.

Planting History: None known

Fishing History: Unknown

References: McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Information on Vanderbilt Hill)

Wadleigh Creek (111-50-37) Survey Date: 7/21/70
(Waydelich Creek)

Location: Lat. 58°23'00" Long. 134°39'15" (10 miles NW of Juneau)

Description: Wadleigh Creek flows in a southeasterly direction for about two miles before emptying into Auke Bay. There is a falls about 50 feet above tidewater. The Glacier Highway crosses the stream just above the falls. The water is clear and there is good bank cover. Below the highway the streambed is mainly exposed slate. The stream was not surveyed above the highway due to the fish block. This stream has been closed to salmon fishing since 1962. It is named after John W. Waydelich, one of the first white settlers in the Auke Bay area (Orth, 1967).

Barriers: There is a fish block falls about 50 feet from tidewater.

Species Present: Brook trout, pink salmon, chum salmon.

Rearing Habitat: The section surveyed offers no rearing areas. The section consists of a short canyon-like area which terminates at the top of the falls. The rearing potential of the stream above the highway is unknown.

Spawning Areas:

Salmon Counts: (All in intertidal area below falls)

Date	Fish Observed
9/06/64	100 pinks
	24 chum
1967	Not surveyed
8/27/68	22 pink
	17 chum
8/25/69	4 chum

Evaluation: Fair to good intertidal spawning is present below the falls.

Planting History: 6/20/53 - 500 brook trout (Anon., 1953b).

Fishing History: Unknown

References:
Anonymous, 1953b (Plantings)
Anonymous, 1971 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

Windfall Lake Survey Date: Not Surveyed

Location: Lat. 58°30'40" Long. 134°44'00" (18 miles NW of Juneau)

Description: Windfall Lake is located on Windfall Creek about one mile above its mouth. Windfall Creek is a tributary of Herbert River. The lake is about 0.8 miles long and about 35 feet deep and located at the 89 foot elevation. The surrounding area is predominantly timber. There are two inlets, both have gravel bottoms and brushy bank cover. The outlet has a fairly gentle flow with numerous riffles and pool areas. The lake is easily accessible via a well defined trail starting at the end of the Herbert River Road. The lake is located within the National Forest and has open access. The lake derived its name from Windfall Creek which was named on mining records of 1891 (Orth, 1967).

Barriers: There are no barriers on either the inlet or outlet streams.

Species Present: Dolly Varden; cutthroat trout; pink, chum, red, and coho salmon; stickleback; cottids.

Rearing Habitat: The lake is a major wintering area for anadromous Dolly Varden, as well as a rearing area for coho and red salmon.

Spawning Areas:

Salmon Counts:	Date	Fish Observed
	7/14/68	2,000 red

Evaluation: Fair to good spawning areas are available in the main inlet creek of the lake.

Planting History: None known

Fishing History: Windfall Lake receives fairly heavy fishing pressure from the Juneau area during the summer months. A fair ice fishery is also available on the lake.

References: Anonymous, 1971 (Salmon Counts)
Cramer, 1964 (State land selections)
Orth, 1967 (Location, historical data)
Wilding, 1939 (Description)

Addendum

In late September 1971, an extension of the Glacier Highway north of Juneau was opened to the public. In an effort to make the road system survey as complete as possible, the streams in this new section of road are included. There were a few small, unnamed streams which were not surveyed, but these had either intertidal blocks, or were extremely small (2-6 inches wide) and probably seasonally intermittent.

Bessie Creek (115-10-28) Survey Date: 9/28/71

Location: Lat. 58°35'30" Long. 134°54'00" (26 miles NW of Juneau)

Description: Bessie Creek flows in a westerly direction for about three miles to Yankee Cove. The creek averages between 10-15 feet wide and 6-20 inches in depth. The water is clear and the bottom consists of large gravel and rocks. The creek is crossed by the highway about 1/8 mile from its mouth. Access status is open as the creek lies within National Forest lands. There is good bank cover, however, there is easy accessibility down the creek banks. The mouth is surrounded by a gravel beach which could offer recreation. There are remains of an old stamping mill, which was associated with the Bessie Mine, located on the beach. The area from the mouth to the falls just above the road was included in the survey, and the entire area offered good fishing potential. There were no tributaries encountered.

The creek probably derived its name from the Bessie Mine which is located near it, (Orth, 1967).

Barriers: Falls, which form total block, are located about 1/8 mile from the mouth.

Species Present: Dolly Varden

Rearing Habitat:

Number of Areas: Logs 3, sloughs 0, undercut banks 3, pools 8.

Fish Observed: None

Average Catch/Trap (n=2): Dolly Varden = 2

Evaluation: Overall rearing potential is fair but limited in the section surveyed. Although there are numerous pool areas, they tend to be in exposed areas and were considered only fair rearing areas.

Spawning Area:

Salmon Counts: None available.

Evaluation: The spawning area is poor and limited to possible intertidal areas. There is little, if any, spawning in the main stream.

Planting History: None known

Fishing History: Unknown

References: Anonymous, 1971 (General info.)
McConaghy, 1968 (Hydrologic data)
Orth, 1967 (Location, historical data)

Cowee Creek (115-20-62) Survey Date: 9/30/71

Location: Lat. 58°38'50" Long. 134°54'30" (30 miles NW of Juneau)

Description: Cowee Creek heads in a small unnamed glacier and flows in a westerly direction about eight miles to the south end of Berner's Bay. It drains a watershed of approximately forty-six square miles. The stream averages 45-50 feet wide and varies in depth from 2 to 3 feet, and the water is glacial. The bank cover is good and there is a well defined trail paralleling the stream which commences at the highway crossing about 2 miles upstream from the mouth. There is an extensive grass flat at the mouth, however, much of this is under private ownership. Due to the large size of the system only that section from the mouth to Davies Creek (about 2 1/4 miles upstream) was surveyed. The entire surveyed section offered excellent fishing potential and only one tributary (besides Davies Creek) was encountered. This unnamed tributary is treated separately. The creek was named in honor of Chief Kowee of the Auk Tlingit Indians. See Kowee Creek, (Orth, 1967).

Barriers: None

Species Present: Dolly Varden; cutthroat trout; coho, chum and pink salmon; and cottids.

Rearing Habitat:

Number of Areas: Logs 0; sloughs 0; undercut banks, few; pools, deep and numerous.

Fish Observed: Rearing fish were observed in side channel areas, however, view conditions were poor due to glacial silt in the stream.

Average Catch/Trap (n=1): Dolly Varden = 10, Coho salmon = 11, and cottids = 4.

Evaluation: Due to the characteristics and size of the system, it appears most of the rearing is limited to side channels and back eddy areas of the main stream.

Spawning Areas:

Salmon counts:	Date	Fish Observed	Length of Survey
	8/26/49	32 pink 400 chum	2.0 miles
	8/26/50	17 pink 300 chum	
	8/28/59	100 chum	
	8/22/60	Fish present	
	10/6/60	No Fish	
	9/4/61	No Fish	
	10/11/61	No Fish	
	9/6/62	No Fish	
	10/11/62	1200 chum	
	8/21/63	8 chum	
	9/30/64	No Fish	
	8/10/65	No Fish	
	9/2/66	No Fish	
	8/7/69	No Fish	1.5 miles

Date	Fish Observed	Length of Survey
8/24/69	No fish	2.5 miles
10/14/69	7 chum	2.5 miles
10/23/69	No fish	2.5 miles
8/13/70	No fish	2.5 miles

Evanuation: The overall spawning potential of Cowee Creek would be rated poor (Huizer, et. al., 1970). The bottom consists of sand and exposed slate which limits the suitable spawning area. Some chum spawning occurs approximately 1/2 to 3/4 mile from the mouth, however, these areas are limited (Anon., 1971). The predominate coho spawning areas appear to be located in the upper reaches of Davies Creek, and possibly the headwater areas of Cowee Creek and its various branches.

Planting History: None known

Fishing History: Unknown, however since the opening of the new section of road Cowee Creek has been heavily utilized by fishermen.

References: Anonymous, 1947 (Description)
Anonymous, 1968 (Chemical data)
Anonymous, 1971 (Salmon counts)
Huizer, et. al., 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location, historical data)

Davies Creek (115-20-63) Survey Date: 9/30/71

Location: Lat. 58°38'50" Long. 134°54'30" (30 miles NW of Juneau)

Description: Davies Creek originates in a small, unnamed glacier and flows approximately five miles in a southwesterly direction to its confluence with Cowee Creek. The creek drains a watershed of about eighteen square miles and averages 25 feet wide and 18 to 30 inches deep, and the water is glacial. The bank cover is good and there is easy access, to the upper reaches of the creek, via a road which was constructed for test drilling of a possible dam site to supply water to the proposed pulp mill on Berner's Bay. The road commences at the end of the main highway at Echo Cove, and crosses Davies Creek about 2 miles above its mouth. Access on the road is by foot only. There is excellent fishing areas from the proposed dam site downstream to the mouth. Although the area above the dam site was not surveyed it appeared to open out into a large bowl-like valley which would pro-

bably offer good fishing. About 1/4 mile above the mouth, there is a second bridge crossing, and that road also originates on the main highway. The stream is a typical high mountain stream characterized by large boulders and large pools with a fairly rapid flow. The bottom consists of fine to coarse gravel and some sand. There were four small tributaries encountered during the survey, none of which offered any fishing potential.

Barriers: None

Species Present: Dolly Varden; cutthroat trout; pink, chum and coho salmon.

Rearing Habitat:

Number of Areas: Logs, few; sloughs 0; undercut banks 0; pools, deep and numerous.

Fish Observed: Numerous rearing fish were observed in the side channels of the main stream. Accurate enumeration was not possible due to the glacial water.

Average Catch/Trap (n=1): No fish.

Evaluation: Due to the rapid flow and numerous large rocks present in the stream, it appears most rearing areas would be restricted to side channels of the main stream. There is possible additional rearing areas in the unsurveyed section upstream of the dam site.

Spawning Areas:

Salmon Counts:

Date	Fish Observed	Length of Survey
8/26/49	2 pinks	0.5 miles
	50 chum	
10/21/69	69 coho	

Evaluation: The spawning areas of Davies Creek would be rated good (Huizer, et. al., 1970). However, the chum and pink spawning appears to be limited to the lower one mile of the stream, while the majority of the coho spawning occurs upstream of the dam site.

Planting History: None known

Fishing History: Unknown, however, this stream will undoubtedly receive heavy fishing pressure in the near future due to its easy access via the new section of highway.

References: Anonymous, 1947 (Description)
Anonymous, 1968 (Chemical data)
Anonymous, 1971 (Salmon counts)
Huizer, et. al., 1970 (Salmon counts)
McConaghy, 1969 (Hydrologic data)
Orth, 1967 (Location)

Unnamed (Tributary to Cowee Creek) Survey Date: 9/29/71

Location: (About 29 miles NW of Juneau)

Description: This stream flows in a westerly direction for about 3 miles to its confluence with Cowee Creek. The creek averages 3-4 feet wide and 2 feet deep. The water is dark brown color and there is a heavy silt cover on the bottom. The upper 2 1/2 miles consist of a swampy slough-like area with little current. The banks are heavily covered with devil's club. There are numerous branches in the creek, and the fishing potential is considered nil. The lower 1/2 mile of the creek offers slightly better fishing conditions, however, there is a heavy algae growth on the rocks. The survey was conducted from the mouth to just above the highway crossing, (a distance of about 2 1/4 miles) where the stream braids out into a swamp-like muskeg. No tributaries were encountered.

Barriers: None

Species Present: Dolly Varden, coho salmon.

Rearing Habitat:

Number of Areas: Logs 0; sloughs, numerous but silt laden; undercut banks 0; pools, few.

Fish Observed: Dolly Varden, 1 fry; coho, 35 fingerlings.

Average Catch/Trap (n=1): No fish.

Evaluation: The overall rearing potential of this stream is poor. The only areas available for rearing would be in the lower mile of the stream as the upper two miles consist of nearly stagnant, swampy slough areas.

Spawning Areas:

Salmon Counts: None available.

Evaluation: Spawning areas are extremely limited. The only area of available gravel is at the mouth for a distance of only a few hundred feet. This area has a high algae growth which could restrict spawning.

Planting History: None known.

Fishing History: Unknown

References: None

Unnamed (115-10-23) Survey Date: 9/28/71

Location: (About 29 miles NW of Juneau)

Description: This relatively small, unnamed stream flows in a northwesterly direction for about three miles and empties into the south end of Bridget Cove. The stream averages 5 to 6 feet wide, 18 inches deep, and the water is clear.

There is excellent access from the road crossing to the mouth (about 1/4 mile) via a trail which parallels the creek. This trail starts from the road about 200 yards north of the stream crossing. The lower area is open and offers good fishing potential. The area above the road offers fair fishing potential for about 1/4 mile, heavy brush limits streamside accessibility. There is good bank cover throughout the area surveyed (about 2 1/2 miles) and no tributaries were encountered. At the point where the survey was discontinued the stream was stair-stepping up a fairly steep hillside.

Barriers: None

Species Present: Coho salmon.

Rearing Habitat:

Number of Areas: Logs, numerous; sloughs 0; undercut banks, numerous; pools, numerous.

Fish Observed: Coho fingerlings, 30.

Average Catch/Trap (n=1): Coho salmon = 8

Evaluation: The lower 1/4 mile of stream from the road to the mouth offers good rearing areas, with numerous logs, undercut banks and pools. However, after about 1/4 mile above the road the rearing area diminishes as the stream starts stair-stepping. There were no fish observed above the 1/4 mile point above the road.

Spawning Areas:

Salmon Counts: None available.

Evaluation: The only evident spawning area was in the intertidal zone; this area was considered fair to good. The remainder of the stream contains a limited amount of spawning area.

Planting History: None known.

Fishing History: Unknown. There was evidence of recent activity in the section below the road.

References: Anonymous, 1971 (General info.)

AUKE LAKE EVALUATION

Numbers of Fish in The Auke Lake System:

Dolly Varden

A total of 6,215 out-migrant sea-run Dolly Varden were counted at the Auke Creek weir in 1970. This out-migration began in mid-March, peaked from early to mid-May, and ended in early June (Figure 3). Approximately 3,000 of these fish were from 10-20 inches in fork length (Figure 4).

Only 128 of the Dolly Varden out-migrants were considered to be smolts produced from the Auke Lake system; however, based on the length frequency of Dolly Varden smolt enumerated elsewhere (Armstrong, 1970) an estimated maximum of 400 of the out-migrants may have been smolts.

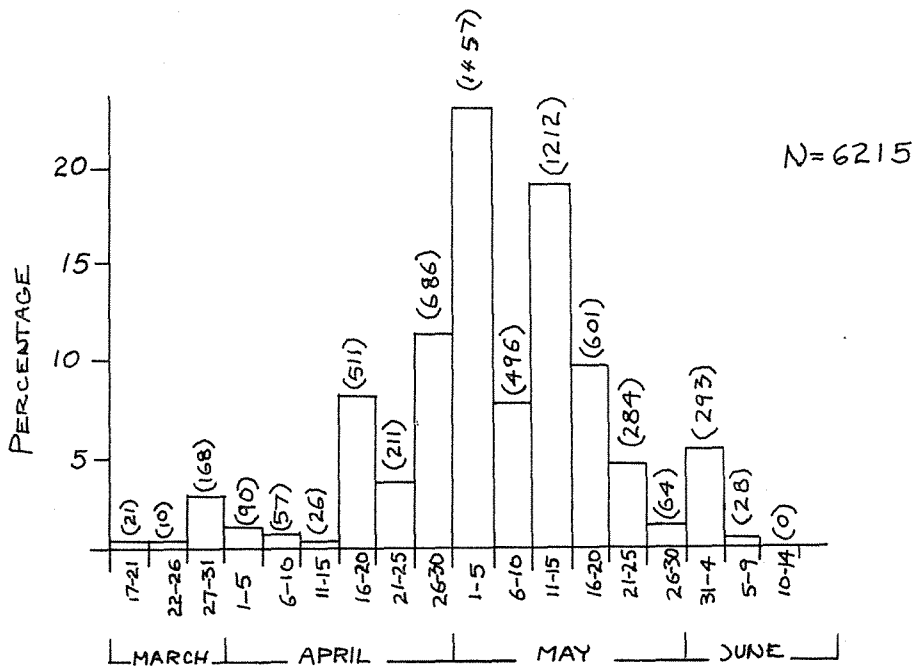


FIGURE 3 PERCENTAGE AND NUMBER OF DOLLY VARDEN LEAVING AUKE LAKE DURING 1970 BY FIVE DAY INTERVALS.

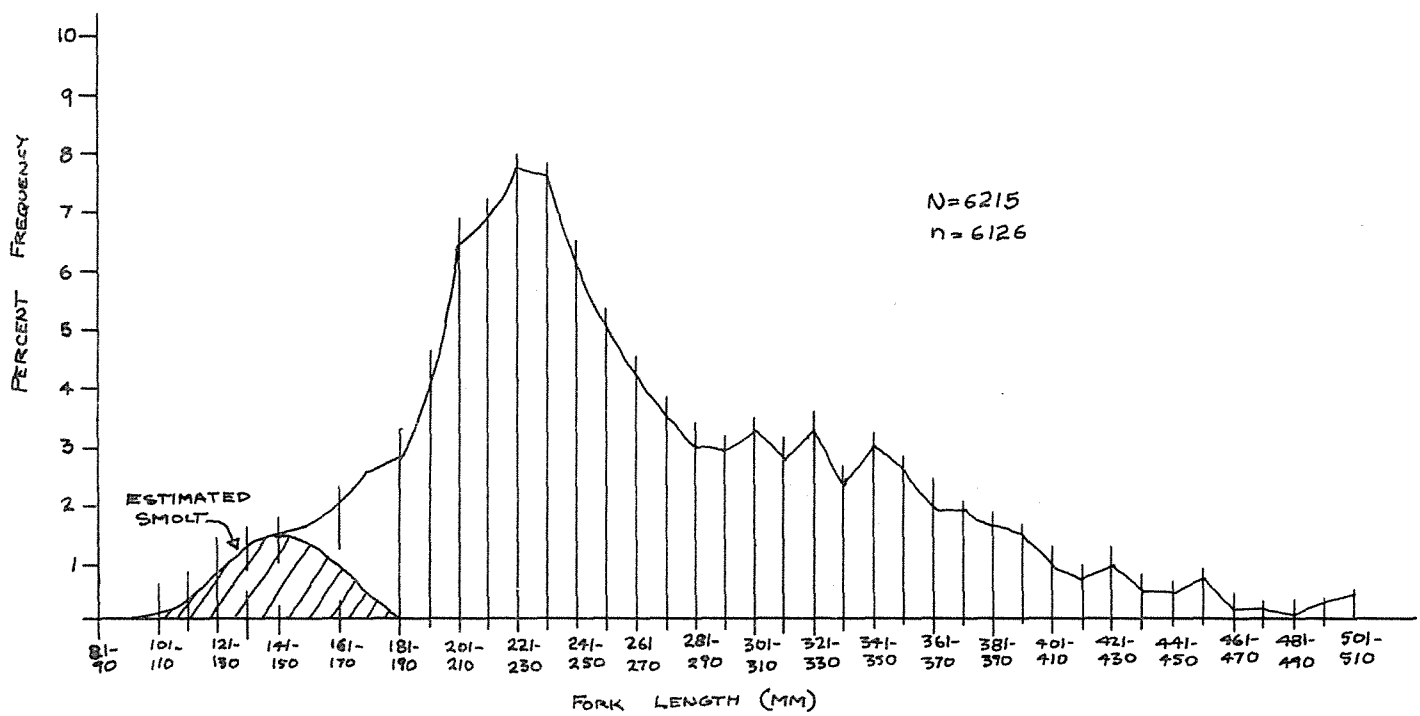


FIGURE 4 LENGTH FREQUENCY OF DOLLY VARDEN ENUMERATED AT AUKE CREEK, 1970

Cutthroat Trout

Both sea-run and non-migratory cutthroat occur in the Auke Lake system.

The sea-run population is probably small, as only 88 were counted out of the system in 1970. These fish ranged from 9-21 inches in fork length. About 50% of the run was from 12-21 inches. No distinct timing peak was noted. The cutthroat left the system in small numbers from mid-March to mid-June.

The number of non-migratory cutthroat in Auke Lake is unknown. Gill nets set in the lake on June 18 caught 10 cutthroat. These fish ranged from 9-13 inches in fork length. Stomach contents of these 10 fish consisted of salmon fry and stickleback. Age of the sampled fish ranged from IV - VII years.

A small population of cutthroat may reside throughout their life in the main inlet stream. Some 7-9 inch cutthroat were observed in the larger pools on May 7.

Sockeye

Average annual escapements of sockeye into the Auke Lake system have been about 7,000 adults. Counts over the last eight years have ranged from 5,465 to 10,986 (Bailey, 1971).

The adult sockeye arrive in Auke Bay in late May or in June and move into Auke Lake in June and July (Bailey, 1971). During some years, they remain in Auke Bay for several weeks and move into the lake in late July (Table 1).

Coho

Approximately 300 adult coho are estimated to be the annual escapement into the Auke Lake system (Anon., ?). Coho smolts at the weir in 1970 numbered 4,625.

A small sample (n=29) of smolts taken at the weir were from age groups I (4%), II (24%), III (55%), and IV (17%). Most of the smolts were between 90-160 mm in fork length (Figure 5).

The smolts began leaving Auke Creek in early May, peaked from mid- to late May, and ended by mid-June (Figure 6).

TABLE 1 Counts of adult sockeye salmon (both sexes) entering Auke Creek weir during spawning migrations, 1963-70 (from Bailey, 1971).

Date	Number of fish	Date	Number of fish	Date	Number of fish	Date	Number of fish
1963		1964		1965[1/]		1966	
6/24	142	6/11	3	7/30	505	6/27	31
6/25	43	6/12	6	8/12	3,046	6/28	54
6/26	196	6/14	283	8/20	2,949	6/29	25
6/30	54	6/16	58	9/1	389	7/2	1
7/1	71	6/17	300	Total		7/3	9
7/2	10	6/18	25	Count	6,889	7/4	1
7/3	950	6/19	102			7/8	1,581
7/4	804	6/20	274			7/19	7,079
7/5	554	6/21	381			7/20	540
7/6	76	6/22	231			7/21	324
7/7	6	6/23	11			7/22	45
7/8	1	6/24	78			7/23	15
7/10	4	6/25	140			7/26	-17
7/11	2	6/26	798			7/28	145
7/12	2	6/27	639			7/29	195
7/17	1,318	6/28	114			7/30	361
7/18	2,043	6/29	114			7/31	138
7/19	115	6/30	212			8/1	9
7/22	2	7/1	107			8/3	60
Total		7/2	46			8/8	105
Count	6,391	7/3	482			8/12	38
		7/4	269			8/15	20
		7/5	99			8/16	20
		7/6	134			8/17	13
		7/7	116			8/18	3
		7/8	5			8/19	34
		7/10	3			8/20	10
		7/13	7			8/22	8
		7/15	116			8/23	65
		7/16	6			8/25	1
		7/17	5			8/26	1
		7/18	118			8/27	1
		7/22	2			9/4	10
		7/24	45			9/6	1
		7/27	22			9/9	2
		7/28	46			9/12	1
		7/29	31			9/14	1
		Total				Total	
		Count	5,465			Count	10,936
						Est. [2/]	
						Count	10,986

TABLE 1 (Cont.) Counts of adult sockeye salmon (both sexes) entering Auke Creek weir during spawning migrations, 1963-70 (from Bailey, 1971).

Date	Number of fish	Date	Number of fish	Date	Number of fish	Date	Number of fish
1967		1968		1969		1970	
6/13	36	7/27	1	7/8	5,158	5/11	1
6/15	49	7/28	6,853	7/9	164	6/25	230
6/19	27	7/29	279	7/10	355	6/26	54
6/22	1	7/30	13	7/11	114	6/27	17
6/28	183	7/31	2	7/12	85	6/28	6
6/29	49	8/1	3	7/13	20	6/29	34
6/30	15	8/2	5	7/14	63	7/4	3,518
7/8	18	8/30	1	7/15	28	7/5	1,072
7/11	5	8/31	5	7/16	20	7/6	1,460
7/16	2	9/1	1	7/17	6	7/7	112
7/17	44	9/2	1	7/18	6	7/8	185
7/18	47	Total		7/19	9	7/9	20
7/19	80	Count	7,164	7/20	10	7/10	26
7/20	3			7/21	8	Total	
7/21	43			7/22	12	Count	6,734
7/22	184			7/23	2		
7/23	101			7/24	8	Est. 2/	
7/24	104			7/25	5	Count	7,034
7/25	23			7/26	40		
7/26	7			7/31	15		
7/27	4,104			8/8	1		
7/28	278			8/9	2		
7/29	56			Total			
7/30	18			Count	6,131		
8/8	3						
8/9	3						
8/10	2						
8/11	61						
8/13	17						
8/19	4						
8/20	42						
8/21	233						
8/22	6						
8/25	8						
9/5	5						
9/6	5						
9/7	2						
9/8	1						
9/9	13						
9/10	9						
9/11	2						
9/15	16						
Total Count	5,909						

1/ Spawning ground counts.

2/ Estimated counts include estimates of number of fish escaping uncounted.

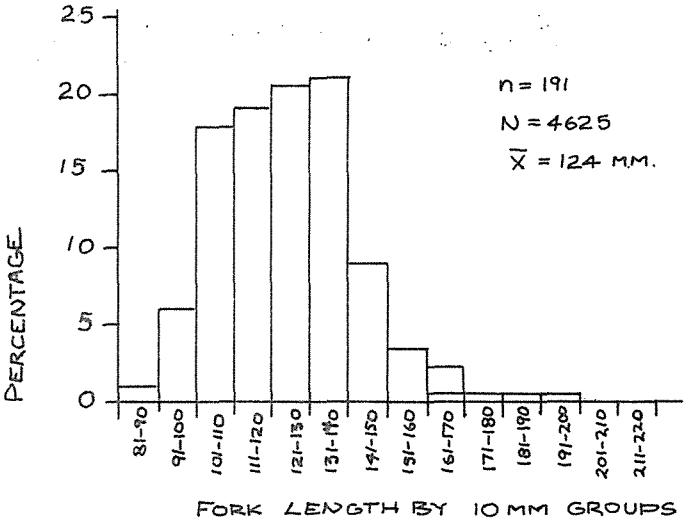


FIGURE 5 PERCENT LENGTH FREQUENCY OF COHO SMOLTS ENUMERATED AT AUKE CREEK WEIR DURING 1970 MIGRATION PERIOD.

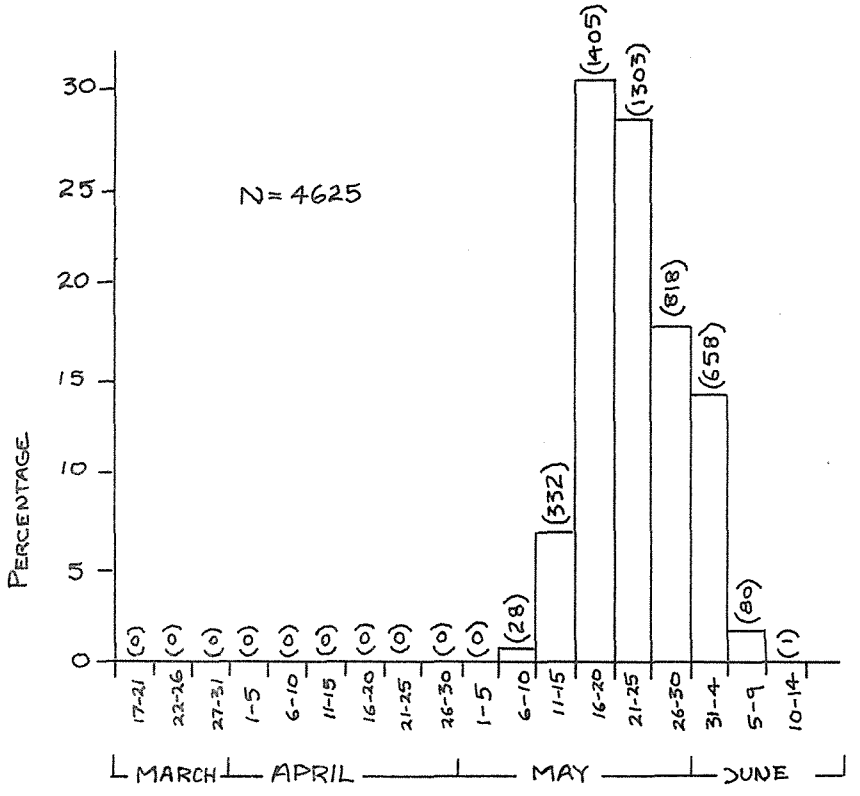


FIGURE 6 PERCENTAGE AND NUMBERS OF COHO LEAVING AUKE LAKE DURING 1970 BY FIVE DAY INTERVALS.

Pink and Chum Salmon

Pink salmon spawn intertidally in Auke Creek and also use the area upstream near the lake; a few spawn in Lake Creek, the major tributary (Bucaria, 1968). Small numbers of chum salmon have been observed to spawn below the lake in Auke Creek and in the intertidal reaches of the stream (Bucaria, 1968).

Approximately 300 pinks spawn each year in the Auke Lake system (Anon., ?). The annual number of chum salmon using the system is unknown.

Stickleback and Cottid

Stickleback are apparently abundant in Auke Lake. According to Bucaria (1968), stickleback were present in almost every seine haul, often in greater abundance than all age groups of juvenile sockeye.

The coastrange sculpin and prickly sculpin have been reported from the system (Bucaria, 1968). Their abundance is unknown.

Spawning and Rearing Area:

Lake Creek, the main spawning area for sockeye, contains about one mile of good to fair spawning area. However, most utilization by spawning sockeye appears to be in the first 1,000 yards (Bucaria, 1968). Lake Two Creek is accessible to fish and contains limited spawning area for at least 3/4 mile and possibly 1 1/4 mile. A few sockeye ($<$101) have been recorded spawning in Lake Two Creek (Bucaria, 1968). One lake spawning area for sockeye has been located and others might exist (Bucaria, 1968).

Pink and chum salmon utilize the outlet stream for spawning. This stream has very limited spawning area.

Coho, cutthroat, and Dolly Varden probably spawn in the inlets; however, their utilization of these areas is unknown. A local resident reported observing cutthroat migrating into Lake Creek during late spring.

Stream rearing areas in the Auke Lake system are limited.

Lake Creek is quite poor with very few pools (21 - poor), undercut banks (1), log jams (3), and no accessible tributaries or sloughs. Eight baited minnow traps set throughout Lake Creek on May 7 caught 38 coho, 5 Dolly Varden, and 3 cutthroat. A visual survey of the entire system on May 7 produced 35 rearing coho, 2 rearing Dolly Varden, and 7 unidentified salmonids.

Lake Two Creek probably has the best stream rearing areas and may serve as the major nursery area for Dolly Varden. This system contains 26 pools, 26 undercut bank areas, 31 log rearing areas, and 12 sloughs. Six baited minnow traps set throughout Lake Two Creek on July 15 caught

55 Dolly Varden, 47 coho, and 1 cutthroat. Visual counts of fish on July 15 produced 80 coho, 38 Dolly Varden, and 213 unidentified salmonids.

Auke Creek, although quite short (1/4 mile), provides substantial rearing area for coho. The artificial spawning beds in the upper reaches of the creek have created the major rearing areas. Seven baited minnow traps set throughout Auke Creek on July 16 caught 423 coho, 7 Dolly Varden, 169 stickleback, and 8 cottids.

Auke Lake provides rearing area for sockeye and coho. Whether or not Dolly Varden and cutthroat utilize the lake for rearing is unknown.

Auke Lake is the only rearing area in the system available to sockeye. Estimates of smolt produced from the lake have ranged from 36,000 to 90,000 annually (Bailey, 1971).

The lake probably produces more coho smolts than all its tributaries and inlet combined.

Lake rearing Dolly Varden have not been recorded and probably only utilize the tributaries to the lake for rearing. This is substantiated by the low number of Dolly Varden smolts produced from this system and the poor stream rearing area available.

Cutthroat may not utilize the lake for rearing. The lack of good stream rearing areas may be the major reason for the small number of sea-run cutthroat in Auke Lake.

Contribution of Dolly Varden from Auke Lake to the Juneau Sport Fishery:

Dolly Varden spending the winter in Auke Lake entered the sport catch in several areas along the Juneau road system (Table 2).

Although the overall contribution of these fish to the Juneau sport catch appears small (5.5%), the contribution in some areas may be quite significant. For instance, of the fish checked at Montana Creek, 12.7% had spent the previous winter in Auke Lake. It is possible that a significant portion of the Dolly Varden spawning in Montana Creek overwintered in Auke Lake, and most of the unmarked fish were nonspawners searching for a lake to overwinter in.

CREEL CENSUS

Fishing Success

Dolly Varden were the most frequently caught fish by anglers along the Juneau road system (Table 3).

Of the 581 fish censused, Dolly Varden made up 88% of the total catch. The remaining fish taken were cutthroat trout (7%), pink salmon (3%), and rainbow, steelhead, coho salmon combined (2%).

TABLE 2 Number of Marked Dolly Varden from Auke Lake Censused in the Juneau Sport Fishery, 1970.

Location	Total DV Checked	Marked DV Checked	%
Dupont	32	0	0.0
Salmon Creek	11	0	0.0
Auke Lake	29	4	13.8
Auke Creek	65	8	12.3
North Cogland Island	1	1	100.0
Montana Creek	63	8	12.7
Peterson Creek	1	1	100.0
Boy Scout Camp	42	2	4.8
Eagle River & North to end of Highway	113	0	0.0
Fish Creek	67	1	1.5
10 & 11 Mile, North Douglas Road	27	0	0.0
Total	451	25	5.5

The anglers checked fish 953.8 hours for a Dolly Varden catch per angler hour of 0.54. These fish averaged between 12.0 and 17.0 inches.

Fishing Pressure

Since the creel census was not designed to determine fishing pressures only a rough impression of the pressures could be obtained.

In May and June, most fishing occurs along certain saltwater reaches for Dolly Varden entering saltwater from their wintering areas. An exception to this is Eagle River, where many people fish for Dolly Varden leaving Windfall Lake in the spring.

This Dolly Varden fishery continues throughout the summer. By July the Dolly Varden are entering streams and some fishing pressure switches to these areas at this time.

Areas where heavy concentrations of anglers have been observed are Eagle River, Montana, Salmon, and Fish Creeks, 10 and 11 Mile on North Douglas Road, and Dupont. As many as 50 people have been observed fishing a 200 yard section of Salmon Creek.

Fishing Potential

Some areas along the Juneau road system appear to have populations of fish which could support much more fishing pressure than now exists.

TABLE 3 Anglers Censused and Their Fishing Success Along the Juneau Road System, 1970.

Location	Anglers Checked	Tot. Catch	Tot. Hrs. Fished	Catch/ Angler Hr.	Length Range (in.)	Ave. Length (in.)
Dupont	31	38 DV	85.0	0.45		15.5
Salmon Creek	8	13 DV	14.8	0.88	6-13	
Mendenhall River	2	0	6.5	0.00		
Montana Creek	23	63 DV	49.0	1.29		
Auke Lake	26	32 DV	118.7	0.27		
		2 CT		0.02		
Auke Creek	63	65 DV	228.7	0.28	5-18	12.0
		2 CT		0.01		
Peterson Creek	12	6 RT	22.5	0.27		
		2 SH		0.09		
		15 CT		0.67		
Boy Scout Camp	36	23 DV	77.0	0.29	8-18	
		22 CT		0.28		
Eagle River & North to End of Highway	130	177 DV	198.1	0.89	7-22	15.5
Fish Creek	59	75 DV	113.7	0.66	8-17	
		18 PS		0.16	24-26	25.0
		1 SS		0.02	24	24.0
10 & 11 Mile, North Douglas Road	48	27 DV	39.8	0.67	12-23	17.0

The glacial systems probably have large numbers of Dolly Varden entering them which are not being harvested. These include Eagle River, Herbert River, and Mendenhall Lake and River. Lemon Creek may have a smaller population than the other glacier streams, yet in sufficient abundance for a limited fishery.

Mendenhall Lake appears to have a large wintering population of Dolly Varden (see Stream Survey section of report). It is possible an ice fishery for Dolly Varden, as well as fishing during the spring, summer, and fall migration periods, could be developed. Techniques of catching Dolly Varden in glacial waters would have to be determined.

Eagle, Herbert, and Mendenhall Rivers may support good fishing for Dolly Varden during their migrations to and from wintering areas. Fishing with bait in some of the larger holes may produce good catches. Lemon Creek may also provide fishing for Dolly Varden with bait in the summer and fall.

Over 6,000 Dolly Varden apparently winter in Auke Lake. This lake may provide an ice fishery on Dolly Varden, as well as a summer and fall fishery, from skiffs.

Streams, such as Gold and Sheep Creeks, may have numerous pan-sized landlocked Dolly Varden which could support a fishery.

Some beaver ponds on Peterson Creek, North Douglas Island, appear to have large numbers of landlocked Dolly Varden not being utilized.

ACKNOWLEDGEMENTS

Michael Vierthaler conducted most of the field work at Auke Creek and did a very commendable job, especially considering the Auke Lake work was only one of his many duties. He also assisted in the stream survey work and creel census.

Barry Bracken assisted in operation of the Auke Creek weir and helped on the stream surveys on occasion.

Some of the creel census information was supplied by the Division of Protection.

Special thanks are extended to the Auke Bay Biological Laboratory, especially Jerrold Olson, for allowing us to use the Auke Creek weir.

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