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STATE OF ALASKA

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Alaska Department of Fish and Game

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Sport Fish Division

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ANNUAL REPORT OF PROGRESS, 1961-1962

FEDERAL AID IN FISH RESTORATION PROJECT F-5-R-3

SPORT FISH INVESTIGATIONS OF ALASKA

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## INTRODUCTION

This report of progress consists of the job completion reports from the State of Alaska Federal Aid in Fish Restoration Project F-5-R-3, "Sport Fish Investigations of Alaska."

The current project is composed of twenty separate studies and was designed to evaluate the various aspects of the State's recreational fishery resources. The information gathered will provide the necessary background data for better management practices and for the development of future studies. During the current segment, continued emphasis was placed on the overall inventory and cataloging of accessible waters, evaluation of catch data, and investigations on various species of fish.

As a result of several problems of immediate concern, several new studies were instigated during the report year. Data accumulated from these studies has helped solve some problems in projects already in progress.

The population of Alaska is increasing rapidly and this is being reflected in the ever increasing number of "No Trespassing" signs put up by individuals in the vicinity of population centers. Fortunately, much of Alaska's fishery waters are still in the public domain. The division's program of acquiring access to fishing waters continued at a much faster pace since being instigated in 1959. Emphasis is being placed on this job and the successful continuation of this activity will forstall many serious recreational use problems currently facing other states.

The enclosed progress reports are fragmentary in many respects and the interpretations contained therein are subject to re-evaluation as the work progresses.

JOB COMPLETION REPORT  
RESEARCH PROJECT SEGMENT

State: ALASKA Name: Sport Fish Investigations  
of Alaska  
Project No: F-5-R-3  
Job No: 3-A Title: Inventory and Cataloging  
of Sport Fish and Sport  
Fishing Waters in Upper  
Southeast Alaska.

Period Covered: June 1, 1961 to April 30, 1962

Abstract:

During the field season of 1961, a total of 10 streams and 5 lakes were surveyed in upper Southeast Alaska. The area covered was from Haines to Petersburg. Lengths, weights, species composition and other biological data for net caught fish are presented. The surveys included information on angler use, physical and biological data of the system, available spawning area, salmon migration periods and possible egg taking sources.

Recommendations:

The surveys should continue to be on waters near population centers.

Due to pollution problems, it is recommended that no management work be undertaken at present at Swan Lake, Sitka.

The Lake Eva system is recommended as the site of future experimental egg takes.

Objectives:

To conduct lake, stream and salt water surveys and evaluate the extent, the potential and the current use

of the waters readily available to the area's anglers.

To investigate the sources for providing a supply of trout, char and salmon eggs for experimental hatching and rearing.

To investigate the feasibility of, and formulate plans for, experimental rehabilitation.

To determine the relative need for future management investigations and to direct the course of such studies.

#### Techniques Used:

Background information from prior studies conducted by the Alaska Department of Fish and Game, U. S. Fish and Wildlife Service and the Fisheries Research Institute was reviewed and utilized in familiarizing the author with waters in the area and in directing the course of the surveys.

Sport fishing utilization of specific waters was determined through the use of voluntary return creel census drop boxes and by visual estimates.

Sport fish species distribution, age-growth composition and relative abundance were determined through the use of 125 foot variable mesh gill nets, creel census, and visual observation.

Physical characteristics of the waters were measured by standard methods. Attention was given to determining the amount of stream area accessible to anadromous fishes and to the amount of spawning gravel available.

Possible trout, char and salmon egg taking sources were investigated. Criteria evaluated at these locations were (1) a suitable harbor for a 34 foot boat be available, (2) the species desired be in a quantity sizeable enough to furnish the desired amount of eggs and (3) a stream of relatively stable flow to permit weiring.

## Findings:

This project encompassed the northern portion of Southeast Alaska. The area is comprised of large islands, high mountains and numerous lakes and streams. With the exception of short roads in population centers, transportation is limited to boats and aircraft. The expense of this type travel limits the majority of sport anglers to waters adjacent to population centers. More consideration was given these waters than to those in remote areas.

Surveys were conducted in the Juneau, Sitka, Haines areas and several of the more popular lakes on Baranof Island. A number of streams were investigated as possible egg taking sources.

### Haines area:

The Chilkat River was surveyed from Haines to Wells bridge 23 miles upstream. This section of the river parallels the Haines highway and is readily accessible to the people of Haines and Klukwan. In several locations it is possible to fish from the shoulder of the road. Game fish inhabiting the river are Dolly Varden, coastal cutthroat trout, silver salmon and king salmon. At the time of survey (11/14/61 - 11/16/61) no sport fishing was observed. Residents of Haines, Port Chilkoot and Klukwan sport fish for Dolly Varden and silver salmon at the mouths of clear tributaries and in a slough adjacent to the highway at Mile 14.7. The potential use of this river is dependent on an increase in tourists. The Haines highway connects the Alaska highway with ferry service to Juneau and Skagway. The Chilkat River is a source of excellent recreation for touring anglers waiting for the ferry to Juneau.

### Juneau area:

Observation was maintained on the major streams in the Juneau area, throughout the period of salmon migrations. At this time, sport fishing is at its peak in these streams. Salmon spawning migration data gathered is presented in Table 1. The fishery is primarily concentrated on Dolly Varden which

accompany the salmon to the spawning grounds. A brief description of the streams surveyed follows:

Auke Creek:

Auke Creek, outlet of Auke Lake, drains 3.7 square miles, is 1/3 mile in length and has a normal flow of 30 cf/s. Fishes present are Dolly Varden, cutthroat trout, silver salmon, red salmon, chum salmon, pink salmon, sticklebacks and sculpin. Fishing pressure is moderate.

Fish Creek:

Fish Creek is located on the northeast end of Douglas Island and is accessible by road from the Juneau-Douglas population centers. The lower 3 miles are suitable for angling. This lower section is good quality spawning ground. Angling pressure is moderate. Species present are Dolly Varden, cutthroat trout, chum salmon, pink salmon, sculpin and stickleback. Fish Creek drains an area of 13.6 miles and has a normal flow of approximately 50 cf/s.

Montana Creek:

Montana Creek, the largest clear tributary of Mendenhall River, drains an area of 14.6 square miles. The estimated average flow is 150 cf/s. Fishes present are Dolly Varden, cutthroat trout, silver salmon, pink salmon, chum salmon and sculpins. Dolly Varden comprise over 99% of the sport catch. Fishing pressure is heavy. Montana Creek Road parallels the stream for 2 1/2 miles.

Peterson Creek:

Peterson Creek is crossed by the Glacier Highway 24.5 miles northwest of Juneau. The stream drains an area of 5.8 square miles and has a normal flow of 40 cf/s. Fishes present are Dolly Varden, steelhead, cutthroat trout, silver salmon, chum salmon, pink salmon, starry flounder, stickleback and sculpins. Moderate fishing pressure occurs in the intertidal zone.

Salmon Creek:

Salmon Creek is crossed by the Glacier Highway 3.5 miles northeast of Juneau. The stream drains an area of 11 square miles and has an average flow of 80 cf/s. Fishes present are Dolly Varden, pink salmon, chum salmon and sculpins. Spawning and angling are limited, by terrain, to the lower 1/4 mile. The stream is popular with children from the Juneau-Douglas area. An annual Dolly Varden derby is conducted during the upstream migration period. The stream is closed to salmon fishing.

Sheep Creek:

Sheep Creek is crossed by the Thane Road 4.1 miles southeast of Juneau. The stream drains an area of 6.1 square miles and has a normal flow of 47 cf/s. Fishes present are Dolly Varden, pink salmon, chum salmon and sculpins. A steep cascade, 200 yards upstream from the mouth, is a complete barrier to anadromous fishes. Angling pressure for Dolly Varden is moderate.

TABLE 1.

SALMON SPAWNING MIGRATIONS IN THE JUNEAU AREA

<u>Stream</u>	<u>Period of Run</u>	<u>Peak of Run</u>		
		<u>Chum</u>	<u>Pink</u>	<u>Sockeye</u>
Auke Creek	7/20/61 - 10/1/61	8/11	9/11	7/25
Fish Creek	7/20/61 - 9/20/61	8/1	8/24	
Montana Creek	7/20/61 - 8/15/61	8/17		
Peterson Creek	7/20/61 - 10/1/61	8/11		
Salmon Creek	7/20/61 - 9/25/61	8/11	9/11	
Sheep Creek	7/20/61 - 9/15/61	8/11	8/24	

Salmon Creek Reservoir:

Salmon Creek Reservoir is formed by a concrete arch dam on Salmon Creek at the 1,000 foot elevation. The dam is 170 feet high and has a 648 foot crest. The reservoir has a maximum surface area of 210 acres

and a storage capacity of 19,000 acre feet. The dam was built in 1915 by the Alaska Gastineau Mining Company to provide hydro-electric power.

The reservoir is reached by a 3 mile trail which starts at the power house on the Glacier Highway. It provides excellent fishing for the many who hike the trail. A total of 13,150 eastern brook trout were planted in the reservoir in 1927. Stomach contents of eastern brook trout are listed in Table 2. This plant was very successful and many of the anglers fishing this water end up with limit catches. Dolly Varden are also present and the possibility exists that cross breeding with eastern brook trout is occurring.

TABLE 2.

STOMACH CONTENTS OF SALMON CREEK RESERVOIR  
EASTERN BROOK TROUT

Food Items	Number Occurrences	Per Cent Occurrences	Volume	% Total Volume
Cladocera	11	55%	14.5ml.	40.3%
Deptera	20	100%	12.9ml.	35.8%
Tricoptera	16	80%	6.5ml.	18.1%
Plant	4	20%	1.0ml.	2.9%
Pelcoptera	5	25%	trace	
Ephemeroptera	2	10%	trace	
Gastropoda	1	5%	trace	
Nematoda	1	5%	trace	
Fish Eggs	4	20%	.4ml.	1.1%
Stones	2	10%	trace	1.0%
Unidentified	<u>1</u>	5%	.7ml.	<u>.9%</u>
Total	67			100.0%

Sitka Area:

Swan Lake:

Swan Lake lies within the City of Sitka. It has a surface area of 27 acres and a maximum depth of 11.5 feet. The volume of the lake is 132.6 acre feet. Approximately 1800 feet of the shoreline is adjacent to the road system. During summer, a

heavy growth of aquatic vegetation rings the shore. Fishes present are cutthroat trout, silver salmon, stickleback, and sculpins. Ample spawning area is provided by the inlet tributaries.

The outlet extends 1/4 mile in a westerly direction to the ocean. Before reaching the ocean the stream passes through a lumber yard. The lumber company has built a platform over the stream to store lumber on. Through the years this platform has settled until, during periods of heavy run off, the stream is blocked. After the stream passes this obstacle, it flows directly under a sawdust burner to the ocean.

At the time the lake was surveyed, four of the lake shore residents were piping raw sewage directly into the lake.

#### Admiralty Island:

McKinney, Distin, and Davidson Lakes in the Hasselborg drainage were surveyed. All three lakes are reached by air. Distin and Davidson Lakes can also be reached via a 4 mile trail from Mitchell Bay. All three lakes lie in the Tongass National Forest and have recreational cabins or shelters. A brief description of each lake is given below.

#### McKinney Lake:

This lake is sometimes called Brownie Lake. It lies at an elevation of 350 feet and has a surface area of 320 acres. The outlet drains into the west side of Hasselborg Lake at a point 2 miles north of the origin of Hasselborg Creek.

Ample spawning area is provided by its inlet and outlet creeks. McKinney Lake can be reached by a 1 mile trail from Hasselborg Lake. Two nets were fished for 24 hours on August 15-16, 1961. The results are given in Table 3.

#### Distin Lake:

Distin Lake lies at an elevation of 280 feet and has a surface area of 832 acres. Its outlet drains

into Lake Guerin then into Hasselborg Creek, 1.5 miles below its origin. Spawning area is available throughout the tributary systems. Two nets were fished for 24 hours on August 15-16, 1961. The results are given in Table 3.

Davidson Lake:

Davidson Lake lies at an elevation of 275 feet and has a surface area of 655 acres. This lake drains to Lake Guerin and Hasselborg Creek. Two nets were set for 48 hours on August 16-18, 1961. The results are given in Table 3.

TABLE 3.

TEST NETTING RESULTS, ADMIRALTY ISLAND

Lake	Species	Average Length	Average Weight	Per Cent of Catch
McKinney	Cutthroat	9.4"	199.4 grams	83.3
	Kokanee	6.5"	46.7 grams	16.7
Distin	Cutthroat	9.2"	110.9 grams	80
	Dolly Varden	7.8"	75.5 grams	20
Davidson	Cutthroat	8.8"	120.2 grams	48
	Kokanee	6.4"	51.3 grams	52

The presence of Kokanee leads to the conclusion that the lakes were at one time available to spawning sockeye salmon. At present there is an impassable falls in the outlet of Hasselborg Lake.

Four sites were surveyed during the 1960 season as possible egg taking sources. Factors considered during the survey were: (1) weir site, (2) variation in flow, (3) the desired species be in quantity, (4) that no other use of the area would conflict, (5) that the site be accessible to aircraft, (6) that species desired be of a lake rearing variety and (7) that anchorage for a 34 foot boat be available.

The sites surveyed were Little Basket Bay drainage, Chichagof Island; Lake Eva system, Baranof Island; and Gut Bay drainage, Baranof Island.

Little Basket Bay lacked a suitable weir site. At Gut Bay it was questionable that the species desired would be found in the necessary numbers. Lake Eva drainage was found to meet all the requirements. This system is located on northeast Baranof Island. It drains into Hanus Bay, Peril Strait.

Lake Eva has a surface area of 250 acres at the 40-foot elevation. The lake is supplied from a 15.3 square mile drainage area. The mean discharge is estimated at 150 cubic feet per second.

A 1938 report of the U. S. Forest Service revealed the char population of this system to be in excess of 20,500 fish for that year. Fish species present in the system are silver, pink, red and chum salmon; Dolly Varden, coastal cutthroat trout, steelhead trout, stickleback and sculpins.

This system appears to be suitable in every way to conduct a pilot egg take.

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