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STATE OF ALASKA

William A. Egan, Governor



ANNUAL REPORT OF PROGRESS, 1963 - 1964

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

SPORT FISH INVESTIGATIONS OF ALASKA

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INTRODUCTION

This report of progress consists of Job Segment Reports from the State of Alaska Federal Aid in Fish Restoration Project F-5-R-5, "Sport Fish Investigations of Alaska."

The project is composed of 25 separate studies designed to evaluate the various aspects of the State's recreational fishery resources. Of these, eight jobs are designed to continue the cataloging and inventory of the numerous State waters in an attempt to prepare an index of the recreational waters. Four jobs are designed for specific sport fishery creel census while the remainder of the jobs are more specific in nature. These include independent studies on king salmon, silver salmon, grayling, Dolly Varden, a statewide access evaluation program, egg take program and a residual toxaphene study. The information gathered from the combined studies will provide the necessary background data for a better understanding of local management problems and assist in the development of future investigational studies.

The subject matter contained within these reports is often fragmentary in nature. The findings may not be conclusive 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-5 Title: Investigation of the Lower Southeast Alaska Salt Water Sport Fish Harvest.

Job No: 1-D

Period Covered: May 1, 1963 to March 31, 1964.

Abstract:

A creel census of the saltwater sport catch in the most important fishing areas of the Ketchikan vicinity was made between May 18 and August 29, 1963. A system of coverage of weekend days, holidays and week days (of the areas near the road system of Ketchikan) was employed. In order of desirability, the species entering the saltwater fishery were king salmon, followed by silver salmon and other salmon species. Halibut, ling cod and rockfishes were also taken incidental to the catch.

Recommendations:

1. It is recommended that king salmon spawning ground surveys be continued so that the value of current regulations governing these species may be assessed.
2. Continue the "three king salmon, any size" daily limit for sport anglers, except as otherwise specified.
3. For continuity of data and its use in the future regulation of the sport fishery on king salmon, this study should be continued.

Objectives:

1. To obtain a reasonable estimate of the species and numbers of sport fishes harvested in salt waters adjacent to Ketchikan.

2. To obtain an index of the sizes and age classes of these saltwater sport fish.
3. To assess the sport angler fishing pressure and catch rate.
4. To make aerial spawning ground counts of king salmon on streams directly contributing to the Ketchikan area fishery.

Techniques Used:

1. Census Methods

- a. Boat counts were made on the fishing grounds by a ground observer stationed at a point from which he could visually observe the fishing activity at any given time. The number of boats on the fishing grounds were noted both morning and evening. At Mountain Point they could be observed from the South Tongass Highway. The Clover Pass area was visually checked from the road above Point Higgins, from the dock at Knudsen's Cove and from the Clover Pass Resort.

- b. Angler contacts were made at Hole-in-the-Wall near Mountain Point and in the Clover Pass area at Knudsen's Cove and at Clover Pass Resort. These locations are the most popular landings in the Ketchikan area. They lie 18 miles apart near the opposite extremities of the Tongass Highway. Many people moor their small boats at facilities in these locations and fish adjacent waters. The Clover Pass area is the more popular of the two due to better weather protection.

An angler, upon landing, was censused on his completed fishing trip. Contacts were made on a schedule that would interview those anglers who fished before the average workday in the morning and also those who fished after the normal workday in the evening. A creel census form is included here (FIGURE 3).

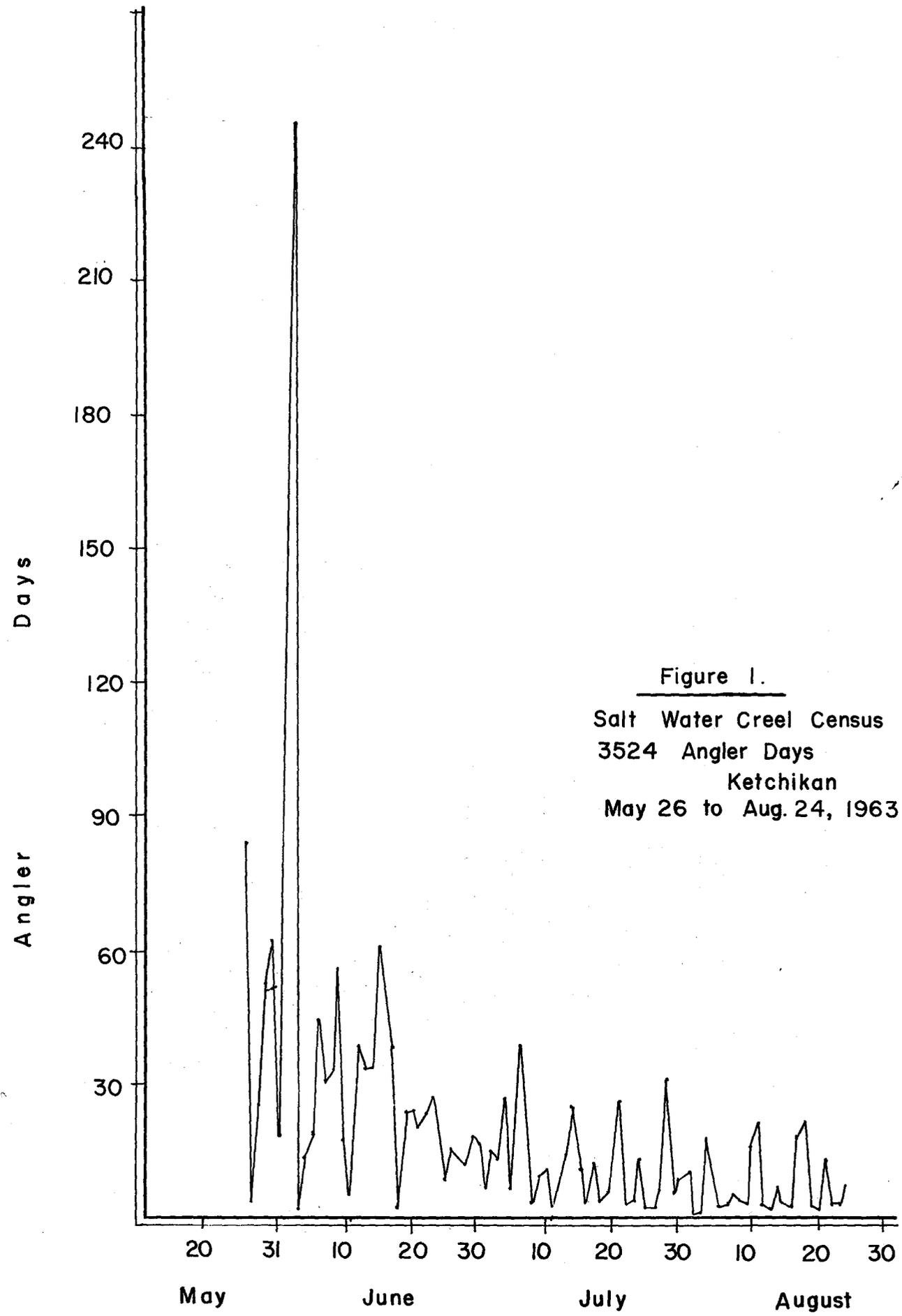
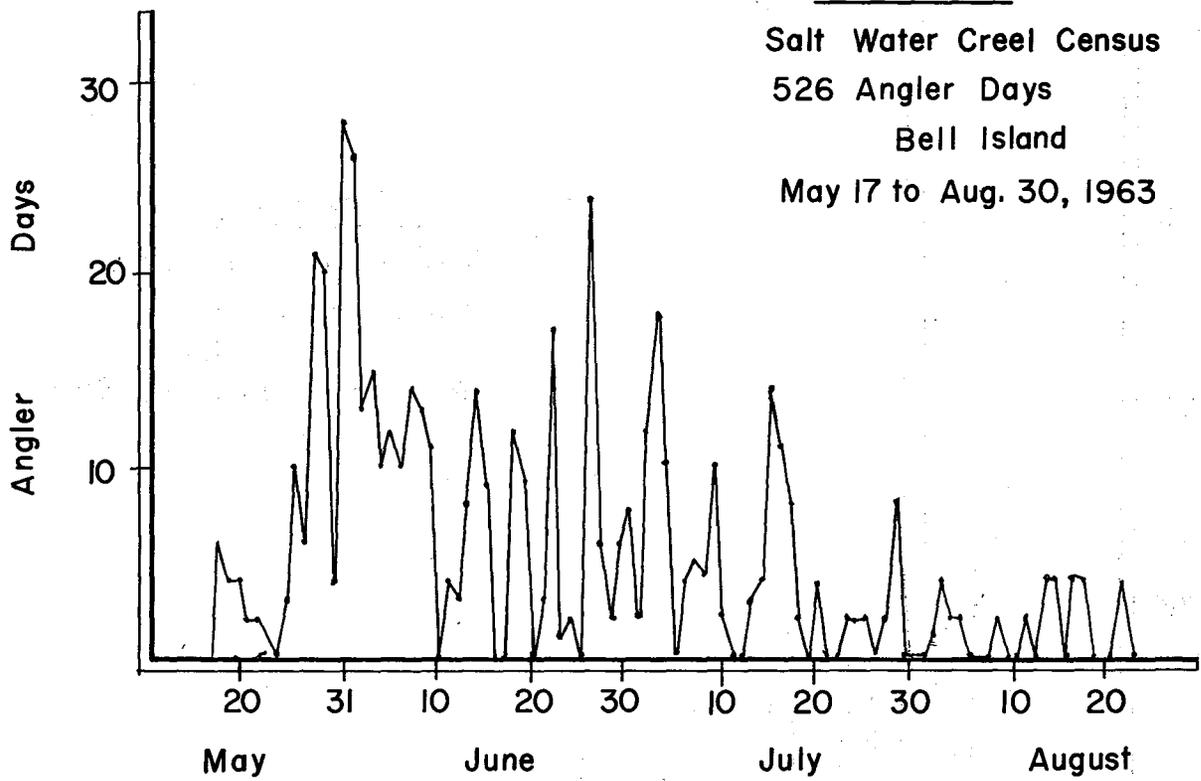


Figure 1.
 Salt Water Creel Census
 3524 Angler Days
 Ketchikan
 May 26 to Aug. 24, 1963

Figure 2.

Salt Water Creel Census
526 Angler Days
Bell Island
May 17 to Aug. 30, 1963



CREEL CENSUS FORM

Sheet No. _____ Port of _____ Area _____
 Sampler _____ Date _____, 1961 Landing _____ Fished _____
 No. Fishermen _____ No. Hrs. Fished _____ Time Started _____ Ended _____
 Total Salmon _____ : Kings _____, Silvers _____, Pinks _____, Chums _____, Reds _____

TYPE FISHERMEN	TYPE FISHING	WEATHER
___ (1) Sports	___ (1) Trolling	___ (1) Sunny Calm
___ (2) Sports-Commercial	___ (2) Drift Spinning	___ (2) Sunny Rough
___ (3) Other _____	___ (3) Anchored Spinning	___ (3) Cloudy Calm
	___ (4) Other _____	___ (4) Cloudy Rough

GEAR		TIDE	TYPE BOAT
___ (1) Whole	___ (1) Fresh	___ (1) S-Low	___ (1) Open <20 ft.
___ (2) Plug Cut	___ (2) Frozen	___ (2) NS-Low	___ (2) Cabin 16-20 ft.
___ (3) Strip Cut		___ (3) S-Half In	___ (3) Large Cabin >20 ft.
___ (4) Plugs		___ (4) NS-Half In	
___ (5) Spoons, spinners, etc.		___ (5) S-High	___ (1) Outboard
___ (6) Flasher		___ (6) NS-High	___ (2) Inboard
___ (7) Other _____		___ (7) S-Half Out	
		___ (8) NS-Half Out	

Fish No.	Time Caught	Length (mm)	Lbs.	Weight	Sex	Flesh	Scale
			___	(1) Round	___ (1) ♂	___ (1) Red	___ Yes
			___	(2) Dressed	___ (2) ♀	___ (2) White	___ No
			___	(1) Round	___ (1) ♂	___ (1) Red	___ Yes
			___	(2) Dressed	___ (2) ♀	___ (2) White	___ No
			___	(1) Round	___ (1) ♂	___ (1) Red	___ Yes
			___	(2) Dressed	___ (2) ♀	___ (2) White	___ No
			___	(1) Round	___ (1) ♂	___ (1) Red	___ Yes
			___	(2) Dressed	___ (2) ♀	___ (2) White	___ No
			___	(1) Round	___ (1) ♂	___ (1) Red	___ Yes
			___	(2) Dressed	___ (2) ♀	___ (2) White	___ No

2. Data Collected

- a. The catch of fish by species, number and size, and the fish released.
 - b. The time spent fishing and number of anglers per boat.
 - c. Rod and reel anglers sport fishing or commercial fishing.
 - d. Location of the catch.
 - e. Weather
3. Angling techniques used by fishermen.
4. Spawning ground counts of king and other salmon.

Findings:

FIGURE 1 is a plot of the number of angler-days of the Ketchikan area fishery. The highest point shows the effort induced by the Ketchikan King Salmon Derby on its Sweepstakes Days Weekend. The number of boats fishing on the census taker's days off are plotted by extrapolation. It was noted that many more boats were observed fishing than could be checked at the landings by the one creel census recorder. The index calculated for the census period was one boat checked at the moorages for 8.5 boats observed fishing.

FIGURE 2 is the same plot of the fishery at Bell Island. There is no fishing contest here and the pressure trend line indicates the fish abundance.

The catch data recorded by creel census is compiled as follows:

TABLE 1. Recorded King Salmon Catch.

Month	KETCHIKAN		BELL ISLAND	
	No.	Avg. Size	No.	Avg. Size
May	2	29.5 lbs.	53	22.4 lbs.
June	15	22.2 lbs.	137	24.4 lbs.
July	6	28.1 lbs.	25	16.8 lbs.
Aug.	1	38.0 lbs.	3	13.3 lbs.

TABLE 2. Recorded Silver Salmon Catch.

<u>Month</u>	<u>KETCHIKAN</u>		<u>BELL ISLAND</u>	
	<u>No.</u>	<u>Avg. Size</u>	<u>No.</u>	<u>Avg. Size</u>
May	0	-	0	-
June	2	11.5 lbs.	9	11 lbs.
July	2	8.5 lbs.	15	13 lbs.
Aug.	4	10.0 lbs	2	12 lbs.

TABLE 3. Recorded Bottom Fish Catch for Ketchikan and Bell Island.

<u>Month</u>	<u>No. of</u>		<u>No. of</u>	
	<u>Halibut</u>	<u>Avg. Size</u>	<u>Rockfish</u>	<u>Avg. Size</u>
May	1	35 lbs.	0	-
June	9	26 lbs.	31	3 lbs.
July	6	22 lbs.	12	3 lbs.
Aug.	0	-	2	5 lbs.

In addition to the halibut and rockfishes checked, the incidental flounder, greenling, sole and turbot were also recorded. Ling cod are not uncommon and four of these fine food fish were checked that averaged 21 pounds.

The catch per unit of effort (c/ue) for king salmon per day over the season was .068 in the Ketchikan area and .44 in the Bell Island area. The figures are somewhat in imbalance because most anglers are out to catch a salmon regardless of species. Using the lumped catch of silver and king salmon, the catch per angler per day becomes .077 salmon per day for the Ketchikan area and .46 salmon per day in the Bell Island Fishery. People will travel to Bell Island to fish for kings but not so eagerly for silver salmon, accounting for a relatively minor silver salmon fishery at Bell Island.

The figure for the Ketchikan area fishery is admittedly conservative because of the difficulty in checking anglers. There are so many points at which fishermen may land (mostly private moorages) that a true coverage cannot be obtained. The Bell Island fishery, on the other hand, operates almost entirely out of the moorage at the Bell Island Resort. The

census taken there is considered more complete. A point entering the figure on this fishery is that when an angler fished at dawn and dusk, the effort was tabulated as two boat trips. This distorts the catch per unit of effort and it is thought that a more realistic figure for the Bell Island fishery is in the vicinity of .75 salmon per angler per day.

The age analysis has not been done on the fish scale-sampled. The ages of the adult salmonoids appeared normal for the respective species. Very few immature silver salmon enter the catch. Sizes of immature kings are known to widely overlap those of the adults, particularly the precocious males. Age patterns of the other species of fish are normal for unexploited populations.

The time spent fishing, hours of fishing and the number of anglers per boat is as follows:

TABLE 4. Recorded Sport Fishing Pressure.

Month	KETCHIKAN			BELL ISLAND	
	a.m. Hrs	p.m. Hrs	Anglers /Boat	a.m. Hrs	p.m. Hrs
May	46.0	142.5	2.1	134	232
June	388.5	741.5	2.1	478	373
July	84.0	162.0	2.2	206	128
Aug.	63.0	163.0	2.1	40	33

In TABLE 4, the Ketchikan data were collected on week ends and every other weekday between the hours of 5:00 and 8:00 a.m. and between 5:00 and 8:00 p.m. Data were recorded on only three days the end of May. The Bell Island data is a seven day per week coverage. The number of anglers per boat is not noted. Most of the fishing was done from 2-man skiffs with the occasional larger boat fishing 3 or 4 anglers at once.

Many saltwater anglers with sport gear purchase commercial fishing licenses and make fishing a paying hobby. In TABLE 5 the creel census data collected on these anglers in the Ketchikan area shows the following:

TABLE 5. Angler Days Spent by Activity.

<u>Month</u>	<u>Sport Angler Days</u>	<u>Commercial Angler Days</u>
May	19	2
June	111	19
July	42	2
Aug.	39	0

It should be noted here that most of the sport-gearred commercial saltwater anglers are residents and have private moorages or landings away from the check points. This creates a bias in the number of commercial anglers to sport anglers checked; therefore, TABLE 5 does not show a true picture of this angler status in the fishery.

The location of each boat observed fishing was recorded to the nearest landmark. In most instances, anglers fished those locations most easily reached from the dock at which they were contacted. They were as follows:

TABLE 6. Recorded Boat Fishing Pressure by Area.

<u>Location</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Aug.</u>
Clover Pass	28	221	76	48
Guard Island	6	23	19	0
Mountain Point	31	200	59	30
Other Places*	14	33	0	0

*"Other Places" include Grant Island, Point Higgins, Blank Island, China Town, Icehouse Cove, Herring Cove and California Head. These locations are less popular and largely ignored later in the season as the pressure decreases.

The weather had a marked effect on the fishing effort. Gales set in making small boat fishing unsafe or uncomfortable. At the other extreme, a bright, calm day brought out anglers as much for the outing as the fishing. The effort-weather relationship in numbers of boats between May 26 and August 24 may be seen in the following tabulation of boat counts (TABLE 7).

TABLE 7. Effort-Weather Relationship by Number of Boats.

<u>Month</u>	<u>Fair (30) *</u>	<u>Cloudy Calm(18)</u>	<u>Rain (12)</u>	<u>Stormy (1)</u>
May (3)	36 (1)	34 (1)	9 (1)	0
June (21)	93 (7)	229 (5)	118 (8)	2 (1)
July (22)	97 (11)	41 (8)	13 (3)	0
Aug. (15)	49 (11)	26 (4)	0	0

*Figures in parentheses are the total days of each category checked.

The angling method most commonly encountered was the use of herring, either fresh, frozen or simulated. The individual angler's preference could be determined either in conversation with the angler or visual check of his gear. Herring are used whole, plug-cut, strips, alive, with or without dodgers, harness or needle-hooks and trolled, drifted, spin fished or mooched. Often an angler may change his method of bait presentation several times during the course of the day with success or failure of each method dependent on conditions imposed by weather, tide or behaviour of the salmon.

Often, fishing technique is influenced by the presence or absence of trash fish. Allowing a bait to get near the bottom can be depended upon to produce harrassment from unwanted species of fish such as turbot, Irish lords, small rockfishes, ratfish, ling cod or halibut. Slow moving baits of any sort that take salmon are attractive to dogfish sharks which destroy gear.

In conjunction with creel census it is desirable to know how many of the local stocks of king salmon reach their spawning grounds. The time period when these fish congregate on the spawning gravels extends over six weeks from mid-July to early September. Aerial surveys were made of the tributary streams of Behm Canal which are used by king salmon. These streams provide the locally produced adult king salmon taken in the Ketchikan vicinity.

Noted in the aerial surveys were the king salmon present and the other salmon (mostly pinks and chums) on the spawning gravel. These observations are tabulated as follows:

TABLE 8. Aerial Survey Count of Spawning Salmon.

Stream	July 15		Aug. 3		Aug. 17		Sept. 1*	
	Salmon	Kings	Salmon	Kings	Salmon	Kings	Salmon	Kings
Herman Creek	750	0	8500	0	4800	0		
Grant Creek	250	0	4600	0	4300	0		
Eulachon Creek	1100	650	7000	150	2500	150		
Little Blue River	0	0	1500	25	250	45		
Twin Creek	0	25	1000	50	1000	100		
Gene's Lk. & Cr.	0	0	1500	250	3500	750		
Lake Creek	0	0	25	0	Muddy	-		
Clear Creek	0	0	350	0	900	25		
Klahini Creek	Muddy	-	4000	0	350	0		
Sac's Cove Cr.	50	0	6500	0	250	0		
Choca Creek	50	0	2000	0	4000	0		
King Creek	150	65	12500	-	4800	175		
Humpy Creek	0	75	4000	-	5300	-		
LeDuc Creek	0	0	250	-	50	25		
Entrance Creek	0	0	350	25	25	0		
S. Branch Creek	Muddy	-	1000	350	-	43		
Grizzly Creek	15	1	200	75	250	115		
Blossom River	250	0	5500	0	8600	450		
Wilson River	7500	65	25000	-	4400	375		

*The scheduled survey for September 1 was blanked out by ten days of impossible flying weather and resulting high water.

The spawning ground king salmon counts for 1962 and 1963 are compared in TABLE 9 by river systems.

TABLE 9. King Salmon Spawning Ground Counts by Year.

River System	Mid-July		Early Aug.		Mid-Aug.		Early Sept.	
	1962	1963	1962	1963	1962	1963	1962	1963
Unuk R.	162	675	150	478	331	1070	179	
Klahini R.	0	0	0	0	100	0	4	
Chickamin R.	7	141	6	450	775	358	132	
Wilson R.	0	0	0	0	0	375	0	
Blossom R.	0	0	0	0	0	450	25	

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