

STATE OF ALASKA

William A. Egan, Governor



Annual Progress Report for

CREEL CENSUS STUDIES

by

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RESEARCH PROJECT SEGMENT

State: Alaska

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

Study No.: G-IV *Study Title:* Creel Census Studies.

Job No.: G-IV-A *Job Title:* Saltwater Sport Fish Harvest Studies
in Southeast Alaska.

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

ABSTRACT

An estimated 3,970 coho, Oncorhynchus kisutch, 1,974 king, O. tshawytscha, and 1,127 pink salmon, O. gorbuscha, were taken by Juneau area sport fishermen from June 6 to August 30, 1970. The salmon catch per angler hour was 0.037 for coho, 0.019 for king, and 0.011 for pink salmon.

The Golden North Salmon Derby salmon catch was estimated at 919 coho, 375 king, and 124 pink salmon for 3,800 anglers.

Grays Pass fishermen caught an estimated 449 king salmon and 183 halibut, Hippoglossus stenolepis, between April 5 and May 30. The king salmon and halibut catch per angler hour was 0.072 and 0.027, respectively.

Ketchikan sport fishermen caught an estimated 546 king, 344 pink, and 127 coho between May 25 and August 30. The catch per angler hour was 0.021 king, 0.013 pink, and 0.006 coho.

Bell Island sport fishermen took an estimated 582 king, 202 pink, and 111 coho from May 27 through August 30. The catch per angler hour was 0.055 for king, 0.019 for pink, and 0.010 for coho salmon.

The Sitka Salmon Derby catch was 194 king, 31 coho, and 28 pink salmon for an estimated 600 - 700 anglers.

Sixty anglers fished in the Kake Salmon Derby and caught 44 king salmon.

RECOMMENDATIONS

Research

Since inception of the Juneau and Ketchikan area saltwater creel census programs in 1960, the census dates have not been the same each year and have not covered the entire fishing season. As a result, total catch estimates during the census period have not represented the annual harvest. This may also affect the catch per unit of effort information because in some years the census began in early June at the peak of king salmon catch success and terminated in late August when coho fishing success was high.

To properly estimate the annual saltwater fish harvest, the census period should begin on May 1 and end on September 30. Information collected in prior years should be summarized on a bi-weekly basis and harvest and success estimates should be made for the periods not censused. If reasonable harvest and success estimates cannot be made during the non-censused periods, then only similar periods covered in all years should be summarized to establish trends.

Using aerial surveys for creel census expansion may not be accurate because of the inability to separate sport fishing boats from so-called "sport-commercial" boats using similar gear and areas. Thus some boats counted as sport boats are actually commercial fishing, but are not censused dockside. Also, some of the boats deleted from the counts as commercial boats may actually be sport fishing. The only possible solution to these problems now apparent is to inventory boats by permanently assigned moorage space at each census dock. All boats not commercially licensed should be included on a check list for each dock, using moorage space numbers. The creel census crew should periodically survey sport fishing effort by counting empty sport fishing boat spaces on the floats where census is conducted. Obviously there will be some non-fishing activity such as hunting, picnicking, and other recreational activities. Non-fishing activities should be a relatively constant factor and will hopefully be of less significance than problems now causing concern. The greatest problem anticipated concerns the change of many early season sport boats to commercial as the commercial season opens. Many commercially licensed boats will be used for sport fishing prior to the mid-June commercial fishing season. The familiarity of creel census personnel with changes in fishing emphasis from sport to commercial will probably be the determining factor in effective use of the proposed census method. This method should be evaluated in the 1971 field season, and alternatives or improvements to the present method should be sought.

"Angler hour" should be selected for the standard of effort analysis comparisons because it is the lowest common denominator of angling effort available. Past reports have used "fish per boat" and "fish per angler",

as well as "fish per angler hour", and comparisons between areas have been difficult. Although Juneau effort in recent years has been near 2.5 anglers per boat, 4.5 hours per angler day, and 11.0 angler hours per boat trip, similar data from Ketchikan is about 2.5, 7.2, and 17.6 respectively. Thus "fish per boat" and "fish per angler" would not reflect similar units of effort in the two areas, although they appear to remain fairly constant from year to year in a single area.

A summary of information collected since inception of the census program in 1960 should be written. Of special importance would be the catch per unit of effort on each species for each year analyzed on a comparable basis. King salmon catch length frequency is also important for each year.

Research should be initiated to determine the status of our knowledge on king salmon in Southeastern Alaska and to determine methods of stock separation which are most applicable to king salmon.

A study should be initiated to determine the feasibility of artificial rearing of summer-run coho and fall-run king salmon to improve Juneau area fishing.

The data collected to date has been summarized by calculator tabulations. This takes a considerable amount of time and sometimes results in errors and a need to repeat the analysis. To help solve this problem, the feasibility of converting to an EDP system of analysis should be explored.

Management

The Juneau area catch per unit of effort on sport-caught king salmon over the past years has been declining. Consideration should be given to more restrictive regulation of the commercial fishery harvesting stocks bound for or present in the Juneau area. The sport king salmon bag limit should be reduced to two fish per day.

Methods should be developed and areas explored to divert king salmon effort to other species such as sockeye, pinks, rockfish, and halibut. An example would be to develop methods of harvesting the stockey salmon run in Auke Bay by use of sport gear.

OBJECTIVES

1. To compile data on an annual estimate of the numbers and species, by area, of the sport fish harvest of saltwater fishes.
2. To compile indices to size and age groupings with emphasis on the salmonids.

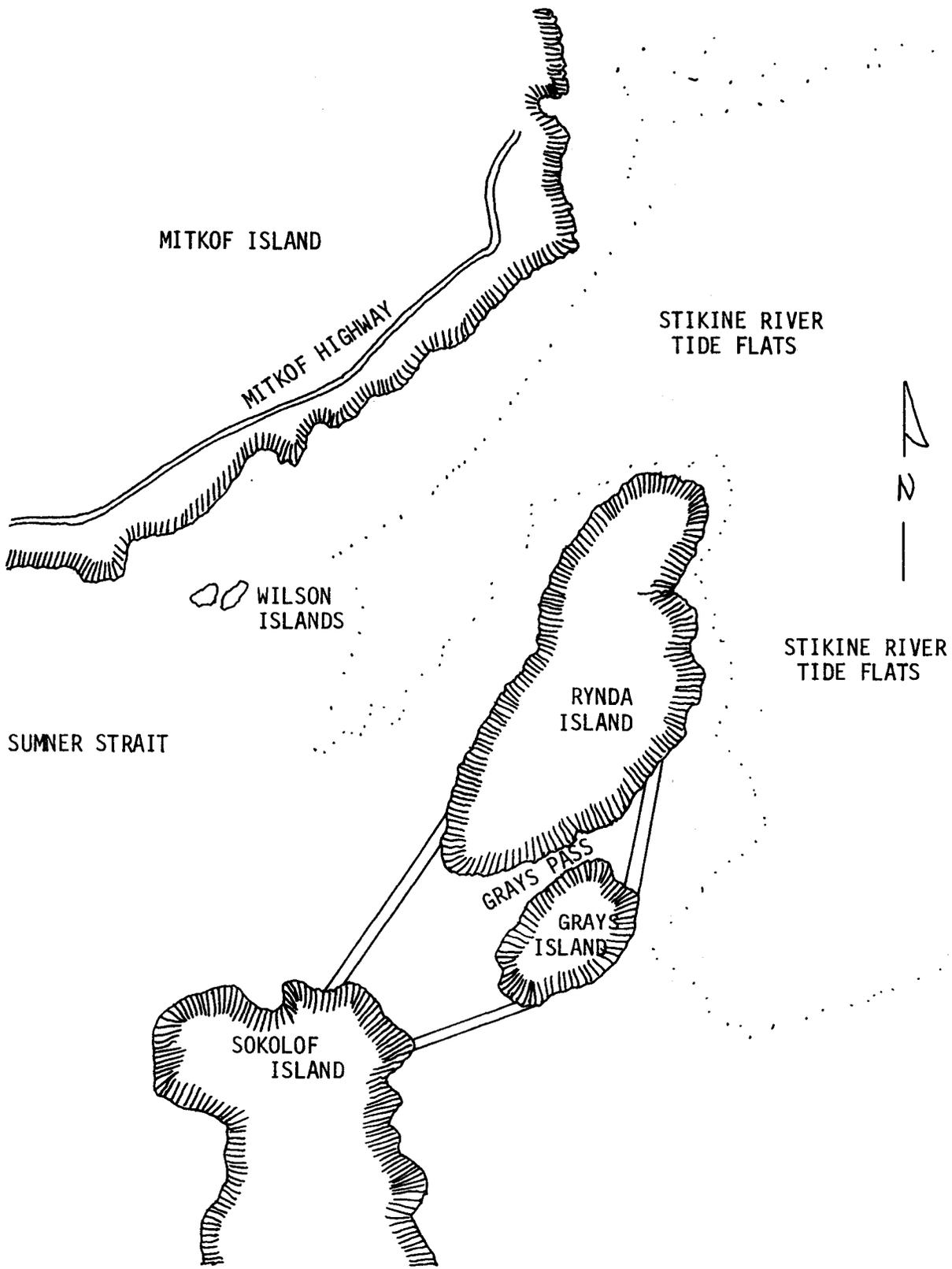


FIGURE 1 GRAYS PASS CREEL CENSUS BOUNDARIES, 1970.

The annual estimated saltwater sport fish harvest has not been determined for this report. The estimates include only the catch for the census period.

King and coho salmon size and age data is presently being analyzed for the Juneau and Ketchikan areas.

TECHNIQUES USED

Juneau Area

Angler interviews and information obtained were similar to that reported by Heckart, et. al., 1969.

The total salmon harvest estimate during the census period was obtained from the number of boats counted during fishing ground aerial surveys and the subsequent number of boats censused at the docks. During these surveys, 830 boats were counted and 201 boats were censused. The following computation was used to arrive at the expansion factor:

$$\frac{\text{Boats Counted Fishing}}{\text{Boats Censused at Dock}} \times \frac{\text{Number of Days in Bi-Weekly Period}}{\text{Number of Days Censused Each Bi-Weekly Period}}$$

$$= \text{Expansion Factor: } \frac{830}{201} \times \frac{14}{8} = 7.23$$

Bad weather conditions prevented flying on many scheduled aerial boat count days; therefore, the number of surveys was not sufficient to derive an expansion factor for each bi-weekly period. The factor used represents the total of all surveys and may not be as accurate an estimator as the bi-weekly expansion factors used in previous years.

Estimates of salmon caught and fisherman success during the Golden North Salmon Derby were obtained from the derby sponsors.

Petersburg-Grays Pass Area

The area censused is located about eight miles north of Wrangell (Figure 1).

The census design was modified to meet the conditions of this fishery. The Wrangell area has widely scattered small boat moorages making it difficult for one census taker to cover the area completely. This condition, together with the practice of all boats fishing Grays Pass to anchor, dictated the census be conducted on the fishing grounds.

Census was conducted on one randomly selected weekday and one weekend day, each weekly period from May 1 to August 22, 1970. The census taker scheduled his arrival in the Grays Pass area to coincide with the peak of the fishing activity. He remained in the area until the majority of the boats departed.

Poor commercial king salmon catches in District 8 (Stikine River) during May resulted in a commercial fishing closure from May 20 to May 30, 1970. During this closure, the census taker was present and active in the area for at least 10 hours each day. The census terminated on May 30, 1970, due to increasing turbidity from the Stikine River and lack of fishing effort.

The Grays Pass area censused catch was expanded in the same manner as described by Heckart (1968). The angler census was conducted on one randomly selected weekday and one weekend day from April 1 to May 20, 1970. Census was conducted daily from May 21 to May 30, 1970. Census programs in the other areas were conducted on two weekdays and both weekend days each weekly period.

Ketchikan Area

The Ketchikan area saltwater salmon creel census covered a 98-day period from May 25 to August 30, 1970. The work program included scheduled aerial boat counts as made in past years and was similar in design to other census areas.

The census area was the same as in past years. It was bounded on a line just south of Icehouse Cove to Reef Point on the southern extremity and the northern end by a line enclosing Grant Island, Tatoosh Rocks, and Vallenar Point. The Ketchikan area saltwater salmon harvest was expanded to an estimated seasonal harvest using the same formula as in previous years.

Weekday and weekend catches were expanded separately and then totaled for an all-season harvest; the bi-weekly catches were totaled for an all-season harvest. Aerial boat counts were flown on alternate week and weekend days. The aerial counts indicated an average of 26% of the boats observed on any given census day were actually contacted upon their return to the Ketchikan small boat harbors.

Bell Island Area

The Bell Island area saltwater creel census covered a 96-day period from May 27 through August 30, 1970. The work included an attempt to check all boats upon landing at the two fishing resorts in the area, Yes Bay Lodge and Bell Island Fishing Resort. In order to obtain information

on transient boats, daily patrols of the grounds near each establishment were made at irregular times. The fishing grounds included Behm Narrows as well as the headlands out to and including Bluff Point.

The census area was the same as in past years; however, a census taker was stationed at each resort in 1970 instead of one employee trying to cover the whole fishery.

The Bell Island area salmon catch may be expanded to an estimated seasonal harvest using the premise that 10% of the area's fishing effort was by transient boats and not logged. The census ran seven days each week and no holidays were excluded. With such a system, no aerial checks were necessary.

FINDINGS

Juneau Area

Salmon Catch:

An estimated 3,970 coho, Oncorhynchus kisutch, 1,974 king, O. tshawytscha, and 1,127 pink salmon, O. gorbuscha, were taken by Juneau area sport fishermen from June 6 to August 30, 1970. Chum, O. keta, and sockeye salmon, O. nerka, amounted to only 0.8% of the total salmon caught during the census period.

As the census season progressed, the king salmon catch declined and the coho salmon catch increased (Table 1). Pink salmon contributed substantially to the sport catch from mid-June through August.

Salmon Catch Per Unit of Effort:

The salmon sport catch per angler hour was 0.037 for coho, 0.019 for king, and 0.011 for pink salmon. Angler success for king salmon was highest in the beginning of the census period (June 6 - 14). Angler success for coho increased throughout the census period to a high of 0.099 per angler hour in late August (Table 2). The angler success for pink salmon was best from late June to late July. The bi-weekly angler success by species is presented in Figure 2.

Golden North Salmon Derby:

An estimated 919 coho, 375 king, and 124 pink salmon were entered in the 1970 Golden North Salmon Derby. The catch per angler for the three-day derby was 0.24 coho, 0.10 king, and 0.03 pink salmon. The numbers of salmon caught and angler success for recent years of the derby is presented in Table 3.

TABLE 1 Juneau Area Saltwater Creel Census, Censused and Expanded, 1970 (Excluding Salmon Derby Catch).

	Time Period							Total
	6/6-14	6/15-28	6/29-7/12	7/13-26	7/27-8/9	8/10-23	8/24-30	
Boats-censused	212	353	202	109	188	229	94	1,387
-expanded	1,533	2,552	1,460	788	1,359	1,656	680	10,028
Angler trips-censused	516	859	499	285	475	533	225	3,392
-expanded	3,731	6,211	3,608	2,061	3,434	3,854	1,627	24,524
Angler hours-censused	2,125	3,710	2,222	1,338	2,117	2,393	845	14,750
-expanded	15,364	26,823	16,065	9,674	15,306	17,301	6,109	160,643
Coho-censused	3	5	61	72	125	199	84	549
-expanded	22	36	441	521	904	1,439	607	3,969
King-censused	75	50	47	34	34	23	10	273
-expanded	542	362	340	246	246	166	72	1,974
Pink-censused	0	28	73	28	15	11	1	156
-expanded	0	202	528	202	108	80	7	1,128
Total salmon-censused*	78	84	181	136	174	237	95	985
-expanded	564	607	1,309	983	1,258	1,714	687	7,122
% coho censused	3.8	6.0	33.7	52.9	71.8	84.0	88.4	55.7
% king censused	96.2	59.5	26.0	25.0	19.5	9.7	10.5	27.7
% pink censused	0.0	33.3	40.3	20.6	8.6	4.6	1.1	15.8
% other salmon censused	0.0	1.2	0.0	1.5	0.1	1.7	0.0	0.8

*Includes seven chum and one sockeye.

TABLE 2 Juneau Area Sport Salmon Catch by Species Per Unit of Effort by Bi-Weekly Periods, 1970
(Excluding Salmon Derby Catch).

		Bi-Weekly Period						Total	
		6/6 - 14	6/15- 28	6/29- 7/12	7/13- 26	7/27- 8/9	8/10- 23		8/24- 30
6	King/boat trip	0.354	0.142	0.233	0.312	0.181	0.100	0.106	0.197
	/angler trip	0.145	0.058	0.094	0.119	0.072	0.043	0.044	0.080
	/angler hour	0.035	0.013	0.021	0.025	0.016	0.010	0.012	0.019
	Coho/boat trip	0.014	0.014	0.302	0.661	0.665	0.869	0.894	0.396
	/angler trip	0.006	0.006	0.122	0.253	0.263	0.373	0.373	0.162
	/angler hour	0.001	0.001	0.027	0.054	0.059	0.083	0.099	0.037
	Pink/boat trip	0.000	0.079	0.361	0.257	0.080	0.048	0.011	0.112
	/angler trip	0.000	0.033	0.146	0.098	0.032	0.021	0.004	0.046
	/angler hour	0.000	0.008	0.033	0.021	0.007	0.005	0.001	0.011
Total Salmon/boat trip	0.368	0.238	0.896	1.248	0.926	1.034	1.011	0.710	
/angler trip	0.151	0.098	0.363	0.477	0.366	0.444	0.422	0.290	
/angler hour	0.036	0.022	0.081	0.102	0.082	0.099	0.112	0.067	

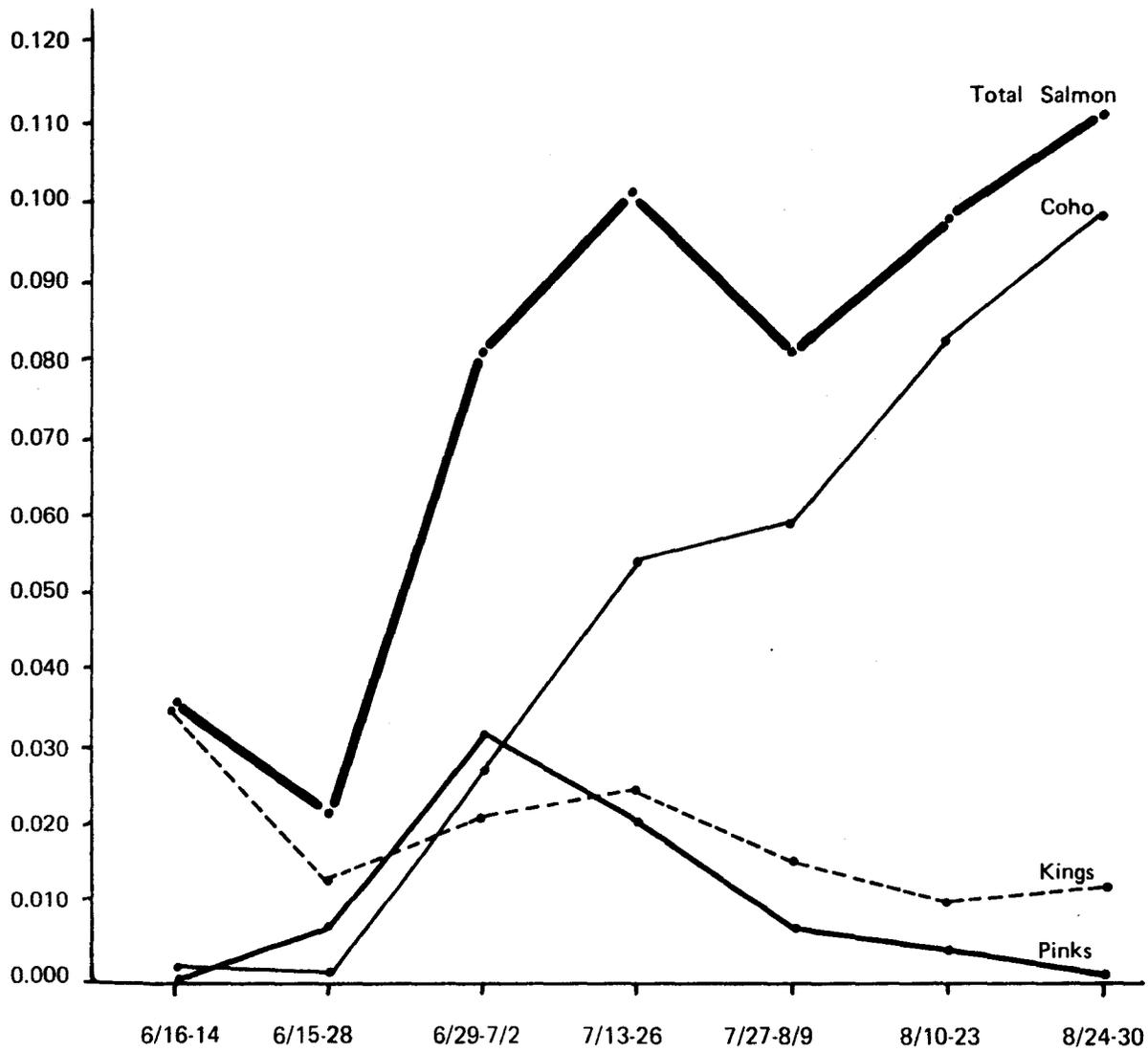


FIGURE 2 BI-WEEKLY SALMON CATCH PER ANGLER HOUR BY SPECIES, JUNEAU, 1970.

TABLE 3 Comparison of Juneau "Golden North Salmon Derby" Catch and Effort, 1959-1970.

Year	No. Anglers	King		Coho		Pink		Total*	
		No. Fish	Per Angler						
1959	3,511	599	0.17	862	0.25	0	0.00	1,461	0.42
1960	3,479	361	0.10	650	0.19	19	0.01	1,030	0.30
1961	2,818	221	0.08	551	0.20	22	0.01	794	0.28
1962	2,033	226	0.11	490	0.24	7	0.01	733	0.36
1963	2,229	617	0.28	695	0.31	115	0.05	1,439	0.65
1964	4,920	624	0.13	1,246	0.25	297	0.06	2,172	0.44
1965	N/A	454	--	821	--	16	--	1,295	--
1966	N/A	795	--	790	--	92	--	1,706	--
1967	3,228	431	0.13	633	0.20	144	0.05	1,235	0.38
1968	3,350	424	0.13	1,908	0.57	382	0.11	2,720	0.81
1969	3,825	477	0.12	1,225	0.32	603	0.16	2,428	0.63
1970	3,800	375	0.10	919	0.24	124	0.03	1,427	0.38

*Includes sockeye and chum salmon.

Miscellaneous Fish Catch:

The 1970 miscellaneous fish catch shown in Table 4 is notable for lack of censused halibut, Hippoglossus stenolepis, compared to 1969, the only other year for which only the sport catch is known. This lack of halibut is reflected in increased 1970 landings under "Other" which was mostly turbot, Atheresthes stomias, and flounders, Platichthys stellatus. No steelhead, Salmo gairdneri, were censused, although several were usually caught.

TABLE 4 Miscellaneous Fish Catch Censused, Juneau Area, 1966-1970.

Year	Halibut	Rockfish*	Dolly Varden	Other	Anglers
1966**	723	2	34	15	2,798
1967**	746	8	125	2	4,715
1968**	717	53	205	4	5,022
1969	648	21	77	5	3,114
1970	392	10	146	26	3,392

*Genus Sebastodes.

**Includes sport-gear commercial catch.

TABLE 5 Grays Pass Sport Harvest of King Salmon and Halibut by Weekly Period, April 5 - May 30, 1970.

	Angler Trips		Angler Hrs.		King Salmon			Halibut		
	Censused	Expanded	Censused	Expanded	Censused	Expanded	CPUE*	Censused	Expanded	CPUE*
4/ 5-4/11	9	48	20	106	0	0	0.000	0	0	0.000
4/12-4/18	34	180	138	730	3	16	0.022	0	0	0.000
4/19-4/25	58	307	280	1,481	27	143	0.096	3	16	0.011
4/26-5/ 2	69	365	228	1,206	14	74	0.061	17	90	0.075
5/ 3-5/ 9	19	101	76	402	8	42	0.104	3	16	0.040
5/10-5/16	49	259	200	1,058	15	79	0.075	6	32	0.030
5/17-5/23	46	243	222	1,174	12	63	0.054	4	21	0.018
5/24-5/30	<u>86</u>	<u>95</u>	<u>335</u>	<u>369</u>	<u>29</u>	<u>32</u>	<u>0.087</u>	<u>7</u>	<u>8</u>	<u>0.022</u>
Totals	370	1,601	1,499	6,526	108	449	0.069	40	183	0.028

*Catch per angler hour.

The Dolly Varden, Salvelinus malma, catch censused was nearly twice that of last year and similar to the best year recorded when compared on an effort basis. This catch includes only those Dolly Varden censused at the boat docks.

Petersburg-Grays Pass

Salmon and Halibut Catch:

An estimated 449 king salmon and 183 halibut were taken by Grays Pass sport fishermen between April 5 and May 30, 1970 (Table 5). The sport catch per angler hour was 0.069 for king salmon and 0.028 for halibut. There were no obvious trends in fishing success for king salmon or halibut by weekly period.

Size and Age of King Salmon:

The Grays Pass king salmon sport fishery differs from other Southeast Alaska king salmon fisheries in that it is comprised almost entirely of large maturing fish bound for the Stikine River. During the 1963 Grays Pass area creel census (Wadman, 1964), the average king salmon size was 85.1 cm and 18.5 pounds. During the 1970 census, the average size increased from 80.0 cm and 18.6 pounds in April to 88.4 cm and 22.8 pounds in May (Table 6). Immature fish under 10 pounds were not noted during the census period.

TABLE 6 Length and Weight of King Salmon Caught at Grays Pass, 1970.

Month	Length (cm)		Weight (Lbs.)	
	Range	Average	Range	Average
April	73.6 - 86.4	80.0	12 - 28	18.6
May	68.6 - 114.3	88.4	10 - 44	22.8

Scale samples were obtained from 26 king salmon caught in Grays Pass during the census period. Only three age classes exist among the kings sampled: age groups 1.4 (50%), 1.3 (42%), and 2.3 (8%). The absence of the younger age classes that appear in the other Southeast Alaska salt-water fisheries again point to only maturing fish in the Grays Pass area during April and May.

Ketchikan Area

Salmon Catch:

An estimated 546 king, 344 pink, and 127 coho were taken by Ketchikan area sport fishermen from May 25 to August 30, 1970 (Table 7).

TABLE 7 Censused and Expanded Salmon Harvest, Ketchikan, 1970.

	<u>Boat Trips</u>	<u>Angler Trips</u>	<u>Angler Hrs.</u>	<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>Total</u>
Censused	528	1,220	9,275	194	55	122	372*
Estimated	1,488	3,486	26,127	546	127	344	1,045

*Includes one chum salmon.

The salmon catch per angler hour was 0.021 for king, 0.013 for pink, and 0.006 for coho. The angler success by bi-weekly period is presented in Table 8.

TABLE 8 Creel Census Summaries by Bi-Weekly Periods, Ketchikan, 1970.

<u>Date</u>	<u>Boat Trips</u>	<u>Angler Trips</u>	<u>Angler Hrs.</u>	<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>Fish/ Angler Trip</u>	<u>Fish/ Hr.</u>
5/25-6/ 7	290	680	6,064	143	2	0	0.22	0.02
6/ 8-6/21	40	88	551	14	1	0	0.17	0.03
6/22-7/ 5	57	133	716	20	22	31	0.55	0.10
7/ 6-7/19	33	76	467	4	25	17	0.61	0.10
7/20-8/ 2	54	124	787	9	1	48	0.47	0.07
8/ 3-8/16	27	55	344	4	2	16	0.40	0.06
8/17-8/30	<u>27</u>	<u>64</u>	<u>346</u>	<u>0</u>	<u>2</u>	<u>10</u>	<u>0.19</u>	<u>0.03</u>
	528	1,220	9,275	194	55	122	0.30	0.04

The 1970 catch of non-salmon species censused in Ketchikan included 93 halibut; 17 lingcod, Ophiodon elongatus; 182 red snapper, Sebastes ruberrimus; 119 turbot; and 254 other rockfishes, Sebastes sp. This increase in non-salmon harvest over previous years was related to the generally poor king and silver salmon fishing.

Bell Island-Yes Bay

Salmon Catch:

An estimated 582 king, 202 pink, and 111 coho were taken by Bell Island sport fishermen from May 27 through August 30, 1970. King salmon were caught in significant numbers from the beginning of the census period until early July (Table 9). Over 50% of the pink salmon were caught between July 6 and 19. Coho began entering the fishery in early August and were caught through the remaining census period.

TABLE 9 Creel Census Summaries by Bi-Weekly Periods, Bell Island, 1970.

Period	Angler		King	Coho	Pink	Fish/Angler Trip		Fish/Hr.	
	Trips	Hrs.				King	All Salmon	King	All Salmon
5/27-6/ 7	542	1,641	164	-	-	0.303	0.303	0.010	0.010
6/ 8-6/12	727	3,030	176	-	-	0.242	0.242	0.058	0.058
6/22-7/ 5	566	1,724	131	1	14	0.231	0.258	0.076	0.085
7/ 6-7/19	352	1,013	37	-	110	0.105	0.418	0.037	0.145
7/20-8/ 2	159	551	5	-	11	0.031	0.107	0.009	0.031*
8/ 3-8/16	157	670	2	26	11	0.013	0.248	0.003	0.058
8/17-8/30	225	848	9	73	36	0.040	0.524	0.011	0.139
	2,728	9,477	524	100	182	0.192	0.296	0.055	0.085

*One chum salmon included.

The salmon sport catch per angler hour was 0.055 for kings, 0.019 for pink, and 0.010 for coho salmon.

The 1970 Bell Island catch of non-salmonoid species included halibut, red snapper, and other rockfishes; however, few were brought to the dock.

Sitka Salmon Derby

The 1970 Sitka Salmon Derby was held on two consecutive weekends, June 20 and 21, and 27 and 28. The derby boundaries and fishing hours were similar to previous years and are described by Heckart (1968).

Exact numbers of fishermen could not be determined, but an estimated 600 - 700 fishermen participated during the four-day derby. The total salmon catch of 253 fish would rank the 1970 derby similar to the 1966

and 1967 derbies (Table 10). The 1970 catch was only half the number landed in 1969 although the fishing effort was nearly equal.

TABLE 10 Sitka Salmon Derby Catch in Numbers of Fish, 1965-1970.

Year	Salmon				Other Species*			
	King	Coho	Pink	Total	H	LC	RF	DV
1965	155	38	1	194	6	11	--	2
1966	188	50	3	241	78	22	--	4
1967	214	17	2	233	94	74	6	--
1968**	230	181	2	413	No data taken			
1969**	564	63	11	638	139	142	--	--
1970	194	31	28	253	34	22	4	1

* H - Halibut

LC - Lingcod

**Catch estimate from poundage.

RF - Rockfish

DV - Dolly Varden

Scale samples were collected from a total of 110 king salmon during the derby, of which 85 were readable for total age. A great number of age classes was present in the censused catch. Age classes 1.3, 2.2, and 2.3 made up 68% of the sample (Table 11).

TABLE 11 Sitka Salmon Derby King Salmon Age Classes, 1970.

No. of salmon	Age Class										
	<u>0.3</u>	<u>0.4</u>	<u>1.1</u>	<u>1.2</u>	<u>1.3</u>	<u>1.4</u>	<u>2.1</u>	<u>2.2</u>	<u>2.3</u>	<u>3.2</u>	<u>3.3</u>
	3	1	2	9	25	7	2	18	15	1	2

Kake Salmon Derby

Saltwater creel census was conducted for the first time in the Kake area during the first "annual" Kake Salmon Derby. The 1970 Kake derby was patterned after the Sitka derby, with fishing allowed between 5 AM and 6 PM on derby days. The derby was held on two consecutive weekends, June 6 and 7, and 13 and 14.

The Kake Salmon Derby was not overly successful due to lack of advance advertising throughout the area. Sixty anglers participated and landed 44 king salmon. Fish weights ranged from 12 pounds to the winning fish at 47 pounds. Four halibut were also censused during the derby.

Scale samples were collected from 39 of the 44 king salmon entered in the derby; of these, 33 permitted determination of total age. Age classes 1.4, with 33% of the total, and 2.3, with 39%, were the most common ages in the catch (Table 12).

TABLE 12 Kake Salmon Derby King Salmon Age Classes, 1970.

	Age Classes					
	<u>0.3</u>	<u>1.3</u>	<u>1.4</u>	<u>2.2</u>	<u>2.3</u>	<u>3.2</u>
No. of Salmon	1	3	11	4	13	1

Comparative Catch Success - All Areas

Referring to Table 13, it appears a majority of the fishing effort and catch occurred in the Juneau area. The Juneau area king salmon catch per unit of effort was the lowest censused. The coho fishery was not notable for Juneau on an annual comparison basis, but was excellent compared to other Southeast Alaska areas.

TABLE 13 Expanded Salmon Catch Per Angler Hour, By Area, Southeast Alaska, 1970.

<u>Area</u>	<u>Angler Hrs.</u>	<u>King</u>	<u>/Hr.</u>	<u>Coho</u>	<u>/Hr.</u>	<u>Pink</u>	<u>/Hr.</u>	<u>Tot. Salmon</u>	<u>/Hr.</u>
Juneau	106,642	1,974	0.019	3,970	0.037	1,127	0.011	7,122	0.067
Grays Pass	6,526	449	0.069	---	0.000	---	0.000	449	0.069
Bell Island	10,425	576	0.055	110	0.011	200	0.019	886	0.085
Ketchikan	<u>26,127</u>	<u>546</u>	<u>0.021</u>	<u>127</u>	<u>0.005</u>	<u>344</u>	<u>0.013</u>	<u>1,045</u>	<u>0.040</u>
Total	149,720	3,545	0.024	4,208	0.028	1,671	0.011	9,502	0.063

The superiority of Bell Island as a king salmon fishing area is obvious; although it was considered a poor year at Bell Island, an average of more than 11 hours was spent to land a king salmon. The Bell Island pink salmon catch per unit of effort was the highest censused.

Although Ketchikan was quite similar to Juneau in angler success on king and pink salmon, virtually no coho were censused there, so the total salmon catch per unit of effort figure fell to the lowest monitored.

The short and intensive Grays Pass king salmon fishery is concentrated on the spawning run, so good quality fishing was enjoyed with regard to both catch per unit of effort and fish size.

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