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STATE OF ALASKA
Keith H. Miller, Governor



ANNUAL REPORT OF PROGRESS, 1968 - 1969
FEDERAL AID IN FISH RESTORATION PROJECT F-9-1
SPORT FISH INVESTIGATIONS OF ALASKA

ALASKA DEPARTMENT OF FISH AND GAME
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THE STATE OF ALASKA
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INTRODUCTION

This report of progress involves the findings and work accomplished under the State of Alaska, Federal Aid in Fish Restoration, Project F-9-1, "Sport Fish Investigations of Alaska".

The work conducted during this reporting period constitutes effort on nine separate studies which are crucial in evaluating the sport fishing resources of the State. Recreational demands have necessitated broadening our knowledge of the fishery. All 20 jobs were of continuing nature enabling the Department to keep abreast of present and future impacts on certain fish species. Specifically, the work included work on inventory and cataloging of the sport fish and sport fish waters of the State, sport fishery creel census and access. Special emphasis was given to Dolly Varden, silver salmon, anadromous fish, grayling, salmon, sheefish, pike, and char. The information gathered has provided supporting documentation for better fish management and a basis for necessary future investigations.

The subject matter contained in these reports may be inconclusive. The findings and interpretation are subject to re-evaluation as the work progresses.

CAMP
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ALASKA
Alaska Resources

RESEARCH PROJECT SEGMENT

STATE: ALASKA Name: Sport Fish Investigations of Alaska.

Project No: F-9-1 Title: Saltwater Sport Fish Harvest Studies in Southeast Alaska.

Job No: 1-D

Period Covered: July 1, 1968 to June 30, 1969.

ABSTRACT

This report presents the results of the 1968 creel census study of the saltwater sport and "sport commercial" catch of salmon, Oncorhynchus sp., in Juneau, Ketchikan, Sitka, and Petersburg.

Juneau-area fishermen were estimated to have taken 23,968 salmon, of which 16,832 were coho, Oncorhynchus kisutch; 4,623 king, O. tshawytscha; and 2,409 pink, O. gorbuscha. Chum, O. keta, and red, O. nerka, salmon entered the catch in smaller numbers (104 taken). The total catch was the highest recorded since the creel census program began in 1960.

Weekly aerial counts of sport boats on the fishing grounds were made on selected census days for a determination of the percentage of boats ultimately censused at the moorages. The percentage of days censused throughout the season was also computed to arrive at total catch estimations for each of the respective areas.

In addition to catch figures for each of the individual areas, trends in angling effort and catch are compared with those of previous years.

Catch data for individual areas is discussed both individually and comparatively in a final report section.

RECOMMENDATIONS

1. The creel census studies be continued in the major Southeast Alaska population centers to provide current information and continuing trends on the saltwater salmon fisheries, and to assist in maintaining sound management practices.
2. The unified census program be continued in each respective area to establish both individual and comparative catch data.
3. The census program be expanded to include areas and stocks of salmon involved in conflicts of multiple or primary use.
4. No new saltwater regulations pertaining to the sport salmon fishery be made at this time.

OBJECTIVES

1. To compile 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.

TECHNIQUES USED

Juneau, Sitka and Ketchikan anglers were interviewed each bi-weekly period upon completion of the angling day on all weekend days and four randomly-selected weekdays.

The Petersburg sport fishermen were censused on two weekend days and four weekdays for the same bi-weekly period.

In the Juneau, Sitka and Ketchikan areas, aerial boat counts were conducted once a week on scheduled census days to determine the percentage of boats fishing on the grounds that were censused dockside at the end of the day. These aerial boat counts were scheduled in a sequence to provide numbers of both weekend and weekday anglers.

Boat counts were made on a similar schedule in Petersburg; however, a skiff, rather than an airplane, was used to determine the number of anglers on the fishing grounds.

The total salmon catch from each of the respective areas was estimated from: 1) the percentage of boats angling on the grounds that were censused dockside; and 2) the percent days censused of the total days in the bi-weekly period.

Weekend and weekday censused catch figures were expanded and totaled separately to preclude biasing the weekday estimations by applying the greater number of weekend anglers to the lesser-fished weekdays. Information obtained during dockside interviews included catch by species, angling effort in hours, preferred methods of angling, types of bait, areas of angling preference, and related information on boating equipment and weather conditions which would influence the success of the recreational angler.

Only those anglers fishing for personal use and using a single rod were considered to be "sport fishermen".

The term "sport-gearred commercial fishermen" is applied to those commercially-licensed individuals who normally used more than one sport rod, up to the four permitted under Fish and Game regulations, to take salmon for commercial sale.

Boats which were rigged with "trolling poles" or hand "gurdies" were considered to be strictly commercial vessels, and catches from these boats were not included in the census program.

FINDINGS

Juneau Area Saltwater Creel Census, 1968

The Juneau creel census study began June 1, 1968 and was conducted continuously until September 1. A small amount of sport fishing occurred both prior to and following these dates but was generally insignificant.

As in years 1965 through 1967, the census was conducted on all weekend days and two weekdays each weekly period, with anglers interviewed upon completion of their fishing day.

Aerial boat counts were scheduled throughout the season to determine the numbers of boats fishing on both weekend days and weekdays. The Juneau-Douglas, Auke Bay and Tee Harbor moorages were censused throughout the season, with emphasis shifted from one moorage to another as the changing angling pattern dictated.

The geographical area included in the census program remained the same as in 1967 and is shown in Figure 1.

The Juneau area had a considerable number of "sport-gearred" commercial fishermen, as did the other Southeast Alaska communities. Approximately one-third of the Juneau small-boat fleet was comprised of individuals angling with sport rods, but with the intent to sell their catch.

Table 1 indicates that although "sport-gearred" commercial operators were a minority numerically, they caught the majority of the salmon. During 1968, the average "sport-gearred" commercial fisherman spent 2.5 hours to catch one salmon, while the average sport angler spent 6.4 hours. Reasons for the superior effectiveness of this group of fishermen may include the multiple gear allowed, a greater familiarity with changes in fish movement due to greater time spent on the grounds and possibly a greater aptitude for salmon fishing in general.

In Table 1 and other tables dealing with fishing effort, it has been impossible to accurately determine the actual number of boats and the actual number of anglers censused during a bi-weekly period; therefore, the "boat trips" and "angler trips" shown in the various tables and discussions should not be interpreted to be the actual number of fishermen or boats in general.

Compared to the previous year, the outstanding difference in the 1968 salmon catch occurred in the number of coho and pink salmon taken. The 1968 catch of these species was considerably higher than that of several preceding years. The king salmon catch was essentially the same as in 1967, with a general leveling off of the downward trend which has occurred for several years.

The 1968 average salmon catch per boat trip is presented in Table 2 and is compared with years 1963 through 1967.

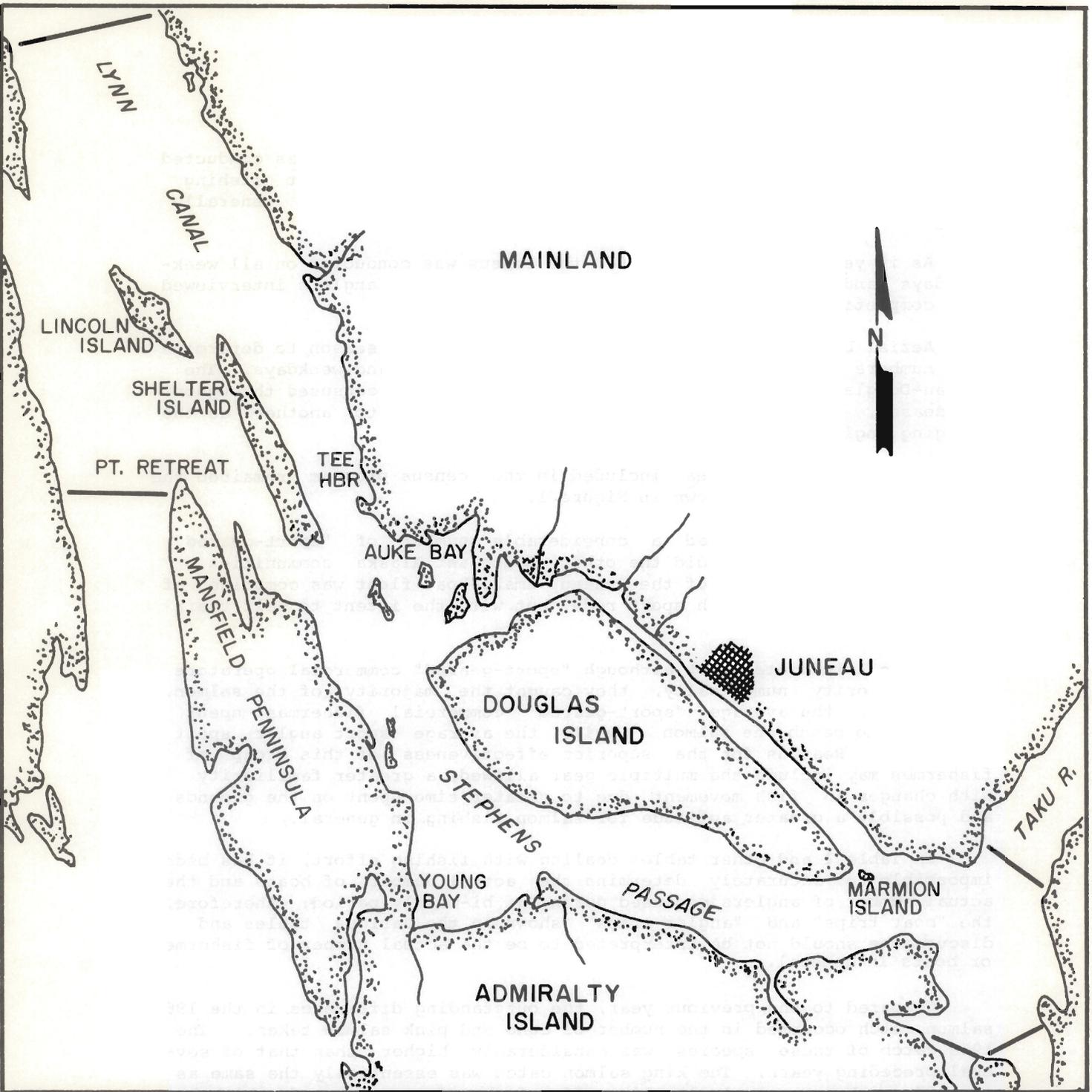


FIGURE 1. JUNEAU CREEL CENSUS BOUNDARIES, 1968.

TABLE 1 - Comparative Numbers of Sport and Sport-Geared Commercial Fishermen Censused, Including Their Respective Catches for the Juneau Area, 1968.

	<u>Sport</u>	<u>Percent of Total</u>	<u>Sport-Geared</u>	<u>Percent of Total</u>	<u>Total</u>
Boat trips	1,508	66.2	770	33.8	2,278
Angler trips	3,902	77.7	1,120	22.3	5,022
Angling hours	16,898	61.1	10,758	38.9	27,656
King salmon caught	629	48.8	661	51.2	1,290
Coho salmon caught	1,694	34.9	3,159	65.1	4,853
Pink salmon caught	301	36.7	519	63.3	820
Total salmon caught	2,622	37.5	4,369	62.5	6,991

TABLE 2 - Average Salmon Catch Per Boat Trip, Juneau, 1963 - 1968.

<u>Species</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
King	0.95	1.19	0.83	0.74	0.51	0.56
Coho	1.70	1.60	2.41	1.42	0.55	2.21
Pink	0.05	0.12	0.04	0.11	0.07	0.37
Chum	0.02	0.01	0.03	0.002	0.02	0.006

TABLE 3 - Creel Census Summaries by Bi-Weekly Periods, Excluding Salmon Derby, Juneau, 1968.

<u>Bi-Weekly Period</u>	<u>No. of Boats</u>	<u>No. of Anglers</u>	<u>Hours Fished</u>	<u>Total Salmon</u>	<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u>	<u>Red</u>
(one weekend)									
5/25 - 6/2	79	182	831	54	54				
6/3 - 6/16	207	500	2,472	131	103	26	2		
6/17 - 6/30	532	1,161	6,360	1,126	278	720	116	4	6
7/1 - 7/14	551	1,209	6,622	1,774	333	1,079	350	4	8
7/15 - 7/28	433	941	5,206	1,530	332	1,022	174	2	
7/29 - 8/11	142	317	1,813	565	60	451	53	1	
8/12 - 8/25	322	681	4,270	1,798	129	1,541	125	3	
(one week)									
8/26 - 9/1	12	31	82	13	1	12			
Totals	2,278	5,022	27,656	6,991	1,290	4,853	820	14	14

Census of the 1968 season revealed that 5,022 censused anglers fished 27,656 hours for a total catch of 6,991 salmon of all species. The average daily catch per angler was 1.4 salmon; the average catch per hour was 0.25 salmon. The bi-weekly census summaries and timing of the respective salmon species entering the saltwater sport fishery are presented in Table 3.

The Juneau sport fishermen normally take several miscellaneous species of fish incidentally while angling for salmon. Halibut, Hippoglossus stenolepis (Schmidt) and Dolly Varden, Salvelinus malma (Walbaum), comprised the majority of this catch. Several other species were also taken in smaller numbers. The censused catch of non-salmon species taken during the 1968 season by the 5,022 fishermen censused included 717 halibut, 205 Dolly Varden, 53 rockfish, Sebastes sp., and 4 ling cod.

Additional biological information including average weights and lengths of salmon, gear and bait preferences and boating equipment utilized by the successful anglers will be discussed in a later text section and in Tables 23, 24 and 25.

Estimated All-Season Catch:

The method of estimating the "all-season" catch has been discussed previously in this text and in a previous annual report by Heckart (1967).

A total of 93 days was censused during the season, including 28 weekend days and 65 weekdays.

Aerial boat counts indicated that 35.7 percent of all boats fishing were ultimately contacted for creel census interviews at dockside.

The method used to expand the weekday and weekend catch to derive a total "bi-weekly estimated catch" is as follows:

Weekend days (4) - 4 censused for 100% or a factor of 1.0
 Weekdays (10) - 4 censused for 40% or a factor of 2.5

Aerial boat counts show coverage of 35.7% or a factor of 2.8

Censused weekend catch x 1.0 x 2.8 = estimated total catch
 Censused weekday catch x 2.5 x 2.8 = estimated total catch

Total expanded bi-weekly catch

The total "all-season catch" is the sum of the expanded bi-weekly catches. Table 4 shows the censused and expanded all-season catch for the 1968 Juneau saltwater rod and reel fishery.

TABLE 4 - Censused and All-Season Expanded Salmon Harvest, Juneau, 1968.

	<u>Boat Trips</u>	<u>Angler Trips</u>	<u>Hours Fished</u>	<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u>	<u>Red</u>	<u>Total Salmon</u>
Censused	2,278	5,022	27,656	1,290	4,853	820	14	14	6,991
Estimated All-Season Catch	8,943	19,630	103,099	4,623	16,832	2,409	67	37	23,968

It should be recognized that the expanded catch totals are the result of expanding factors which differ from one bi-weekly period to another. They change with the intensity of census coverage; they differ on weekend

and weekdays; and they change with the percentage of boats observed fishing which were actually censused dockside. Therefore, the total estimated catch of one species is not always proportionate to that of another.

The "all-season catch" was intended to designate the expanded estimate of catch for the period censused, that is, all of the catch for the June-through-August sport fishing season. The figure has in the past been referred to as the yearly harvest for comparison purposes, being the only available total. It is generally assumed that only relatively minor catches occurred before June or after August, although more intensive census coverage reported by Finger and Armstrong (1965a) in 1960 and 1961 showed that more than 20 percent of the king salmon total had been taken for the combined Juneau-Ketchikan areas during the month of May. Finger and Armstrong (1965b) present other information which indicates that there may be considerable bias introduced into age-weight-length studies of the sport fishery if the catch prior to June is excluded. Thus, this "all-season catch" should not be misconstrued to represent the total catch or to be biologically representative of the king salmon take, although if subjected to effort analysis, it appears to provide a useful index of abundance for comparison purposes.

Presented in Table 5 is the expanded Juneau-area salmon harvest for 1965 through 1968. As mentioned earlier, the exceptional 1968 catch of both coho and pink salmon is evident.

TABLE 5 - Total Estimated Juneau Area Salmon Harvest, 1965 - 1968.

<u>Year</u>	<u>King Salmon</u>	<u>Coho Salmon</u>	<u>Pink Salmon</u>	<u>Chum Salmon</u>	<u>Total* Salmon</u>
1965	5,092	14,779	242	154	20,267
1966	4,825	7,911	594	14	13,344
1967	2,944	3,236	343	159	6,682
1968	4,623	16,832	2,409	67	23,931

*Excludes salmon derby catch but includes catch by sport-gearred commercial fishermen censused.

Juneau Salmon Derby:

The annual Juneau "Golden North Salmon Derby" was held August 2, 3 and 4. The derby boundaries, rules and regulations were similar to previous years, and from the standpoint of salmon taken, it was the most successful derby recorded.

As explained by Heckart (1967), the size of the derby and subsequent difficulty of obtaining accurate information precluded the opportunity of counting and weighing all fish entered.

The figures presented in Table 6 show only the total weight of salmon entered in the 1968 derby. Catch in pounds for years 1966 and 1967 is also shown for comparison.

TABLE 6 - Pounds of Salmon Caught in the Juneau Salmon Derby, 1966-1968.

<u>Year</u>	<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u>	<u>Total</u>
1966	12,080	6,953	406	261	19,700
1967	6,506	5,700	636	243	13,085
1968	6,870	15,073	1,682	56	23,681

Sitka Area Saltwater Creel Census, 1968

Creel census of saltwater sport fishermen in the Sitka Sound area began June 3 and terminated August 25. This period encompassed the majority of sport fishing effort in the Sitka area. The area included in the census was identical to 1967 and is shown in Figure 2.

The creel census program was conducted similar to those of 1965 through 1967, with all weekend and four weekdays censused each two-week period.

Aerial boat counts were made weekly on a regular census day to provide "boats angling-to-boats censused" correlations. These counts indicated that an average of 56.3 percent of the boats fishing on any census day were contacted upon their return to the harbor.

Most comments made in the preceding Juneau segment regarding "sport-gearred" commercial fishermen also hold true in the Sitka Sound area.

Slightly less than one-third of the fishermen in the Sitka area who utilized small boats and sport gear sold their fish commercially. The effectiveness of this group is emphasized by the fact that the average "sport-gearred" commercial fisherman spent 5.7 hours to catch one salmon; the average "sport" angler spent 22.5 hours.

Table 7 depicts the censused effort of the Sitka small boat fleet and the catch of salmon by both types of fishermen.

TABLE 7 - Comparative Numbers of Sport and Sport-Gearred Commercial Fishermen Censused With Their Respective Catches, Sitka Area, 1968.

	<u>Sport</u>	<u>Percent of Total</u>	<u>Sport-Gearred</u>	<u>Percent of Total</u>	<u>Total</u>
Boat trips	253	74.6	86	25.4	339
Angler trips	561	76.0	177	24.0	738
Angling hours	2,590	68.8	1,175	31.2	3,765
King salmon caught	49	34.8	92	65.2	141
Coho salmon caught	55	33.5	109	66.5	164
Total salmon caught	115	35.8	206	64.2	321

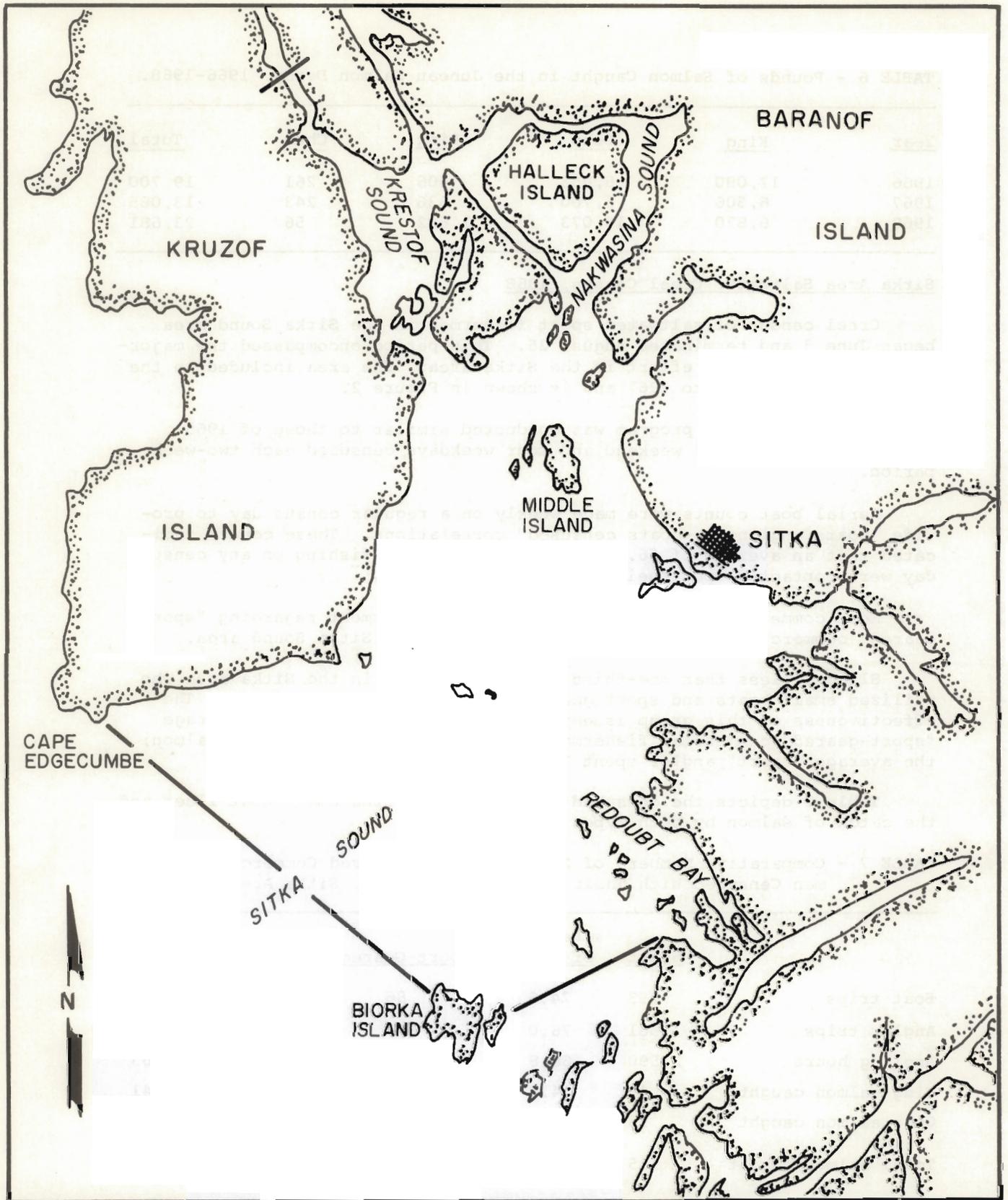


FIGURE 2. SITKA SOUND CREEL CENSUS BOUNDARIES, 1968.

The salmon catch per boat trip for recent years is depicted in Table 8. As in the Juneau discussion, the catch of king salmon was higher than in 1967, while the coho catch remained quite stable. Fishermen enjoyed good salmon fishing for all sport species during the 1968 season.

TABLE 8 - Average Salmon Catch Per Boat Trip, Sitka, 1964 - 1968.

<u>Species</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
King	0.19	0.41	0.33	0.22	0.41
Coho	0.53	0.32	0.40	0.49	0.48
Pink	--	0.31	0.01	0.07	0.04

A total of 738 anglers fished 3,765 hours for a censused catch of 323 salmon. The average angler fished 5.1 hours per trip for 0.44 salmon. The 0.44 salmon catch per angler is slightly higher than 1967, which was 0.36 salmon per angler. The increased availability of king salmon was responsible for this increase in angler success.

Halibut, rockfish, and Dolly Varden are the most often caught non-salmon species. In 1968, 24 Dolly Varden, 86 halibut, 10 ling cod, and 99 rockfish were included in the census.

Presented in Table 9 are the censused, bi-weekly salmon catches for the Sitka Sound area.

Estimated All-Season Catch:

The method of expanding the censused catch to derive an estimated season catch is identical to that used in the Juneau census. Twenty weekdays and 19 weekend days were censused for coverages of 33.3 and 79.1 percent, respectively.

The aerial boat counts indicated that, on a seasonal average, 56.3 percent of all boats fishing were ultimately contacted for creel census information. Censused weekday and weekend catches were expanded separately and then totaled for the all-season catch which is shown in Table 10.

TABLE 10 - Censused and All-Season Expanded Salmon Harvest, Sitka Sound, 1968.

	<u>Boat Trips</u>	<u>Angler Trips</u>	<u>Hours Fished</u>	<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u>	<u>Total Salmon</u>
Censused	339	738	3,765	141	164	16	2	323
Estimated All- Season Catch	1,654	3,634	18,179	677	823	87	7	1,594

TABLE 9 - Creel Census Summaries by Bi-Weekly Periods, Excluding Salmon Derby Days, Sitka, 1968.

Bi-Weekly Period	No. of Boats	No. of Andlers	Hours Fished	Total Salmon	Kinds	Coho	Pink	Chum
6/3 - 6/16	85	185	1,066	26	25	1	0	0
6/17 - 6/30	9	18	66	0	0	0	0	0
7/1 - 7/14	74	160	840	56	35	18	3	0
7/15 - 7/28	81	182	971	98	54	40	4	0
7/29 - 8/11	52	111	492	103	22	76	3	2
8/12 - 8/25	<u>38</u>	<u>82</u>	<u>330</u>	<u>40</u>	<u>5</u>	<u>29</u>	<u>6</u>	<u>0</u>
Totals	339	738	3,765	323	141	164	16	2

Table 11 reflects the estimated seasonal salmon catch for 1965 through 1968. It can be readily seen that the number of both coho and king salmon caught was higher during 1968 than during the previous three years.

TABLE 11 - Total Estimated Sitka Sound Salmon Harvest, 1965 - 1968.

<u>Year</u>	<u>King Salmon</u>	<u>Coho Salmon</u>	<u>Pink Salmon</u>	<u>Chum Salmon</u>	<u>Total* Salmon</u>
1965	383	217	206	--	806
1966	582	437	60	3	1,082
1967	380	478	48	4	910
1968**	907	1,004	89	7	2,007

*Figures include both the recorded salmon derby catch and that of sport and sport-gearred commercial fishermen censused.

**1968 salmon derby catches are approximate, as they were converted from commercial poundage tables based on average weight by species.

Sitka Salmon Derby:

The annual Sitka Salmon Derby was held on two consecutive weekends on June 15 and 16, and 22 and 23. Derby boundaries remained the same as in the past and were essentially the same as the area shown in Figure 3.

During 1968, Sitka enjoyed the most successful derby in its history. The catch of salmon was nearly double that of any previous derby, and the catch of both king and coho surpassed that of any prior derby.

It should be noted that, as shown in Table 12, the catch by numbers was estimated from the recorded weights. These figures, although based on average weight, are thought to be quite accurate as the same conversion tables are used to arrive at commercial salmon catches for the Sitka area.

TABLE 12 - Sitka Salmon Derby Catch, 1965 - 1968.

<u>Year</u>	<u>Total Salmon</u>	<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>H</u>	<u>LC</u>	<u>RS</u>	<u>DV</u>
1965	194	155	38	1	60	11	--	2
1966	241	188	50	3	78	22	--	4
1967	233	214	17	2	94	74	6	--
1968*	413	230	181	2	-----No Data-----			

*Numbers of catch derived from poundage conversion table and are approximate.

H - Halibut; LC - Ling Cod; RS - Red Snapper; DV - Dolly Varden

Petersburg Area Saltwater Creel Census, 1968

The saltwater creel census program initiated in 1967 was again conducted in the Petersburg area during the spring of 1968. The census program used the same methods as those used during 1967 in the Petersburg and other Southeast areas, with census being conducted on two weekdays and one weekend day each weekly period.

Major emphasis of the census was placed on king salmon which were available in the Petersburg area from April until late June. Significant numbers of halibut were also taken incidentally at this time of year while fishing for king salmon.

The king salmon fishing areas covered during the census were primarily confined to Wrangell Narrows and Point Frederick in Frederick Sound. These areas are shown in Figure 3. On each census day boat counts were conducted by skiff prior to taking census at the Petersburg small boat harbor for a correlation of boats observed to those censused.

A number of anglers fished commercially with skiffs and sport gear in Petersburg as they did in the other southeast areas. The approximate one-fifth of Petersburg fishermen, which comprise the "sport-gear" commercial operators, spent an average of 8.1 hours to catch one salmon; the recreational sport fishermen spent an average of 27.0 hours. The effectiveness of the former group was evident in Petersburg, as elsewhere.

During the 84-day census period, 333 fishermen took a total of 79 king salmon (Table 13) and 33 halibut. The average angler fished 4.3 hours per trip for a mean catch of 0.24 king salmon.

TABLE 13 - Comparative Numbers of Sport and Sport-Gear Commercial Fishermen Censused, Including Their Respective Catches, Petersburg Area, 1968.

	<u>Sport</u>	<u>Percent of Total</u>	<u>Sport-Gear</u>	<u>Percent of Total</u>	<u>Total</u>
Boat trips	115	64.6	63	35.4	178
Angler trips	263	78.9	70	21.1	333
Angling hours	1,109	78.2	308	21.8	1,417
King salmon caught	41	51.8	38	48.2	79

Halibut and Dolly Varden were the only non-salmon species landed during the census period.

Presented in Table 14 are the bi-weekly census summaries for the Petersburg area saltwater salmon fishery.

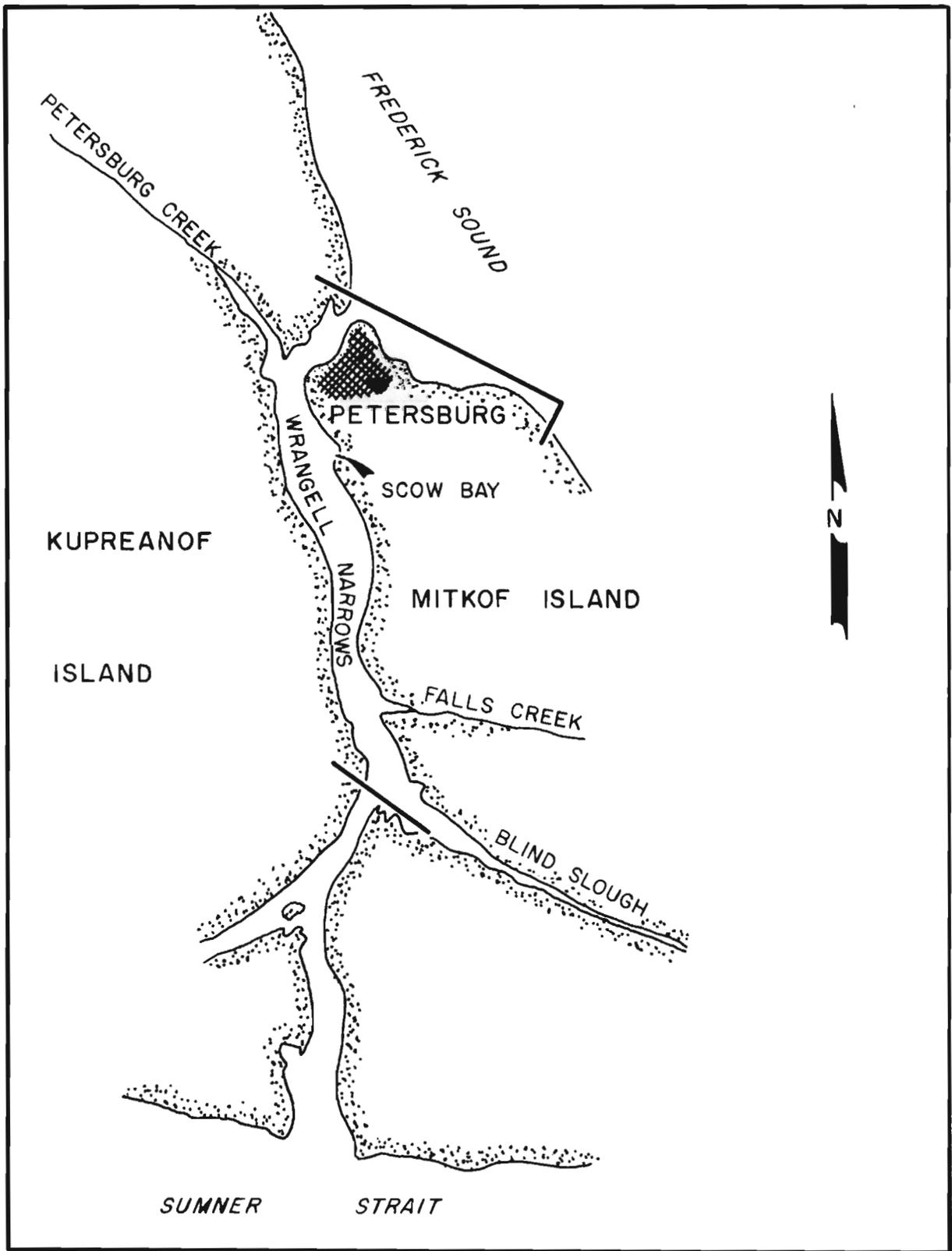


FIGURE 3. PETERSBURG CREEK CENSUS BOUNDARIES, 1968.

TABLE 14 - Creel Census Summaries by Bi-Weekly Periods, Petersburg, 1968.

<u>Bi-Weekly Period</u>	<u>No. of Boats</u>	<u>No. of Anglers</u>	<u>Hours Fished</u>	<u>Total Kings</u>	<u>Total Halibut</u>
4/1 - 4/14	9	16	54.5	2	8
4/15 - 4/28	28	48	197.0	13	5
4/29 - 5/12	24	49	201.5	6	6
5/13 - 5/26	32	61	313.5	23	1
5/27 - 6/9	52	99	411.0	21	4
6/10 - 6/23	33	60	239.5	14	9
Totals	178	333	1,417.0	79	33

The Petersburg-area censused catch was expanded in the same manner as Juneau, Sitka and Ketchikan, with one exception. The actual censusing of anglers was conducted on one weekend day and two weekdays, rather than both weekend days and two weekdays. The estimated seasonal harvest by bi-weekly periods for the Petersburg area appears in Table 15.

TABLE 15 - Estimated All-Season Salmon Harvest by Bi-Weekly Periods, Petersburg Area, 1968.

<u>Bi-Weekly Periods</u>	<u>No. of Boat Trips</u>	<u>No. of Angler Trips</u>	<u>Hours Fished</u>	<u>Total Kings</u>	<u>Total Halibut</u>
4/1 - 4/14	37	65	207.0	7	29
4/15 - 4/28	120	198	832.0	55	18
4/29 - 5/12	122	248	975.0	38	24
5/13 - 5/26	146	276	1,369.0	103	4
5/27 - 6/9	178	338	1,375.9	75	17
6/10 - 6/23	144	263	1,001.0	59	31
Totals	747	1,388	5,759.9	337	123

Total king salmon catches for 1967 and 1968 are presented comparatively in Table 16. While the total number of anglers increased by approximately 60 percent, the overall mean salmon catch per angler remained nearly the same for both years.

TABLE 16 - Comparative King Salmon Harvest and Angler Effort, Petersburg Area, 1967 and 1968.

<u>Year</u>	<u>No. of Angler Days</u>	<u>Estimated Catch</u>	<u>Catch Per Angler Day</u>
1967	646	190	0.29
1968	1,388	337	0.24

Additional data pertaining to salmon lengths and weights, gear and bait preferences, and boating equipment used in the Petersburg area are presented in a following section and in Tables 23, 24 and 25.

Ketchikan Area Saltwater Creel Census, 1968

Creel census of the Ketchikan sport fishery covered a 98-day period from May 20 until August 25. The creel census program and schedule of aerial boat counts were conducted as in 1967 and was identical in manner to those conducted in the Sitka, Petersburg and Juneau areas. Descriptions of the census program and aerial boat-count schedules can be found in previous discussions.

The area covered by the census program was bounded by a line just south of Ice House Cove to Tatoosh Rocks on the north, as depicted in Figure 4. This was essentially the same area as was covered by census programs in previous years and encompassed the majority of the major sport fishing areas found in the Ketchikan area.

Presented in Table 17 is the censused effort and catch of sport and "sport-gearred" commercial boats comprising the Ketchikan fishing fleet. Again, the obvious effectiveness of the "sport-gearred" commercial fisherman is shown. The "sport-gearred" commercial fisherman and the sport angler spent 4.1 and 14.9 hours, respectively, to catch one salmon.

TABLE 17 - Comparative Numbers of Sport and Sport-Gearred Commercial Fishermen Censused, Including Their Respective Catches, Ketchikan, 1968.

	<u>Sport</u>	<u>Percent of Total</u>	<u>Sport-Gearred</u>	<u>Percent of Total</u>	<u>Total</u>
Boat trips	462	93.3	33	6.7	495
Angler trips	1,144	93.8	75	6.2	1,219
Angling hours	7,480	91.1	728	8.9	8,208
King salmon caught	200	80.0	50	20.0	250
Coho salmon caught	158	74.1	55	25.9	213
Pink salmon caught	141	66.5	71	33.5	212
Total salmon caught	501	73.8	177	26.2	678

The average salmon catch per boat trip for the Ketchikan area in 1968 is presented in Table 18 and is compared with the average salmon catch per boat trip for 1965 through 1967.

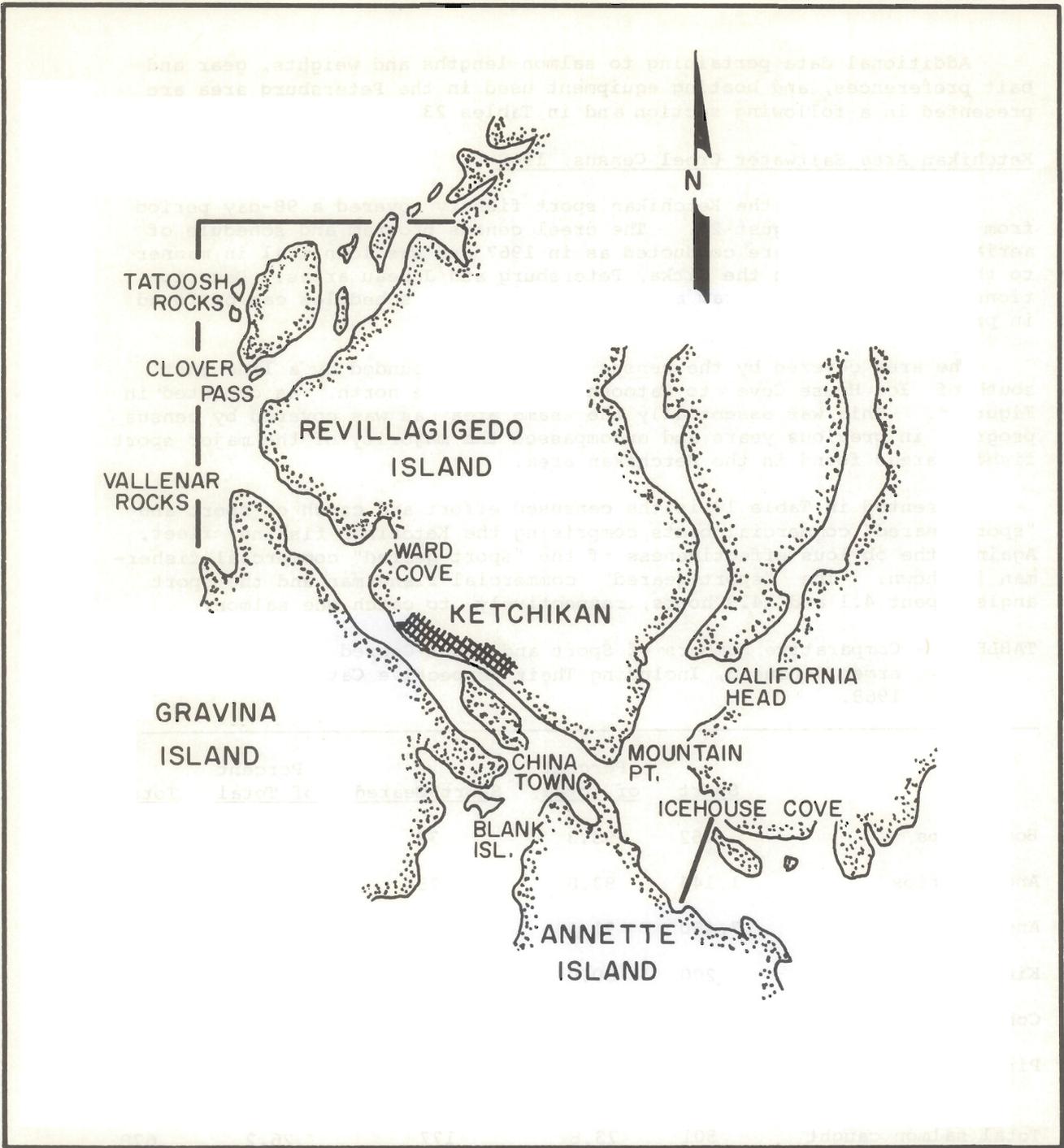


FIGURE 4. KETCHIKAN CREEL CENSUS BOUNDARIES, 1968.

TABLE 18 - Average Salmon Catch Per Boat Trip, Ketchikan Area, 1965-1968.

<u>Species</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
King	0.36	0.55	0.39	0.50
Coho	0.22	0.19	0.02	0.42
Pink	0.14	0.43	0.002	0.42
Chum	0.008	0.009	0.01	0.008

The king salmon catch showed an increase over 1967 but was still slightly below that recorded in 1966. Coho catch per boat trip was up sharply to the highest level recorded to date. The pink salmon catch was up from 1967 and was equal to the catch recorded from 1966. The overall salmon catch per boat trip was the best recorded, being slightly better than 1966.

The bi-weekly creel census summaries for the Ketchikan area salmon fishery appear in Table 19. The 1,219 anglers interviewed during the season fished a total of 8,208 hours to land a total of 678 salmon. The average angler fished 6.7 hours per trip for a catch of 0.56 salmon. The harvest of 0.56 salmon per angler is a significant increase over the 0.24 salmon per angler in 1967.

TABLE 19 - Creel Census Summaries by Bi-Weekly Periods, Ketchikan, 1968.

<u>Bi-Weekly Period</u>	<u>No. of Boats</u>	<u>No. of Anglers</u>	<u>Hours Fished</u>	<u>Fish Caught</u>				<u>Total Salmon</u>
				<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u>	
5/20 - 6/2	273	684	5,366.0	150	--	--	--	150
6/3 - 6/16	53	122	738.5	40	24	12	1	77
6/17 - 6/30	57	138	769.0	22	88	68	--	178
7/1 - 7/14	35	82	375.0	14	36	60	--	110
7/15 - 7/28	23	57	282.0	10	36	18	1	65
7/29 - 8/11	28	63	432.0	10	14	30	--	54
8/12 - 8/25	<u>26</u>	<u>73</u>	<u>245.5</u>	<u>4</u>	<u>14</u>	<u>24</u>	<u>2</u>	<u>44</u>
Totals	495	1,219	8,208.0	250	212	212	4	678

The catch of miscellaneous non-salmon species taken in the Ketchikan area included 34 halibut, 2 ling cod and 79 rockfish. The predominate fish taken near Ketchikan was the various species of rockfish, whereas halibut comprised the major non-salmon catch in the other census areas of Southeast Alaska.

Estimated All-Season Salmon Catch, Ketchikan, 1968:

The censused saltwater salmon catch was expanded to an "all-season estimated catch" using the same method as in the Juneau, Sitka and Petersburg programs.

Weekend and weekday catches were expanded separately and totaled for a bi-weekly harvest. The bi-weekly catches were finally totaled for an all-season harvest. Aerial boat counts were flown on alternate censused weekdays and weekend days. The aerial counts indicated that an average of 20 percent of the boats observed on any given census day were actually contacted upon their return to the Ketchikan small-boat harbor.

The 1968 censused and estimated total salmon harvest by both sport and "sport-gearred" commercial fishermen in the Ketchikan area appears in Table 20.

TABLE 20 - Censused and All-Season Expanded Salmon Harvest, Ketchikan, 1968.

	<u>Boat Trips</u>	<u>Angler Hours</u>	<u>Hours Fished</u>	<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u>	<u>Total Salmon</u>
Censused	495	1,219	8,208	250	212	212	4	678
Estimated All-Season Catch	3,319	8,259	57,008	1,667	1,303	1,254	20	4,244

Estimated salmon catches for 1965 through 1968 are presented in Table 21. The 1968 catch of all species of salmon was the greatest recorded since the census program was initiated in 1965. A strong run of coho and pink salmon accounted for the majority of the good catch in 1968.

TABLE 21 - Total Estimated All-Season Ketchikan Area Salmon Harvest for 1965 - 1968.

<u>Year</u>	<u>King Salmon</u>	<u>Coho Salmon</u>	<u>Pink Salmon</u>	<u>Chum Salmon</u>	<u>Total* Salmon</u>
1965	1,161	236	154	11	1,562
1966	1,179	457	1,142	13	2,791
1967	594	86	22	2	704
1968	1,667	1,303	1,254	20	4,244

*Includes both the salmon derby catch and that of the sport-gearred commercial fishermen censused.

The annual Ketchikan "Sweepstakes" salmon derby catch was not separated for the seasonal catch and is included in the all-season catch data.

Additional data pertaining to salmon lengths and weights, gear and bait preferences, and boating equipment used in the Ketchikan area are presented in a following section and in Tables 23, 24 and 25.

Bell Island Area Saltwater Creel Census, 1968

Creel census of the Bell Island salmon fishery is treated separately in this report due in part to its location and the regulatory measures which limited the fishermen to one king salmon per day between June 1 and July 31.

Bell Island lies in Behm Canal, approximately sixty miles northeast of Ketchikan. The Bell Island Hot Springs and Fishing Resort, with accommodations for approximately 40 fishermen, is located on the southern end of Bell Island. As this area is some distance from Ketchikan, most fishermen in the area are non-resident guests at the resort, with Alaska residents contributing only 12 percent of the 1,194 angler-days of census information collected.

The Bell Island creel census covered a 104-day period from May 20 to August 31, 1968. Census was conducted each day as the anglers returned to the dock at Bell Island Resort. Only those anglers fishing out of the Resort were censused. Small numbers of anglers from Ketchikan and other areas fished in the Bell Island area but were not included in this section as their catch appears in the Ketchikan area report.

Salmon catch for the Bell Island area was 917 fish of which 686 were king salmon. A total of 1,194 anglers fished a total of 7,513 hours to catch 917 salmon for an average of 6.3 hours per angler-day and a mean catch of 0.77 salmon (Table 22).

TABLE 22 - Creel Census Summaries by Bi-Weekly Periods, Bell Island Area, 1968.

<u>Bi-Weekly Period</u>	<u>No. of Anglers</u>	<u>No. of Hours</u>	<u>King</u>	<u>Coho</u>	<u>Pink</u>	<u>Chum</u>	<u>Total Salmon</u>
5/20 - 6/2	110	803	88	--	--	--	88
6/3 - 6/16	217	1,672	179	--	11	--	190
6/17 - 6/30	258	1,994	150	--	77	6	233
7/1 - 7/14	167	946	76	--	82	2	160
7/15 - 7/28	161	848	64	2	10	--	76
7/29 - 8/11	119	522	49	13	--	--	62
8/12 - 8/25	125	534	59	21	--	--	80
8/26 - 9/8*	<u>37</u>	<u>194</u>	<u>21</u>	<u>7</u>	<u>--</u>	<u>--</u>	<u>28</u>
Totals	1,194	7,513	686	43	180	8	917

*Census was terminated on 8/31/68.

Halibut was the only non-salmon species landed at Bell Island during the census period, and a total of 68 of these fish was checked at the dock.

General Comparisons, Southeast Alaska Creel Census, 1968

The following biological data is presented in comparative form for each of the four respective Southeast Alaska population areas censused in 1968.

The average lengths and weights presented in Tables 23 and 24 were derived from the bi-weekly census summaries. These fish were actually weighed and measured as the saltwater sport fishermen returned to the moorages.

The Petersburg census was conducted earlier in the season as the fish were the most abundant at this time and angling pressure the heaviest. Although the data is not strictly comparative, Petersburg data is shown with that of the other areas.

TABLE 23 - Average Lengths in Centimeters of Salmon Taken in Respective Southeast Alaska Census Areas, 1968.

	<u>Juneau</u>		<u>Sitka</u>		<u>Ketchikan</u>		<u>Petersburg</u>
	<u>King</u>	<u>Coho</u>	<u>King</u>	<u>Coho</u>	<u>King</u>	<u>Coho</u>	<u>King</u>
April 1 - 15							70.0
16 - 30							84.7
May 1 - 15							80.6
16 - 31							78.3
June 1 - 15	76.8	63.9	75.7	46.5	81.2	58.2	76.2
16 - 30	67.2	64.4	Derby		91.7	58.2	78.4
July 1 - 15	70.3	64.3	69.2	66.1	74.3	62.5	
16 - 31	68.7	65.4	89.5	65.5	81.63	64.3	
August 1 - 15	67.2	66.4	69.8	67.9	69.9	63.6	
16 - 31	69.0	67.1	59.3	69.6	70.3	62.8	

TABLE 24 - Average Round Weights in Pounds of Salmon Taken in Respective Southeast Alaska Census Areas, 1968.

	<u>Juneau</u>		<u>Sitka</u>		<u>Ketchikan</u>		<u>Petersburg</u>
	<u>King</u>	<u>Coho</u>	<u>King</u>	<u>Coho</u>	<u>King</u>	<u>Coho</u>	<u>King</u>
April 1 - 15							9.0
16 - 30							25.2
May 1 - 15							21.1
16 - 31							20.9
June 1 - 15	13.9	7.5	20.4	2.0	15.6	5.3	16.0
16 - 30	8.0	8.2	Derby		19.6	5.0	19.4
July 1 - 15	11.8	7.2	13.5	7.2	20.8	6.3	
16 - 31	10.8	7.5	14.7	8.2	15.5	7.0	
August 1 - 15	12.3	8.9	11.6	9.2	12.9	8.2	
16 - 31	12.3	8.7	7.0	9.2	13.5	6.6	

Bait, boating equipment, gear preferences, and fishing techniques differed somewhat from one area to another. Table 25 represents these comparative choices by successful anglers for all four census areas.

TABLE 25 - Fishing Success by Angling Method, Bait Type and Boat Preferences, All Southeast Alaska Areas, 1968.

		Percent of Total			
		Juneau	Sitka	Ketchikan	Petersburg
Angling Method:	Troll	65	100	100	90
	Mooch	3	---	---	10
	Strip	3	---	---	--
	Other	29	---	---	--
Bait Type:	Whole herring	42	62	91	80
	Plug cut	19	19	1	15
	Strip cut	28	6	2	5
	Plugs, spoons	11	13	6	--
Herring:	Fresh	38	4	1	76
	Frozen	62	96	99	24
Boat Type:	Open < 20'	25	38	48	29
	Cabin 16-20'	62	49	45	36
	Cabin > 20'	13	13	7	35
Power:	Outboard	67	70	87	79
	Inboard	33	30	13	21

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