Volume 6 Report No. 1-D

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

STATE: ALASKA Name: Sport Fish Investigations of Alaska.

Project No.: F-5-R-6 Title: Investigations of Sitka Salt Water Sport Fish Harvest.

Job No.: 1-D

Period Covered: July 6, 1964 to September 6, 1964.

ABSTRACT

A creel census of the saltwater sport fish harvest in the Sitka Sound area of Baranof Island was performed from July 6, 1964 through September 6, 1964.

The present study is the initial attempt by the Alaska Department of Fish and Game to evaluate the species and number of sport fishes harvested in the salt waters of the Sitka area. Certain limitations in this investigation are apparent because the fishery biologist position in Sitka was not filled until June 12, 1964, and, in covering such an extensive area for the first time, considerable exploration of the area and familiarization with the fishery was necessary.

Boat and angler interviews were conducted each Monday, Wednesday, Friday, Saturday and Sunday for a 71.4 percent sample of the creel census period.

Persons sport fishing in Sitka Sound caught an estimated total of 122 king salmon, *Oncorhynchus tshawytscha* (Walbaum), and 352 coho salmon, *Oncorhynchus kisutch* (Walbaum). The total sport fishing effort is estimated at 5715.6 man hours in 677 boat trips. Although other species of fish are available to anglers in abundant quantities, they enter the sport fish catch incidental to sport fishing for king and coho salmon and are infrequently sought exclusively by sport fishermen.

Anglers averaged 0.70 salmon (king and coho) per boat trip. The individual catch per unit of effort for king and coho salmon was 0.09 per hour. Average weights of king and coho salmon landed by sport fishermen during the study period were 24.7 pounds and 9.6 pounds, round weight, respectively.

Other data and information obtained in conjunction with the fishing effort and number of fish caught included types

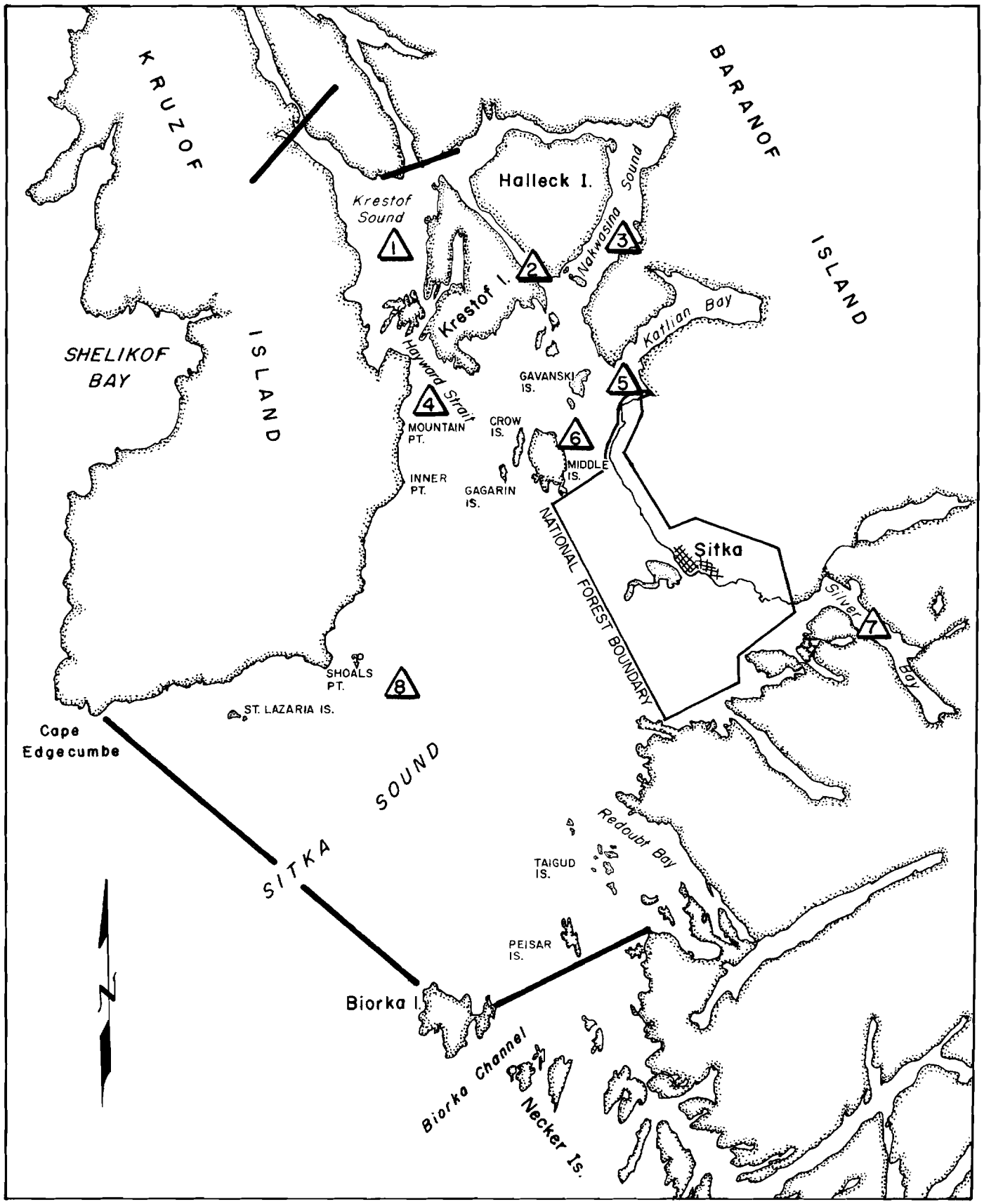

Figure I. Sitka Sound Creel Census Boundaries and Popular Salmon Trolling Areas.

of boats used, gear and methods of angling and areas most frequented by sport fishermen. Biological data was restricted to weights, lengths and scale samples of salmonids.

The 1964 Sitka Salmon Derby totals are included as additional information in estimating the total sport fish catch in Sitka Sound.

RECOMMENDATIONS

1. That the study be continued.

2. That management efforts be directed toward publicizing the numerous and abundant species of bottom fish and other species available, e.g., sea-run Dolly Varden, Salvelinus malma (Walbaum).

3. That a statistical design be formulated to obtain fish harvest data of comparative estimates on an annual basis.

4. The present sport fishing regulations pertaining to the sport fish harvest of salmon in salt water are adequate in providing a regulated harvest and liberal creel limit to satisfy anglers. Until the factors of present salmon stocks or angler use alter, it is recommended that no changes be made in the present sport fishing regulations for salt water in Sitka Sound.

OBJECTIVES

1. To obtain a reasonable estimate of the species and numbers of sport fishes harvested in salt waters of the Sitka area.

2. To obtain an index of the size and age classes of these saltwater fishes.

TECHNIQUES USED

Census Methods

A creel census taker alternated among three boat landings on the prescribed sampling day interviewing anglers who had completed fishing for the day. Anglers interviews were conducted from 8:30 a.m. until 11:00 p.m. or until darkness as the season progressed.

Aerial surveys were made of the Sitka Sound area on successive weekend days and correlated with the boat landing interviews to establish the mean percent of boats contacted at dockside in relation to the total number of boats observed sport fishing during aerial survey.

Lengths and weights of king and coho salmon were recorded from the catch. Scale samples were obtained from every other king salmon recorded.

Information on fishing techniques, fishing gear, fishing success, boats and areas of intensive fishing effort was collected as part of each interview.

Creel census boundaries were established to conform to the area established by the Sitka Salmon Derby.

Background information was obtained from the Commercial Fisheries Division, Alaska Department of Fish and Game, on troll-caught landings of king and coho salmon and was utilized in directing the course of the study.

FINDINGS

Sitka Sound is located centrally on the west side of Baranof Island and is exposed to the Pacific Ocean. Within the confines of Sitka Sound are approximately 300 square miles of navigable waters of which all are accessible to sport fishermen using pleasure craft of adequate design for salt water use. Summer weather conditions are usually favorable for extensive ventures to all parts of the Sound area while winter climatic conditions preclude all but the most protected waters and larger craft. Figure 1 presents the Sitka Sound area and the boundaries of the present fish harvest survey. The boundaries of the survey as indicated were established, in part, by the limitations imposed by the size of the boats and their operating range and, in part, to conform to the boundary limits of the Sitka Salmon Derby.

Year-round sport fishing is available on the variety of bottom fishes present, including Pacific halibut, *Hippoglossus stenolepis* (Schmidt), ling cod, *Ophiodon elongatus* (Girard) and numerous rock fish species. King salmon feeders frequent the many bays and rip-tide areas through the winter months and would be available to sport fishing but are excluded due to harsh and often dangerous weather conditions.

There are three boat moorages available to the boating public in Sitka - Thompsen Harbor, A.N.B. Dock and Sea Sports, Inc., Jamestown Bay. Boat interviews were obtained at all three locations each Monday, Wednesday, Friday, Saturday and Sunday from 8:30 a.m. until 11:00 p.m. or until darkness as the season progressed. The census taker alternated throughout the sample day among the three moorages obtaining as many angler interviews as possible. It was thought that some boats would not be contacted as the census taker could not cover all three landings simultaneously; however, experience soon showed that the great majority of sport fishing boats operated from Thompsen Harbor. This fact allowed the census taker to confine his data

collecting efforts to Thompsen Harbor for the most part and at the same time easily keep track of the small number of boats at the other two landings by periodic checks throughout the sampling day.

Angler Success and Catch

During the 63-day study period, 236 boats and 465 fishermen were contacted and interviewed. As presented in Table 1, these anglers fished a reported 1991.5 hours to take 46 king salmon and 126 coho salmon. Only two other species of fish were noted; one 12-pound ling cod and one 3.5-pound sea-run Dolly Varden. Overall catch per unit of effort for both king and coho salmon during the census period was 0.90 fish per hour or 0.70 fish per boat trip. Average in-the-round weights of 46 king salmon and 126 coho salmon checked were 24.7 pounds and 9.6 pounds, respectively.

Table 2 is the estimate of the total fishing effort and catch as expanded from the data in Table 1. In arriving at the total estimates of effort and catch, a fixed factor (F) was calculated as the mean percent of boats interviewed per sample day. This factor was established by comparative aerial and dockside interviews on seven independent weekend days (Table 3).

The total estimated catch for Sitka Sound, including the totals from the Sitka Salmon Derby, is 302 king salmon and 407 coho salmon (Table 4).

In a comparison of weekly averages of individual catch per unit of effort and weekly boat counts (Figure 2), a correlation is indicated between C.P.U.E. and the number of boat trips, reflecting the availability of salmon to the angler. Comparing the correlation of availability from Figure 2 with Figure 3, the seasonal sport-caught salmon landings, the regular movement and occurrence of king and coho salmon in Sitka Sound can be approximately defined. King salmon present in Sitka Sound in July and August are feeder fish and, as such, fluctuate in abundance seasonally, following feed. Coho salmon become abundant in late July through August as they move into Sitka Sound preparatory to ascending local spawning streams in August and September.

A seasonal high of effort and catch for coho salmon was noted from August 2 through August 16. The drop in effort and catch in the succeeding period of August 17 through August 23 was due to weather conditions including fog, high winds and choppy seas.

Methods, Boats and Types of Fishing Gear

Almost without exception, saltwater sport fishing for salmon in the Sitka Sound area is accomplished by trolling. Fresh

TABLE 1. - Creel Census Summaries by Weekly Periods, Sitka Sound, 1964

Weekly Period	Number of Boats	Number of Anglers	Hours Fished	Total Salmon	Total Kings	Total Cohos	Other Species	Total Pounds Salmon**	Angler C.P.U.E.
*	Sitka Salmon Derby	530	-	215	170	45	21-Halibut 729# 17-Ling Cod 624#	3,965.4	-
7/6-7/12	28	58	242.0	8	5	3	1-Ling Cod 12#	149.4	.033
7/13-7/19	29	70	295.5	18	12	6	-	325.3	.061
7/20-7/26	29	57	238.0	22	7	15	-	315.0	.092
7/27-8/2	30	60	255.0	26	7	19	-	338.1	.102
8/3-8/9	34	67	316.0	31	6	25	-	380.6	.098
8/10-8/16	28	51	203.0	32	7	25	-	280.0	.157
8/17-8/23	18	34	139.0	9	1	8	-	76.4	.065
8/24-8/30	23	38	182.0	19	1	18	-	169.2	.104
8/31-9/6	17	31	121.0	7	0	7	1- 3-1/2# Sea-Run Dolly Varden 15.5#	65.7	.058
TOTAL	236	465	1,991.5	172	46	126		2,171.6	.09

* The 1964 Sitka Salmon Derby was held on two successive weekends, June 20-21 and June 27-28. Derby totals are excluded from the grand totals.

** Fish weighed in the round.

TABLE 2. - Estimate of Total Fishing Effort and Catch, 1964

Total Days in Census Period	63
Total Days Sampled	45
Percent of Census Period Sampled	71.4%
Mean Percent Sampled Per Sample Day	48.9% (F)

$$\text{Estimated Total} = \text{Sample Interviewed} \times \frac{\text{Sample Period Days}}{\text{Days Sampled}} \times \frac{(1)}{(F)}$$

1. Total Estimated FM = 465 x 1.4 x 2.05 = 1335 FM

2. Total Estimated Hours of Effort = 1991.5 x 1.4 x 2.05 = 5715.6 MH

3. Total Estimated Boat Trips = 236 x 1.4 x 2.05 = 677 Boat Trips

4. Total King Salmon = 46 x 1.4 x 2.05 = 132 Kings

5. Total Coho Salmon = 126 x 1.4 x 2.05 = 362 Coho

F - Fixed factor derived from comparative aerial and dockside interviews on seven weekend days.
FM - Fishermen
MH - Man Hours of Fishing Effort

TABLE 3. - Aerial Boat Count and Comparative Dock Interviews, Sitka Sound Sport Fish Creel Census, 1964

Date	Boat Count*	Dock Interview	Percent of Aerial Count
July 11	19	7	36.8
July 12	18	12	66.6
July 18	14	5	35.7
July 19	32	11	34.4
July 25	17	11	64.8
July 26	25	10	40.0
August 2	14	12	85.8
Total	139	68	
Average			48.9

* All flights made at approximately 2:00 p.m. and counts are total number of boats fishing at that time. Experience indicated that these aerial counts were substantially the entire total of boats for that day.

TABLE 4. - Estimated Total Catch of King and Coho Salmon by Sport Fishermen in Sitka Sound from July 6, 1964 through September 6, 1964, and Sitka Salmon Derby Totals

Total Estimated King Salmon	132
Sitka Salmon Derby King Salmon	170
Total Estimated Coho Salmon	362
Sitka Salmon Derby Coho Salmon	45
Total Salmon	709

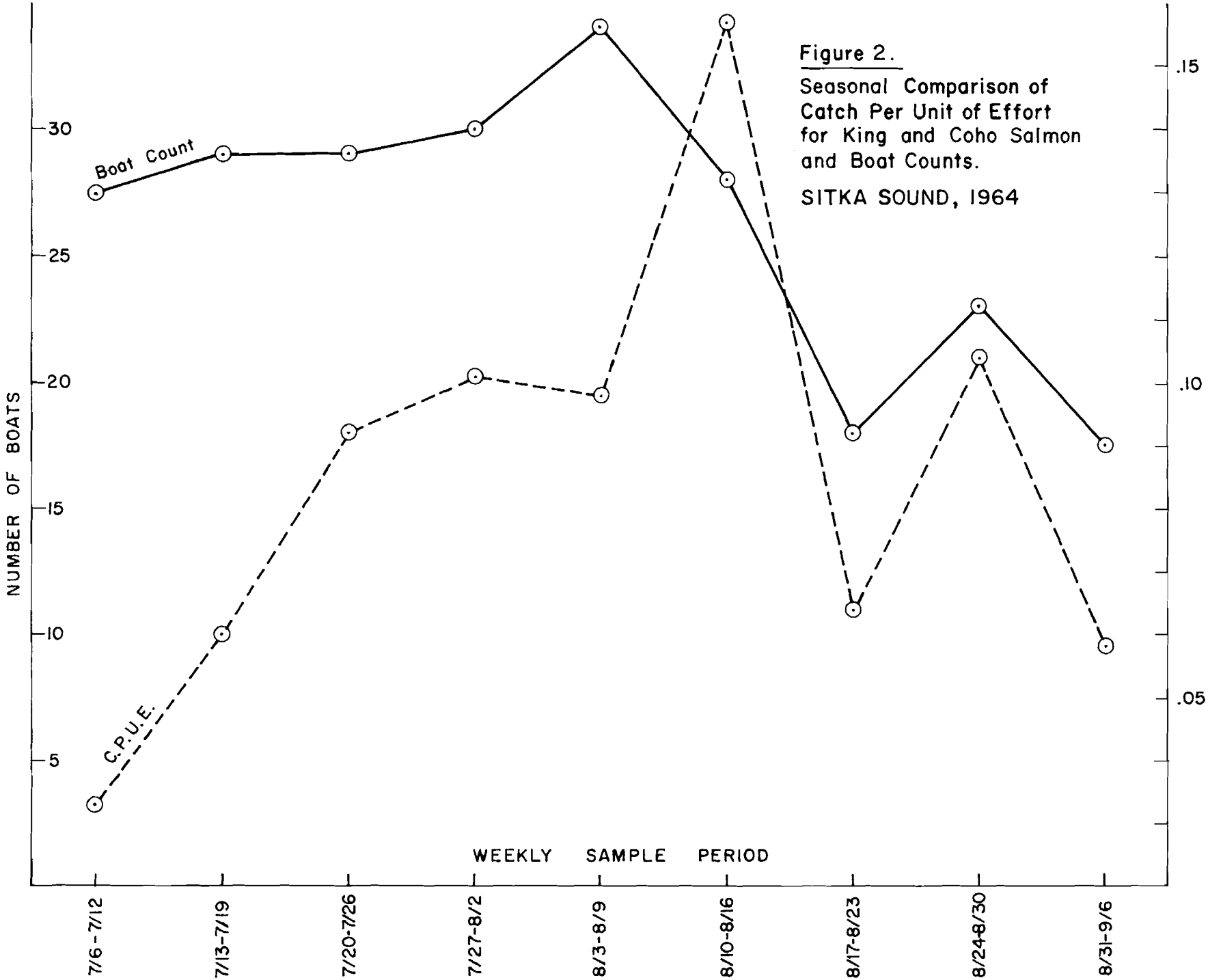

Figure 2.
Seasonal Comparison of Catch Per Unit of Effort for King and Coho Salmon and Boat Counts.
SITKA SOUND, 1964

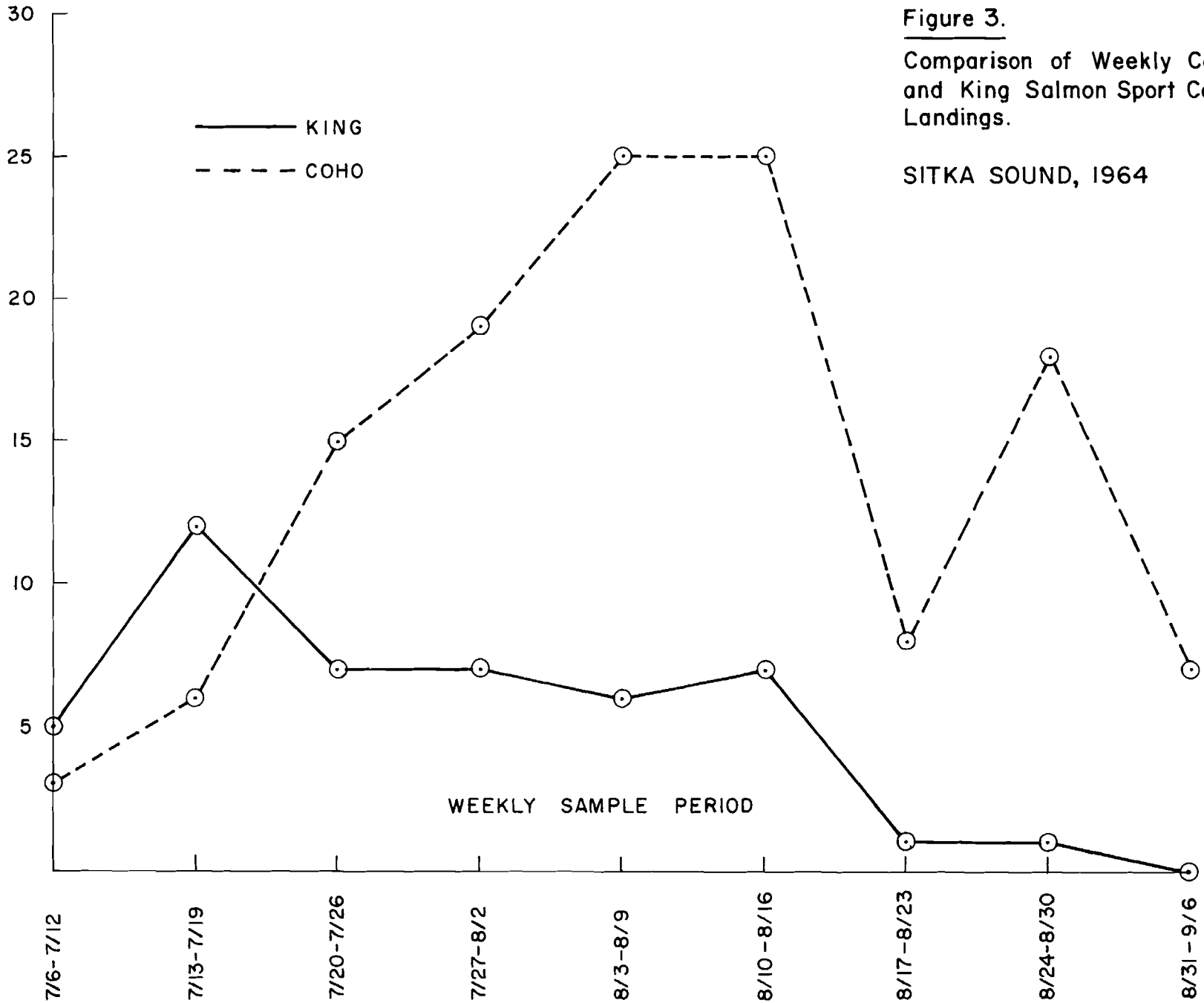

Figure 3.

Comparison of Weekly Coho and King Salmon Sport Caught Landings.

SITKA SOUND, 1964

or frozen herring are used almost exclusively. The herring are either rigged up whole or plug-cut with the majority of anglers preferring the whole herring. Occasionally, strips of herring are used. It is the exception to encounter anglers using artificial lures such as spoons, plugs and flashers or large streamer flies and flashers.

Several different types of pleasure craft are used in the Sitka Sound area and adjacent enclosed waters for sport fishing. These range from 12-foot open skiffs to 35-foot cabin cruisers. The most popular and prevalent boats are in the 16- to 20-foot length class, with enclosed cabin facilities, and powered by outboard motors.

Trolling Areas, Sitka Sound

Analysis of sport-caught salmon landings revealed eight fishing areas producing the majority of salmon.

The locations, as shown and numbered in Figure 1, have been fished a number of years by local anglers who have learned by actual fishing success to define them as areas most likely to produce salmon at certain seasonal periods.

For reference, the areas, prevalent species and optimum seasonal times are produced in tabular form below:

Area	Location	Prevalent Species and Seasonal Time
#1	Krestof Sound	King Salmon - July
#2	Olga Strait	King Salmon - July-August
		Coho Salmon - August-September
#3	Nakwasina Sound	Coho Salmon - Late August-September
#4	Hayward Strait	King Salmon - July-Mid-August
#5	Katlian Bay	Coho Salmon - August-September
#6	Old Sitka Rocks	King Salmon - July-August
		Coho Salmon - July-August
#7	Silver Bay	Coho Salmon - Late August-September
#8	Vitskari Rocks	Coho Salmon - July-August
		King Salmon - July

The seasonal times of availability as indicated above are presently incomplete due to the seasonally late starting date of this investigation. King salmon are prevalent in the earlier seasonal periods of May and June in Sitka Sound and the sport fish harvest of these fish will be covered in subsequent studies.

Age Analysis of Sport-Caught King Salmon

Scale samples were obtained from every second king salmon checked in the dockside angler interviews. Thirty scale samples were collected from the total of 55 fish checked through the season. It had been anticipated that a greater number of king

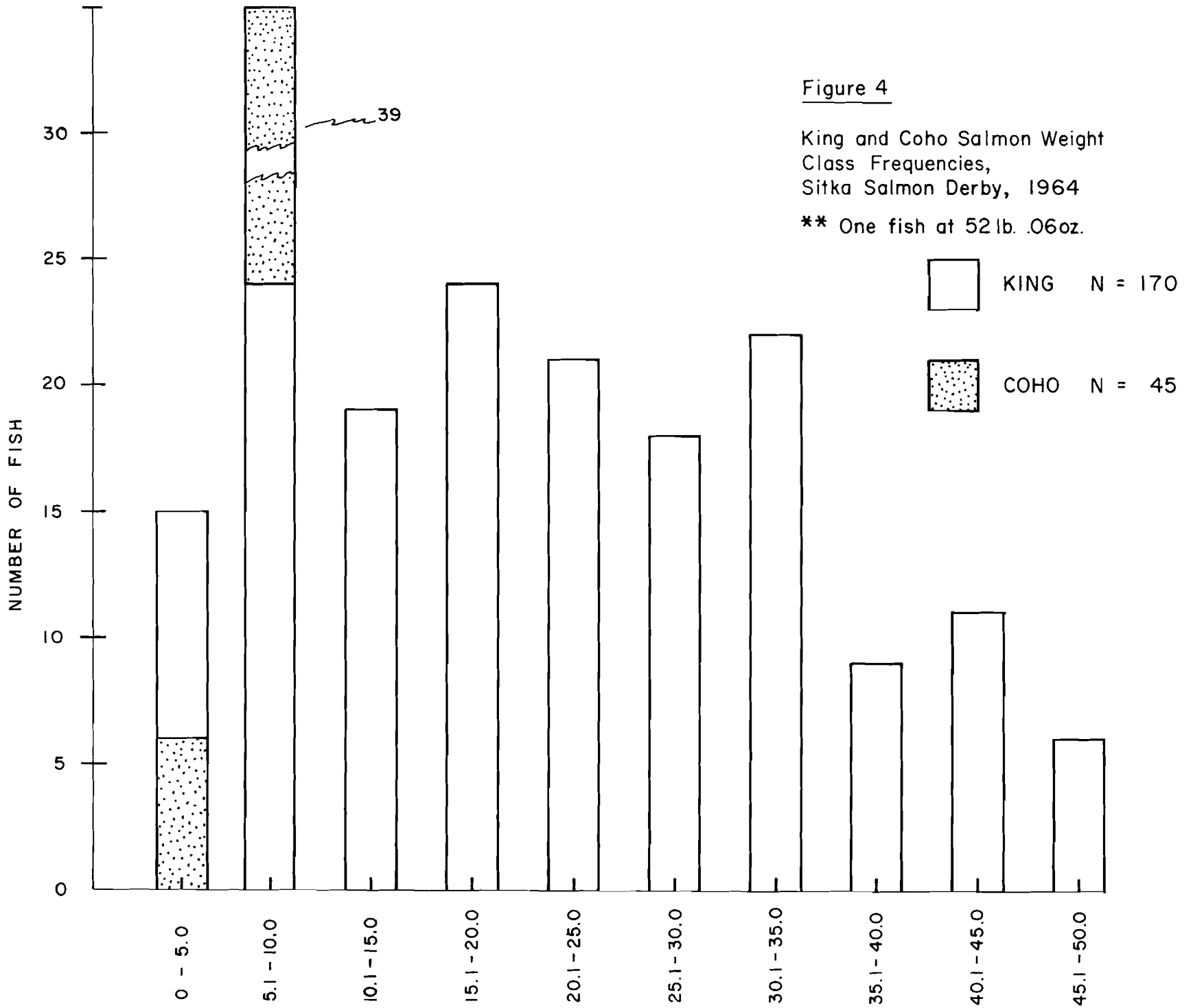

Figure 4

King and Coho Salmon Weight Class Frequencies, Sitka Salmon Derby, 1964

** One fish at 52 lb. .06 oz.

salmon would be taken than was finally realized, accounting for the small sample.

Analysis of the scale samples collected will not be presented in this report because of the small sample size. Efforts to obtain a larger sample, including the 1965 Sitka Salmon Derby sport-caught king salmon, will be made in the succeeding year of this investigation.

Sitka Salmon Derby

The 1964 Sitka Salmon Derby was the most successful experienced in the nine-year history of the event, from the standpoint of angler participation and the number of fish caught.

The Derby is an annual event held the last two weekends in June. The 1964 Derby had 530 registered participants who landed 45 coho salmon and 170 king salmon for a total weight of 3965.4 pounds. Other species included 21 halibut (729 pounds) and 17 ling cod (264 pounds).

Weight class frequencies for 170 king salmon and 45 coho salmon are shown in Figure 4 to graphically illustrate the size classes of salmon available to participants of the derby at that seasonal period.

The derby boundaries are similar to those established for the saltwater sport fish harvest study in Sitka Sound. Anglers leave the starting line at 5:00 a.m. and are required to return to the weigh-in dock by 8:00 p.m. each of the four derby fishing days.

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Date: February 1, 1965

Approved by:

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s/ Alex H. McRea, Director
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The Eva Creek research station where investigations on the life history of the Dolly Varden have been conducted since 1962.