

STATE OF ALASKA

Bill Sheffield, Governor

Annual Performance Report for
BUSKIN RIVER COHO SALMON CREEL CENSUS

by

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RESEARCH PROJECT SEGMENT

State: Alaska Name: Sport Fish
Investigations
of Alaska

Project: F-9-18

Study: S-41 Study Title: KODIAK SALMON STUDIES

Job: S-41-1 Job Title: Buskin River Coho
Salmon Creel Census

Cooperator: John B. Murray

Period Covered: July 1, 1985 to June 30, 1986

ABSTRACT

A creel census conducted on Buskin River between August 12 and October 27, 1985 indicated sport anglers fished 9,094 angler-days (15,316 hours) and harvested 2,101 adult coho salmon, *Oncorhynchus kisutch* (Walbaum), 825 pink salmon, *Oncorhynchus gorbuscha* (Walbaum), and 914 Dolly Varden, *Salvelinus malma* (Walbaum). A summary of the creel census and coho salmon sampled from angler creels is presented.

KEY WORDS

Coho salmon, sport harvest, effort, Buskin River, Kodiak, Alaska.

BACKGROUND

Buskin River (Figure 1) is centrally located between Kodiak City and the U.S. Coast Guard base on northeast Kodiak Island, Alaska. Prior to World War II only an 8.0 km long trail provided access to the river from the city; this probably resulted in a low sport fish effort. Although historical records are not available, it is presumed sport fish effort increased dramatically in the early 1940's when a U.S. Navy base containing up to 30,000 people was built near the river. During this era a road which provided public access was also constructed between the base and Kodiak City. However, public use was considered low through the mid-1960's as the U.S. Navy allowed only 50 civilians per day to fish the river (pers comm, Ben Ballenger, Kodiak, AK, 1986). In 1971 a cooperative agreement between the Alaska Department of Fish and Game (ADF&G) and the Navy gave ADF&G fish and wildlife management authority on the base and allowed the public unrestricted access to the river, excluding the Buskin Lake antenna field (unpublished papers located in Kodiak Sport Fish office files, 1986). Consequently, sport fish effort

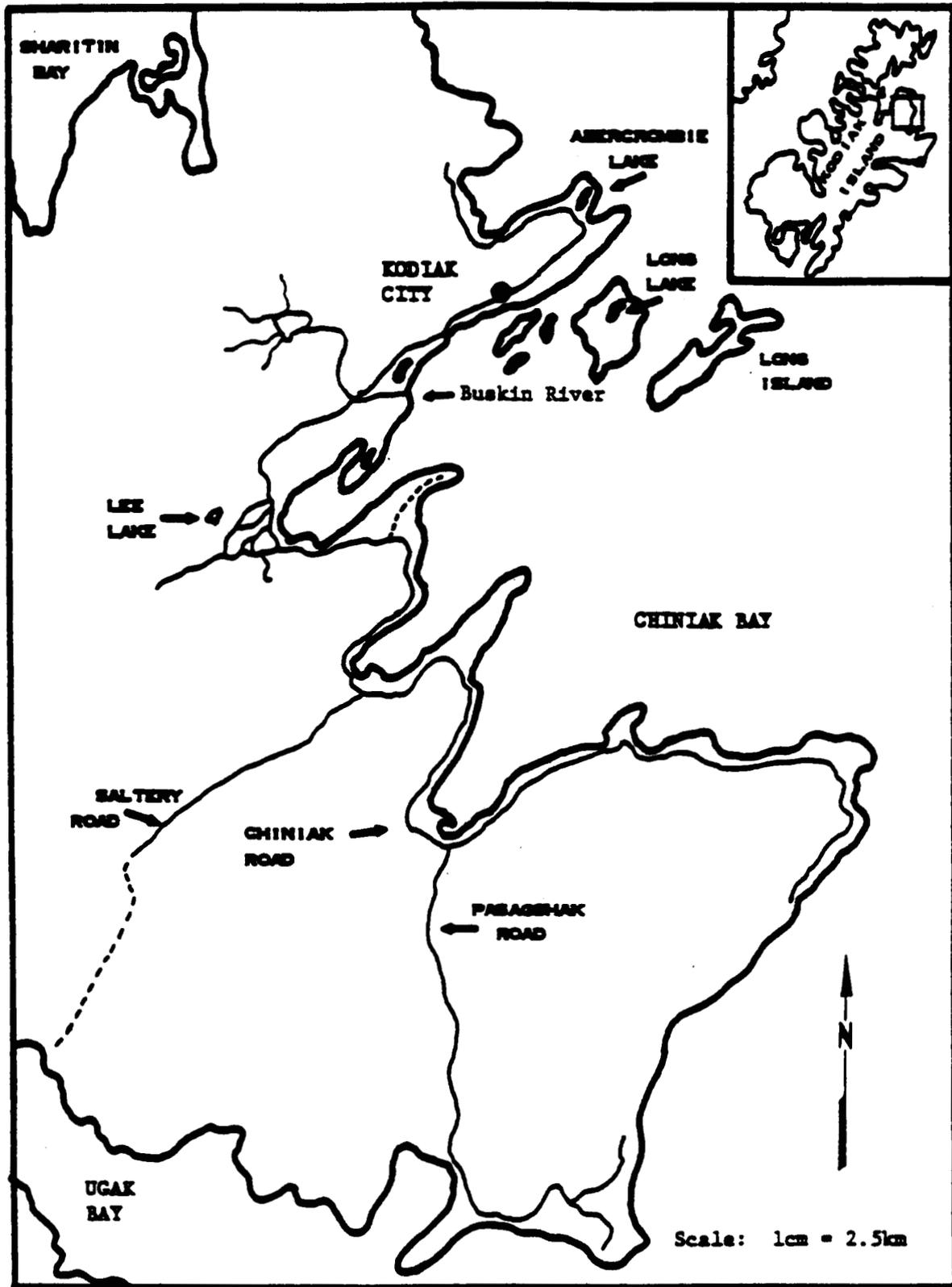


Figure 1. Location of Buskin River, Kodiak Island, Alaska, 1985.

increased to 24,024 angler-days in 1984 (Mills 1985) and an all time high harvest of 2,870 coho salmon occurred in 1979 (Mills 1981a).

In 1984 Buskin River supported 49.6% (n=24,024 angler-days) of the sport fish effort and 38.7% (n=17,196) of the sport fish harvested from all Kodiak lakes and streams (Mills 1985). A total of 7,667 coho salmon were caught in Kodiak Island streams in 1984, and 1,871 of these fish (24.4%) came from Buskin River. An undetermined number of Buskin coho salmon were also caught in the subsistence and commercial fisheries. The total harvest is presumed high as the 1984 reported subsistence and commercial harvests near Buskin River and Woman's Bay were 200 fish and 8,862 fish, respectively (Manthey et al. 1984). Consequently, the Buskin River coho salmon population was heavily utilized, and it probably reached a maximal harvest in 1984. Buskin coho salmon were probably overharvested in 1983, because only 243 fish were observed in the escapement index count (Murray 1984).

The 1986 desired coho salmon escapement goal for Buskin River was set at 3,275 fish; i.e., 825 fish (21-year average index count) multiplied by an expansion factor of 3.97 (the actual weir count of 9,226 fish divided by the 1985 index count of 2,335 fish). A weir providing total fish escapement counts was first installed on Buskin River in 1985.

Considering the high effort for and subsequent harvest of Buskin River coho salmon by all user groups, it will be necessary to conduct an annual in-season creel census to properly manage the coho salmon sport fishery.

Table 1 lists all species mentioned in this report.

RECOMMENDATIONS

1. For management purposes, a creel census should be conducted on Buskin River during August and September to determine angler effort and harvest relating to coho salmon.
2. Age and length data should be collected from 443 sport caught fish during the sport fishery to determine the size and age composition of the sport harvest.

OBJECTIVES

1. To determine the angler effort and harvest of Buskin River coho salmon during August, September and October.
2. To collect length and weight data from 5% of the coho salmon harvested in the sport fishery.

Table 1. List of Common Names, Scientific Names and Abbreviations.

Common Name	Scientific Name and Author	Abbreviation
Coho Salmon	<i>Oncorhynchus kisutch</i> (Walbaum)	SS
Dolly Varden	<i>Salvelinus malma</i> (Walbaum)	DV
Pink Salmon	<i>Oncorhynchus gorbuscha</i> (Walbaum)	PS

TECHNIQUES USED

The coho salmon sport harvest was determined by a streamside creel census that was stratified into weekdays and weekend/holidays by 2-week periods. Each day was divided into four time periods: 6:00 a.m. to 10:00 a.m., 10:00 a.m. to 2:00 p.m., 2:00 p.m. to 6:00 p.m., and 6:00 p.m. to 10:00 p.m. During a 2-week census period, 10% and 25% of the weekdays and weekend/holidays were sampled, respectively. Each time period (4 hours) and census day were randomly selected without replacement. During each 4-hour census, angler counts were made every hour, and completed anglers were interviewed between counts to determine the total hours an angler fished and the number of fish retained. The fish harvest estimate during a census period was calculated by multiplying estimated total anglers (sum of the anglers observed on hourly counts divided by the average hours fished per angler) by mean fish per angler. Weekday and weekend/holiday harvest estimates were expanded by factors of 10 and 4, respectively, to determine the total estimated harvest.

Coho salmon age, length and weight data were collected from angler creels during the creel census. Fish were measured (fork lengths) in millimeters and weighed in kilograms, and, to determine ages, a scale was collected from each one in the preferred area (four scale rows above the lateral line and on a diagonal line beginning at the posterior insertion of the dorsal fin to the anterior insertion of the anal fin).

FINDINGS

Buskin River Creel Census

A streamside creel census conducted on Buskin River between August 12 through October 27, 1985, indicated sport anglers fished 9,094 angler-days (15,316 hours) and harvested 2,101 adult coho salmon, 825 pink salmon and 914 Dolly Varden. Harvest data are complete only for coho salmon as the pink salmon and Dolly Varden fisheries were in progress when the creel census commenced.

Coho salmon harvest data (Table 2) indicate a majority of the fish (n=1,787, 85.0%) were caught between August 12 and September 22, 1985. All of these fish came from Buskin Lagoon and the adjacent beach area as the river was closed to salmon fishing (above Bridge Number One) from August 1 through September 27. The river is normally closed August 1 through September 10; however, only 468 coho salmon had escaped through the weir by September 8. Therefore, the closure was extended through September 27 to ensure an adequate coho salmon escapement (4,000+ fish).

Coho salmon (n=198) sampled from angler creels as presented in Table 3 were comprised of 91 males (\bar{x} ln = 722 mm, \bar{x} wt = 5.2 kg), 82 females (\bar{x} ln = 722 mm, \bar{x} wt = 4.7 kg), and 25 fish that had unreadable scales. Age classes 1.0, 1.1 and 2.1 comprised 2.9%, 37.6% and 59.5% of the sample, respectively.

Table 2. Sport Harvest of Buskin River Coho Salmon as Determined by a Streamside Creel Census, August 12 through October 27, 1985.

Harvest Period	Angler-Days	Angler-Hours	Coho Salmon	Fish/Hour
Aug. 12-25	2,619	4,288	29	0.01
Aug. 26-Sept. 8	3,024	5,894	1,068	0.18
Sept. 9-22	1,781	2,910	690	0.24
Sept. 23-29	674	995	179	0.18
Sept. 30-Oct. 13	766	1,034	95	0.09
Oct. 14-27	<u>230</u>	<u>195</u>	<u>40</u>	<u>0.21</u>
Season Total	9,094	15,316	2,101	0.14

Table 3. Age, Sex and Size Composition of Buskin River Coho Salmon Sampled during the Creel Census, 1985.

Age Class	Male				Female				Total	
	n	%	Mean Length (mm)	Mean Weight (kg)	n	%	Mean Length (mm)	Mean Weight (kg)	n	%
1.0	5	5.5	388	0.4	0	0.0	5	2.9
1.1	38	41.8	720	5.3	27	33.0	709	4.4	65	37.6
2.1	<u>48</u>	<u>52.7</u>	<u>758</u>	<u>5.6</u>	<u>55</u>	<u>67.0</u>	<u>728</u>	<u>4.9</u>	<u>103</u>	<u>59.5</u>
	91	100.0	722*	5.2*	82	100.0	722	4.7	173**	100.0

* Mean size of males excluding the five jacks (Age 1.0) is 741 mm and 5.5 kg.

** A total of 25 additional fish had unreadable scales.

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