

STATE OF ALASKA
Bill Sheffield, Governor

Annual Performance Report for
BUSKIN RIVER DOLLY VARDEN CREEL CENSUS

by
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RESEARCH PROJECT SEGMENT

State: Alaska Name: Sport Fish
Investigations
of Alaska

Project: F-9-18

Study: T-4 Study Title: KODIAK CHAR STUDIES

Job: T-4-1 Job Title: Buskin River Dolly
Varden Creel Census

Cooperator: John B. Murray

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

ABSTRACT

A creel census conducted on Buskin River between April 22 and June 2, 1985, indicated sport anglers fished 5,192 angler-days (8,468 hours) and harvested 8,172 spring-run Dolly Varden, *Salvelinus malma* (Walbaum). A summary of the creel census and Dolly Varden sampled from angler creels is presented.

KEY WORDS

Dolly Varden, 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 accessed the river from the city; this probably resulted in 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 was also constructed between the base and Kodiak City, providing public access. 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 was made between the Alaska Department of Fish and Game (ADF&G) and the Navy that 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authority on the base and allowed the public unrestricted access to the river, excluding the Buskin Lake antenna field (unpublished papers located in Kodiak Sport Fish office files, 1986).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 increased to 24,024 angler-days in 1984 (Mills 1985) and a record high harvest of 15,150 Dolly Varden in 1979 (Mills 1981a).

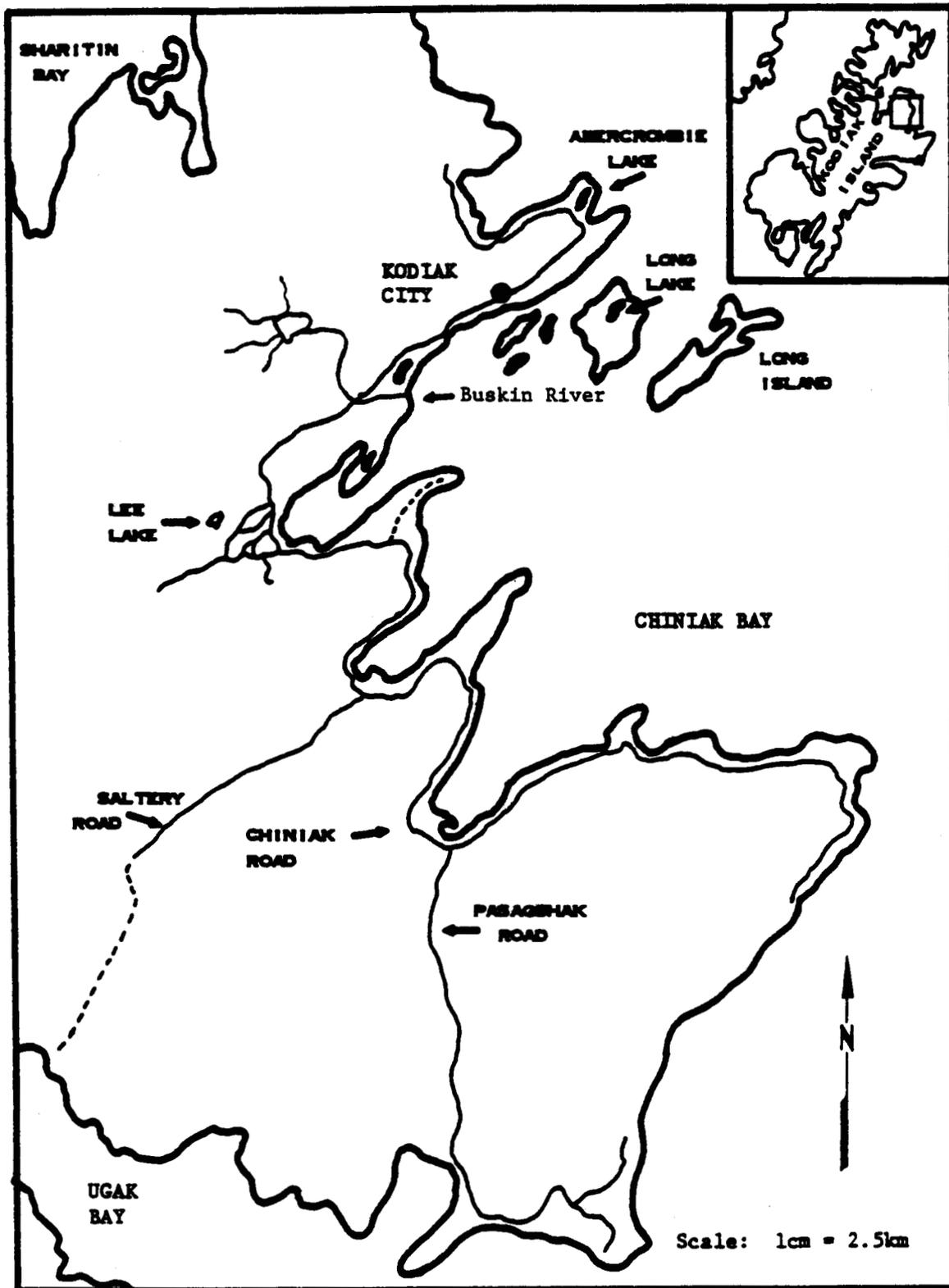


Figure 1. Location of Buskin River, Kodiak Island, Alaska, 1985.

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). Dolly Varden comprised 40.8% (n=18,278) of all fish harvested from freshwater, and over half (50.7%, n=9,265) of these char were caught in Buskin River. During the last 8 years, the annual Buskin River Dolly Varden harvest has ranged between 8,003 and 15,150 fish (Mills 1979-1985), and the mean fish size has ranged between 293 and 316 mm (Van Hulle and Murray 1977-1981; Murray 1982-1985). Because of the increased fishing pressure and a lack of population data, there is concern the Dolly Varden population may be overharvested.

Table 1 lists all species mentioned in this report.

RECOMMENDATIONS

1. A creel census should be conducted on Buskin River during the 1986 spring outmigration to determine the angler effort and harvest of Dolly Varden for management purposes.
2. To determine the length-age relationship, a minimum of 40 Dolly Varden otoliths should be collected from fish in the following size ranges: less than 240 mm; 240-310 mm; 311-370 mm; 371-410 mm; and 411+ mm.
3. Length data should be collected from 600 sport caught fish every 2 weeks during the spring sport fishery to determine the length composition of the sport harvest.

OBJECTIVES

1. To determine the angler effort and harvest of Buskin River Dolly Varden during April and May.
2. To collect length data from 5% of the Dolly Varden harvested in the sport fishery.

TECHNIQUES USED

The Dolly Varden 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 4 time periods; 0600 to 1000, 1000 to 1400, 1400 to 1800 and 1800 to 2200. During a 2-week census period, 10% and 25% of the weekdays and weekend/holidays, respectively, were sampled. Each time period (4 hours) and census day in a strata 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. Fish-length data (fork length in millimeters) were also collected during the creel census.

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

Common Name	Scientific Name and Author	Abbreviation
Dolly Varden	<i>Salvelinus malma</i> (Walbaum)	DV

The 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) times 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.

FINDINGS

Buskin River Creel Census

A streamside creel census conducted on Buskin River between April 22 and June 2, 1985 (Table 2) indicated sport anglers fished 5,192 angler-days (8,468 hours) and harvested 8,172 spring-run Dolly Varden. Fish (n=345) randomly sampled from angler creels (Figure 2) had a mean length of 366 mm and a range of 196 to 545 mm. Since 1977 the annual Dolly Varden harvest rate has fluctuated between 8,003 and 15,150 fish (Mills 1979-1985). In addition, the spring harvest rate has dropped from a high of 2.0 fish per hour in 1971 (Van Hulle and Murray 1974) to a low of 0.9 fish per hour in 1984 (Murray 1985).

The large fish size and the large spring harvest may be a result of a fish weir (installed in 1985) delaying the fish outmigration and/or causing them to temporarily migrate upstream and downstream above the weir before exiting through the weir. Smaller fish were able to go through the spaces between the weir pickets and were probably not delayed. (Note: The river was closed to sport fishing 100 meters below and 200 meters above the weir during the Dolly Varden outmigration in 1985.) Because of increased fishing pressure, a reduction in Dolly Varden catch per unit effort and a lack of population data, there is concern the population may be overharvested. To protect Buskin River Dolly Varden and, concurrently, to permit an optimal sport harvest, biological information and in-season harvest data must be collected as that regulatory guidelines and a sound management program can be formulated.

Table 2. Sport Harvest of Buskin River Dolly Varden as Determined by a Streamside Creel Census, April 22 through June 2, 1985.

Harvest Period	Angler-Days	Angler-Hours	Dolly Varden	Fish/Hour
April 22-May 5	460	786	313	0.40
May 6-May 19	2,373	4,191	6,276	1.50
May 20-June 2	<u>2,359</u>	<u>3,491</u>	<u>1,583</u>	<u>0.45</u>
Season Total	5,192	8,468	8,172	0.97

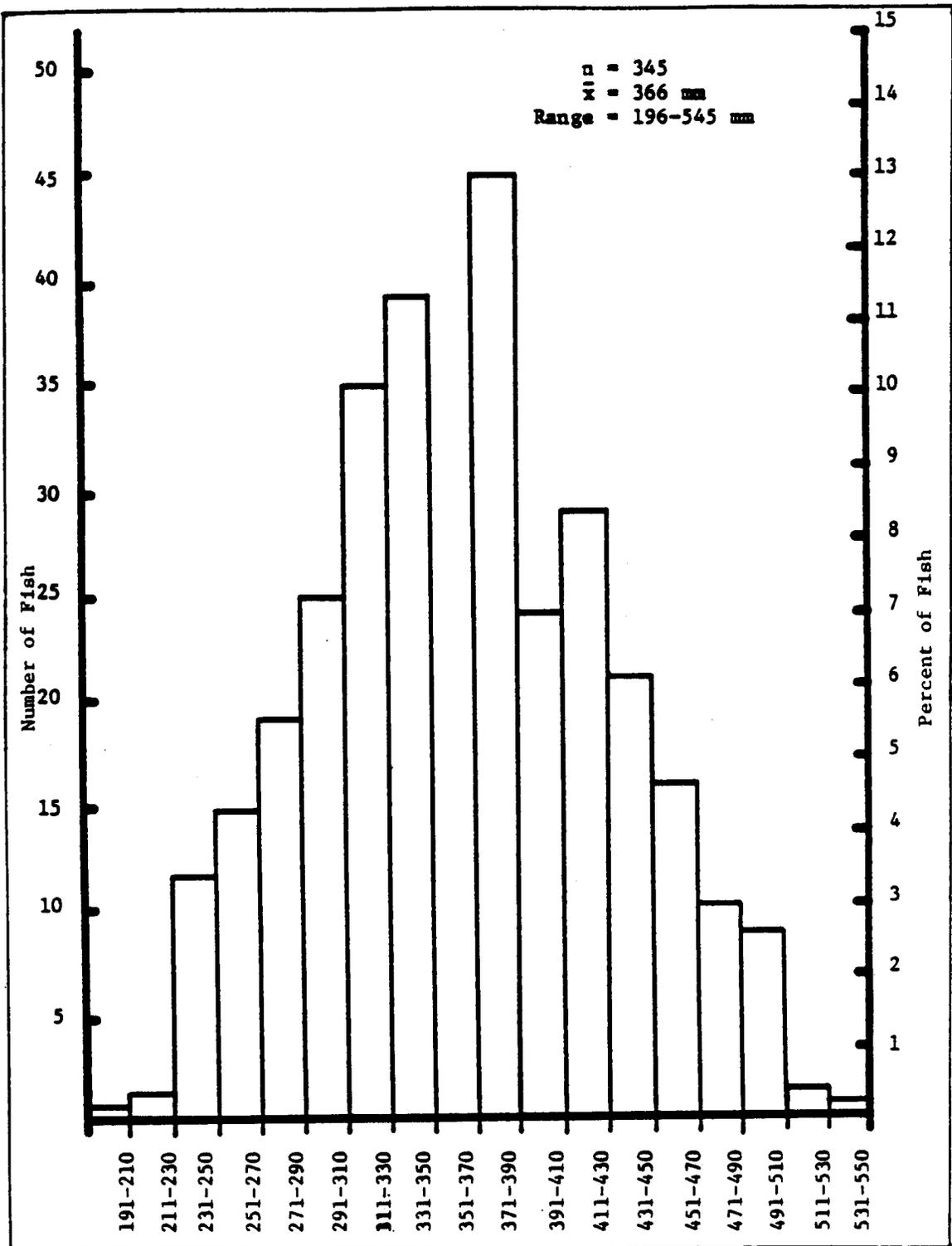


Figure 2. Number and Percent of Buskin River Dolly Varden by 20 Millimeter Size Groups Sampled From Angler Creels, May and June, 1985.

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