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FEDERAL AID IN FISH RESTORATION  
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A STUDY OF CUTTHROAT-STEELHEAD  
IN ALASKA

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## RESEARCH PROJECT SEGMENT

State: ALASKA Name: Sport Fish Investigations  
of Alaska

Project No.: AFS-42 Project Title: A STUDY OF CUTTHROAT-  
STEELHEAD IN ALASKA

Segment No.: AFS-42-10-C Job Title: Steelhead Investigations  
in Southeast Alaska

Cooperator: Donald L. Siedelman

Period Covered: July 1, 1982 to June 30, 1983

## ABSTRACT

The steelhead, Salmo gairdneri Richardson, angler census program in the Ketchikan area was an initial effort to assess hatchery contributions of steelhead to the angler's creel. This program was conducted from April 1 through May 30, 1982. Two areas were surveyed; the Klawock River on Prince of Wales Island and the Ward Lake Recreational Area near Ketchikan.

In the Ward Lake Recreation Area, in Ketchikan, technicians interviewed 460 anglers who fished 781.75 hours to catch 112 steelhead, of which 54 were kept and 58 were released. The CPUE for the fish that were caught and kept was 0.069 steelhead/hour (15.4 hours/steelhead), while the CPUE for all steelhead caught was 0.143 steelhead/hour (7 hours/steelhead).

Interviews of Klawock River, Prince of Wales Island, anglers showed that 127 fishermen spent 148.25 hours to catch 13 steelhead, of which 10 were kept and 3 were released. The catch per unit of effort (CPUE) for the fish that were caught and kept was 0.067 steelhead/hour (14.8 hours/steelhead) and the CPUE for all steelhead caught was 0.088 steelhead/hour (11.4 hours/steelhead).

## KEY WORDS

Creel census, Ketchikan, Alaska, steelhead, Salmo gairdneri Richardson, Ward Creek, Klawock River.

## BACKGROUND

The freshwater creel census program was conducted to monitor the catch of hatchery reared steelhead returning to local stocked streams. The program's primary concerns were to determine the angler pressure and the contribution of returning hatchery stocks to the angler's catch.

## RECOMMENDATIONS

1. The freshwater steelhead program should be continued on a seasonal basis. Seasonal preferences now focus on spring-run steelhead to determine the effectiveness of regulatory measures, changes in effort, and the hatchery contributions to the systems. If monies are available, a fall census program should be conducted from September 15 through November 15. These additional efforts could contribute to a more complete evaluation of our hatchery-stocked streams.
2. Utilize a statistically valid schedule that could fluctuate according to local weather patterns. Conducting the census program during periods of increased water levels would provide a higher percentage of fish sampled and would reach more anglers.
3. Continue the freshwater census program into the first 2 weeks of June. The extended census period would accommodate the later-run fish.

## Management

Freshwater sport fishing regulations for the Ketchikan area should not be modified. The low levels of returning fish compliment the existing angler bag and possession limit of one steelhead. Results of communications with anglers in the Ward Lake area showed a desire for a catch and release system at Ward Lake.

## OBJECTIVES

1. Contact and interview all anglers in the Klawock River and Ward Lake Creek systems from April 1 through May 30, 1982.
2. Determine the freshwater sport fishing steelhead angler's effort and CPUE in designated creel census areas.
3. Determine the contributions of hatchery stocked steelhead to the sport angler's creel.

## TECHNIQUES USED

The Ketchikan steelhead creel census program was conducted from April 1 through May 30, 1982. Anglers were interviewed as they fished the Ward Lake Recreational Area (Figure 1) and Klawock River (Figure 2) systems. Anglers were questioned as to what areas of the river they fished, time spent fishing, target species, fish caught or released, and the presence of sport caught tagged fish. Fork length, weight, and scale samples were collected from steelhead caught by successful anglers. Sex determination and the presence or absence of an adipose fin clip were also recorded. These data are presented in Tables 1 and 2.

A statistically designed schedule including 3 weekdays and both weekend days were utilized to census prime fishing times. The day was divided into

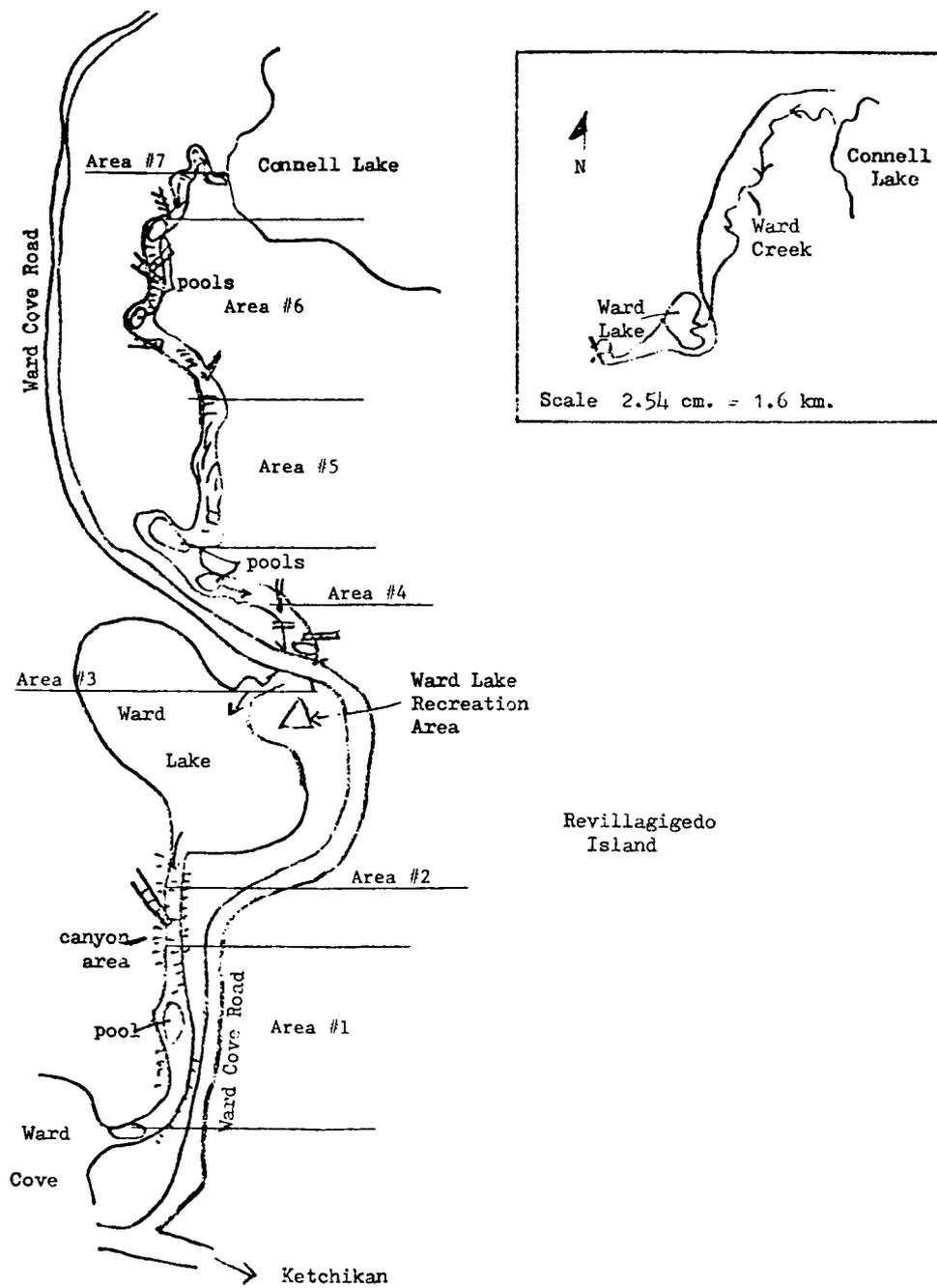


Figure 1. Ward Creek Divided Into Angler Census Areas

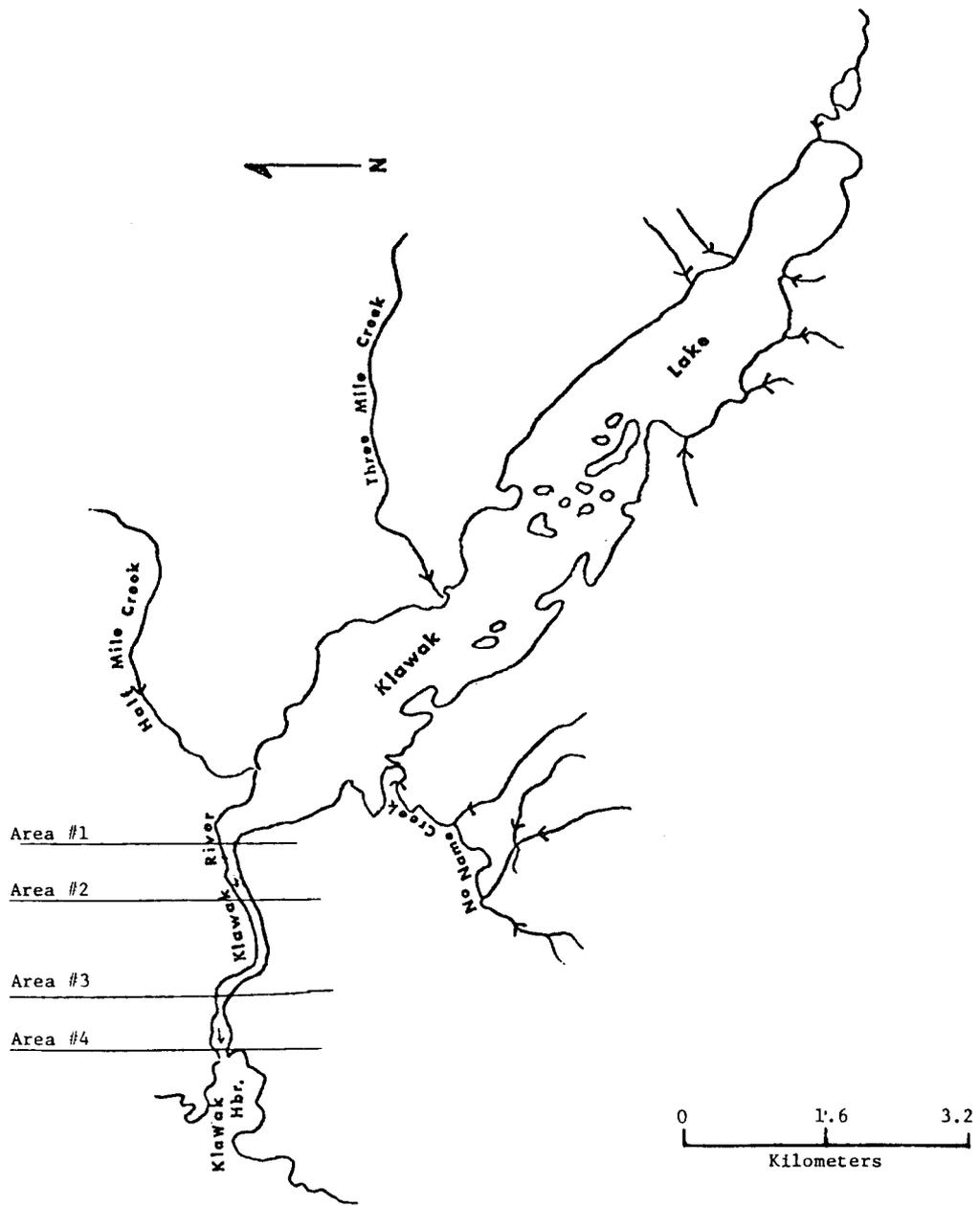


Figure 2. Klawock Lake System Divided Into Angler Census Areas.

Table 1. Summary of Creel Census Data, by Week, From the Ward Lake Recreation Area, in Ketchikan Freshwater Steelhead Census Program, 1982.

Dates	No. of Anglers	Number of Fish			Hours Fished	Hours*/Angler	Hours*/Fish	Fish*/Hour	$\bar{x}$	$\bar{x}$	Sex** (M/F)	Water T°C
		Caught	Kept	Released					Wght** (Lbs)	Lgth** (mm)		
4/02-4/12	18	0	0	0	8.5	2.1	...	...	...	...	...	3.0
4/13-4/18	58	12	12	0	84.5	1.4	7.0	0.142	8.5	709	8/4	4.0
4/19-4/25	81	19	8	11	138.75	1.7	7.3	0.137	8.8	684	5/3	3.0
4/26-5/02	92	24	7	17	151.25	1.6	6.3	0.159	9.7	715	4/2	4.5
5/03-5/09	85	22	17	5	158.75	1.9	7.2	0.139	7.6	697	7/9	6.0
5/10-5/16	57	24	7	17	114.75	2.0	4.8	0.209	6.8	675	4/3	6.0
5/17-5/23	47	10	2	8	83	1.8	8.3	0.120	7.0	695	0/2	7.0
5/24-5/30	22	1	1	0	42.25	1.9	42.3	0.024	6.5	660	1/0	7.0
Total	460	112	54	58	781.75							

\* Based on the total number of fish caught.

\*\* Based on the fish which were kept.

Table 2. Summary of Creel Census Data, by Week, From the Klawock River, Prince of Wales Island, Steelhead Census Program, 1982.

Dates	No. of Anglers	Number of Fish			Hours Fished	Hours*/ Angler	Hours*/ Fish	Fish*/ Hour	$\bar{x}$	$\bar{x}$	Sex** (M/F)	Tags Recvd	Water T°C
		Caught	Kept	Released					Wght** (Lbs)	Lgth** (mm)			
4/02-													
4/12	36	2	2	0	39.0	1.1	19.5	0.051	6.8	682	1/1	2***	4.5
4/13-													
4/18	16	2	2	0	20.5	1.2	10.3	0.098	6.5	665	1/1	0	5.0
4/19-													
4/25	13	3	3	0	18.75	1.4	6.3	0.160	7.4	686	3/0	0	5.0
4/26-													
5/02	14	4	1	3	18.25	1.3	4.6	0.213	5.5	635	1/0	0	5.5
5/03-													
5/09	14	0	0	0	12.5	1.1	...	...	...	...	...	0	6.0
5/10-													
5/16	23	0	0	0	23.75	1.0	...	...	...	...	...	0	6.0
5/17-													
5/23	9	1	1	0	12.5	1.4	12.5	0.080	5.5	645	1/0	0	6.0
5/24-													
5/30	2	1	1	0	3.0	1.5	3.0	0.333	3.5	590	1/0	1	7.0
Total	127	13	10	3	148.25							3	

\* Based on the total number of fish caught.

\*\* Based on the fish which were kept.

\*\*\* Two tagged steelhead smolt, averaging 1 pound each.

two periods (morning and afternoon). The morning schedule ran from 5:30 a.m. - 1:00 p.m., while the afternoon schedule ran from 1:00 p.m. to 8:30 p.m.. This schedule was altered on April 27, 1982, to accommodate daylight savings time. Both shifts were moved ahead one-half hour.

Standard statistical sampling estimation techniques (Cochran, 1977) were used to compute the catch per unit of effort (CPUE) from the Ketchikan freshwater harvest study program. Other techniques (Mills, 1979) were used to estimate the total effort.

## FINDINGS

### Ward Lake Recreation Area

In the Ward Lake system, technicians interviewed 460 anglers who fished 781.75 hours. The anglers interviewed caught and kept 54 steelhead, requiring 14.4 hours/fish and 1.6 hours/angler. The average weight for steelhead caught was 3,430 grams (7.0 pounds), with an average length of 691 mm. The largest fish taken was 8,310 grams (18.5 pounds). Of the fish sampled, 29 were males and 23 were females. During this time, an additional 58 steelhead were caught and released. The CPUE for the steelhead census program at Ward Lake was 0.143 fish/hour.

In 1980, Deer Mountain Hatchery released 1,723 steelhead smolt into Ward Lake. A return rate of 4%-5% was anticipated. However, no tagged steelhead were recovered from the Ward Lake system.

Local weather conditions had considerable effect on angling in the area. Ward Lake remained frozed for the first 2 weeks of April, keeping water conditions at an extremely low level. Freshet conditions and good weather did not affect the area until the third week in April, when fishing increased significantly. Freshet conditions and good fishing continued until mid-May. The last 2 weeks of May brought dry sunny conditions, again dropping water levels and angler success.

### Klawock River

On the Klawock River system, technicians interviewed 127 anglers who fished 148.25 hours. The anglers interviewed caught and kept 10 steelhead, requiring 14.8 hours/fish and 1.2 hours/angler. The average weight for the steelhead catch was 2,410 grams (5.5 pounds), with an average length of 642 mm. Of the fish sampled, eight were males, and two were females. During this time, three steelhead were caught and released. The CPUE for the Klawock River was 0.088 fish/hour.

The average water temperature for this period was 6.75°C. The Klawock River system remained extremely cold for the month of April. Low water conditions and a recorded river water temperature of 4.50°C produced an extreme effect on fishing conditions in the area. Freshet conditions existed for most of May, bringing water conditions to optimum fishing levels. The last 2 weeks in May brought clear sunny conditions, again dropping the river to low levels.

LITERATURE CITED

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