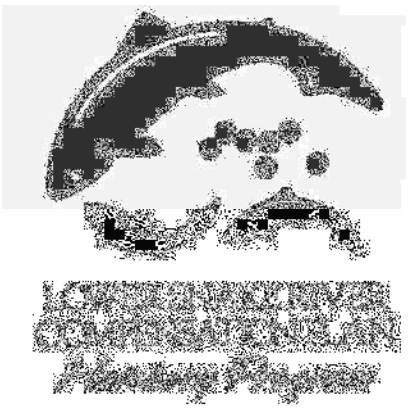
[redacted]



SPORT HARVEST REPORT SPRING CHINOOK SALMON CLEARWATER RIVER, IDAHO

IDAHO DEPARTMENT OF FISH AND GAME 2000 ANNUAL REPORT

Prepared by

Larry Barrett, Senior
Fishery Technician

IDFG 05-36
July 2005

TABLE OF CONTENTS

Page

LIST OF TABLES

LITS OF FIGURES

ABSTRACT

A spring Chinook salmon *Oncorhynchus tshawytscha* sport-fishing season was held from May 5 through July 4, 2000, on portions of the Clearwater River and selected tributaries in north central Idaho. The season was held to harvest surplus hatchery salmon returning to Lower Snake River Compensation Plan (LSRCP) hatcheries and the Kooskia National Fish Hatchery (KNFH) in the Clearwater River drainage. We conducted a creel survey to estimate angler effort and harvest. During the season, we estimated anglers spent 78,940 hours to catch 4,867 Chinook, of which 4,384 were harvested. Of the 483 Chinook released, 247 were non-adipose fin clipped. Over 80% of the fish harvested were caught in the Dworshak Dam tailrace. The season average catch rate was 16.2 hours per fish. Coded wire tags (CWT) recovered during the season showed that 6% of harvested fish were from brood year 1997 (age three), and 94% were from brood year 1996 (age four). Of all CWT recovered, 93% were of Dworshak National Fish Hatchery (DNFH) origin while the remaining 7% were from the Clearwater Fish Hatchery's (CFH) Powell satellite facility.

INTRODUCTION

A spring Chinook salmon *Oncorhynchus tshawytscha* sport harvest fishery was held in the Clearwater River drainage during the spring and early summer of 2000. Areas open to fishing were the mainstem Clearwater River from the Memorial Bridge at Lewiston upstream to the confluence with Clear Creek, the North Fork Clearwater River from the mouth upstream to Dworshak Dam, the South Fork Clearwater River from the mouth upstream to the Hungry Ridge Road Bridge, and the Lochsa River from the mouth upstream to Papoose Creek. This fishery was held to harvest surplus adult spring Chinook salmon originating from Dworshak National Fish Hatchery (DNFH) and Clearwater Fish Hatchery (CFH), which are Lower Snake River Compensation Plan (LSRCP) hatcheries; and from Kooskia National Fish Hatchery (KNFH). Early predictions by the US Fish and Wildlife Service (USFWS) and the Idaho Department of Fish and Game (Department) indicated a relatively strong return of jacks and four-year-old Chinook salmon to the Clearwater drainage in 2000.

The dates for the season were set by the Department Commission for May 5 through July 31, 2000 on the mainstem and North Fork Clearwater, and May 27 through July 31, 2000 on the South Fork Clearwater and the Lochsa Rivers. The season was subject to closure if a harvest quota, based on adult counts at Lower Granite Dam, was met. This quota was met by early July and the Commission closed the season on July 4, 2000.

Only hatchery origin fish marked with an adipose fin clip could be harvested. A daily bag limit of three Chinook, including jacks, and a season limit of twenty Chinook was set. Barbless hooks were required. On the Lochsa River, the use of bait and more than one hook was prohibited to stay consistent with the catch and release and quality trout regulations in effect there. Because of harvest monitoring and enforcement concerns, fishing hours were limited to 5:00 am to 9:00 pm Pacific Daylight Time daily.

METHODS

We monitored the fishery in the Clearwater drainage based on the following objectives:

1. Estimate the angler effort for each river.
2. Estimate the harvest of hatchery Chinook for each river.
3. Estimate the number of hatchery and non-hatchery fish released.
4. Assess the age composition of the harvest.
5. Determine the origin of harvested hatchery fish by coded wire tag (CWT) and Passive Integrated Transponder (PIT) tag recoveries.

We used a stratified random creel survey as the tool to accomplish these objectives. Angler counts and interviews were conducted by vehicle, jet boat, and foot. We also operated a check station at the upper Ahsahka boat ramp located on the mainstem Clearwater River near Orofino on all sample days from 0600 to 2200 to collect angler interviews. Angler interview data included: boat or bank angler, number of anglers in a party or boat, number hours fished that day, number of ad-clipped fish kept, number of ad-clipped fish released, number of non ad-clipped fish released, and trip completion status. We entered all count and interview data into a creel census program (Reece and Boydstun, 1993) to generate effort and catch estimates. We estimated the species composition of fish released during the season by multiplying the ratio of fish seen in the creel to the estimate of total fish released generated by the creel program.

We stratified our creel sampling spatially and temporally, based on anticipated levels of angling effort and success. Areas open to fishing were stratified as follows (Figure 1):

- **Section 1:** Mainstem Clearwater River from the Memorial Bridge at Lewiston (river mile [RM] 2) upstream to the lower end of the Magill Hole (RM 37.9).

- **Section 2:** Lower end of the Magill Hole upstream to the Orofino Bridge (RM 44.6) and the North Fork Clearwater below Dworshak Dam.

- **Section 3:** Orofino Bridge upstream to the South Fork Clearwater River (RM 74.7).

- **Section 4:** South Fork Clearwater River from the mouth upstream to the Hungry Ridge Road Bridge (RM 32.8)

- **Section 5:** Lochsa River from the mouth upstream to Papoose Creek (RM 65.5).

We sampled the fishery on two randomly selected weekdays and all weekend/holidays per week in sections 1 and 2, and one weekday and one weekend/holiday per week in sections 3, 4, and 5. We conducted three instantaneous angler counts each sample day in sections 2 and 4. Due to logistical concerns, we conducted only one count per sample day in sections 1, 3, and 5. We divided the season into seven day intervals (except intervals 1 and 10, which were two and three days each) and generated harvest and effort estimates for each interval weekly. The intervals were defined as follows:

Interval 1: May 5-6
Interval 2: May 7-13
Interval 3: May 14-20
Interval 4: May 21-27
Interval 5: May 28-June 3
Interval 6: June 4-10
Interval 7: June 11-17
Interval 8: June 18-24
Interval 9: June 25-July 1
Interval 10: July 2-4

All fish encountered were examined for external marks, measured for fork length to the nearest centimeter, sexed either visually or through dissection, and scanned with a CWT detector (and a PIT tag detector at the Ahsahka check station). Age composition by length was assigned as follows (from Burge et al. 1997):

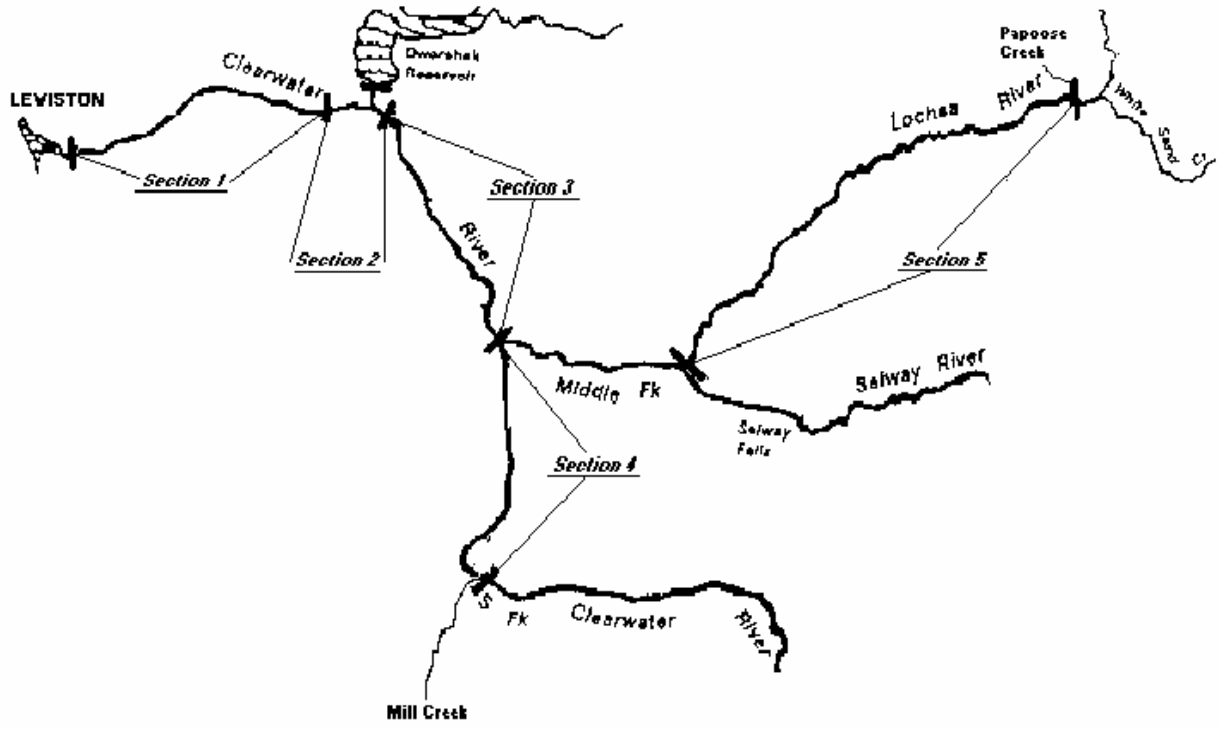


Figure 1. Map of the Clearwater River drainage showing sections used for monitoring the spring Chinook salmon sport harvest season, May 5-July 4, 2000.

<57cm= one ocean jacks or age three
57-81cm= two ocean adults or age four
>81cm= three ocean adults or age five

We removed the snouts from fish with positive CWT detector indications and took them to the CWT recovery lab in Lewiston, ID, for tag retrieval and reading.

Funding support for our creel survey was provided by LSRCP and the Salmon and Steelhead Tag Fund. This funding allowed us to respond quickly in the field to changing monitoring needs.

RESULTS

During the 2000 season in the Clearwater River drainage we estimated (+/- 95% C.I.) anglers fished 78,940 (5,721) hours to catch 4,867 (726) spring Chinook, of which 4,384 (623) were harvested. Jacks accounted for 224 of the fish harvested. Of the 483 fish released, 241 were non-adipose clipped adults and 6 were non-adipose clipped jacks. The average catch rate for all fish harvested during the season was 18.0 hours/fish and for all fish caught was 16.2 hours/fish. Table 1 shows a breakdown of the effort and catch by river section.

Harvest in the lower river (section 1) peaked during interval 2 and dropped off quickly, while the Orofino area (section 2) peaked during interval 4 and remained strong throughout the season. Angling effort and success on the Lochsa, South Fork, and upper Clearwater Rivers remained low throughout the season (Table 2). Section 2, especially the tailrace of Dworshak Dam, accounted for the majority of the harvest during the season.

We checked 896 fish during the season, of which 447 were males and 449 were females. The age breakdown of the sampled fish using the length criteria in Burge et al. (1997) was 60 three-year olds (6%), 813 four-year olds (91%), and 23 five-year olds (3%). We removed the snouts from 144 fish with positive CWT detector indications, of which 125 had tags. Of these, 12 CWT were collected in the lower Clearwater and 113 were collected in the North Fork Clearwater below Dworshak Dam. 116 were DNFH origin fish released at DNFH and 9 fish were released from the CFHs Powell facility on the Lochsa River. The age breakdown of the coded wire tagged fish sampled was 7 three-year olds (6%) and 118 four year-olds (94%). Fish length was not available on two tag recoveries (Table 3). We recovered twelve PIT tags at the Ahsahka check station, which are listed in Table 4.

Table 1. Totals of estimated angling effort, catch, and harvest during the May 5-July 4, 2000 spring Chinook salmon season in the Clearwater River drainage, Idaho.

River Section	# Angler Hours			Adults Kept	Jacks Kept	Total Kept	Ad-Clipped Adults Released	Ad-Clipped Jacks Released	Unmarked Adults Released	Unmarked Jacks Released	Total Released	Hours Caught	Fish Kept
	Boat	Bank	Total										
Section 1	13,800	4,416	18,216	344	30	374	0	0	0	6	6	48	49
Section 2	27,629	25,455	53,084	3,710	194	3,904	188	17	164	0	369	12	14
Section 3	144	3,344	3,488	45	0	45	0	0	4	0	4	71	78
Section 4	0	1,632	1,632	0	0	0	0	16	25	0	41	40	0
Section 5	0	2,520	2,520	61	0	61	15	0	48	0	63	20	41
Totals	**41,573**	**37,367**	**78,940**	**4,160**	**224**	**4,384**	**203**	**33**	**241**	**6**	**483**	**16**	**18**

Table 2. Totals of estimated harvest by river section and interval during the May 5-July 4, 2000 spring Chinook salmon season in the Clearwater River drainage, Idaho.

Interval #	River Section				
	1	2	3	4	5
1 (May 5-6)	60	21	0	0	0
2 (May 7-13)	253	290	45	0	0
3 (May 14-20)	47	631	0	0	0
4 (May 21-27)	0	835	0	0	0
5 (May 28-June 3)	14	596	0	0	0
6 (June 4-10)	0	501	0	0	0
7 (June 11-17)	0	377	0	0	5
8 (June 18-24)	0	230	0	0	21
9 (June 25-July 1)	0	234	0	0	27
10 (July 2-4)	0	189	0	0	8
Totals	**374**	**3904**	**45**	**0**	**61**

Table 3. Length frequency of spring Chinook salmon versus age from 123 CWT recoveries during the sport harvest fishery in the Clearwater River drainage, 2000.

Fork Length (cm)	# Fish From Brood Year 1997	# Fish From Brood Year 1996
50-54	5	0
55-59	1	0
60-64	0	3
65-69	0	8
70-74	1	56
75-79	0	40
80-84	0	9
85-89	0	0
Total	**7**	**116**

Table 4. List of dates recovered, fish size at recovery and tag number of PIT tags recovered from the North Fork and mainstem Clearwater River spring Chinook sport fishery, 2000.

Date Recovered	Sex	Length (cm)	Pit Tag #	River Section
5/07/00	F	79	5117460252	2
5/14/00	M	64	511936081B	2
5/18/00	F	80	514A403958	2
5/18/00	M	75	5146511224	2
5/18/00	unknown	unknown	5109463E74	2
6/04/00	M	78	51456D4C78	2
6/04/00	M	79	511200610D	2
6/10/00	M	unknown	5144280274	2
6/11/00	M	80	514A596A67	2
6/12/00	F	75	5153022E65	2
6/17/00	M	unknown	5143440F69	2
6/25/00	F	72	511C43630A	2

DISCUSSION

This was the first Chinook salmon season on the lower Clearwater River in recent memory. Because of this, few anglers knew where or how to catch them as they migrated through the lower river. The run was early, and by the opening day there were more than 12,000 Chinook over Lower Granite Dam, with counts averaging over 1,500 fish per day. It took only a couple of days for techniques to be developed and word to get out that allowed anglers to begin catching fish. The fishery remained productive for only a little over a week. The drop in fishing success coincided with a reduction in flows from Dworshak Dam. Flows at the Spalding gauge on opening day were 40,000 cubic feet per second (cfs) but had dropped to half of that ten days later. When the flows dropped, it seemed the fish quickly moved upstream to Dworshak Dam and the lower river fishery effectively ended.

Harvest was low during interval 1 in section 2, particularly in the North Fork Clearwater River. When flows from Dworshak Dam dropped from 10,600 cfs on May 5 to 3,700 cfs on May 9, several thousand fish moved up to the tailrace and provided harvest throughout the season. This was the only area that consistently provided good catch rates throughout the season. Boat anglers concentrated fishing effort immediately downstream of the safety zone closure at the Dworshak Dam spillway. Shore anglers also regularly lined the edge of the parking lot at the tailrace. Both groups of anglers enjoyed high success rates during the season. Over 80% of the fish harvested in the drainage were caught in the tailrace.

A fishery never developed on the upper Clearwater River except for one hole just downstream from the mouth of the South Fork Clearwater River. We set up our monitoring plan assuming anglers would fish all day but this turned out to be mainly an early morning and evening fishery. Consequently, we probably missed some anglers and our harvest estimate was low. Any future monitoring should be planned with sample times weighted heavier toward morning and evening. This area remained productive for only a couple of weeks.

Fisheries also never developed on the South Fork Clearwater and Lochsa Rivers. By the time these rivers opened on May 28, most fish had most likely moved above the open areas. We probably underestimated the harvest on both rivers but we had a hard time finding salmon anglers during our surveys. Like the upper Clearwater, these were probably early morning fisheries and we missed some anglers with our sample design.

Compliance with the regulations was generally good. Clearwater regional enforcement personnel made 1,815 license checks and detected 51 violations during the season. Officers issued 21 citations, 28 written warnings, and 2 incident reports. Violations included barbed hooks, overlimit, failure to validate salmon permit, transfer of fish/card to another, fish closed waters, and no license (Dave Cadwallader, IDFG, pers. comm.).

As predicted, four-year-old fish (brood year 96) dominated the catch. The age breakdown by length (Burge et al. 1997) and by CWT recoveries were similar, however the length at age from CWT recoveries shows some overlap in the age classes cited by Burge et al. CWT recoveries showed that the vast majority (93%) of fish harvested were of DNFH origin.

We estimated that 25 naturally produced Chinook salmon were incidentally killed during the fishery by assuming a 10% hooking mortality (Technical Advisory Committee for US vs. Oregon 1998) for the 247 non ad-clipped salmon that were caught and released.

LITERATURE CITED

Burge, H.L., M. Faler, R.N. Jones, and R.B. Roseberg. 1997. Appendix A, Annual Report, fiscal year 1997, Idaho Fishery Resource Office, U.S. Fish and Wildlife Service, Ahsahka, Idaho.

Reece, S.T. and N. Boydstun. 1993. Creel Census System Technical Reference Manual, Version 2.0 Release 1, 1993. Idaho Department of Fish and Game, Boise.

Technical Advisory Committee for United States vs. Oregon. 1998. Biological assessment of impacts of proposed 1998 fisheries in the Snake River Basin on Snake River salmon and steelhead listed under the Endangered Species Act.

Submitted by:

Larry Barrett
Senior Fishery Technician

Approved by:

_____

Virgil K. Moore, Chief
Fisheries Bureau

_____

William D. Horton
Anadromous Fisheries Coordinator