



**EVALUATION OF IDAHO STEELHEAD HARVEST FOR  
LOWER SNAKE RIVER COMPENSATION PLAN  
HATCHERY PROGRAMS**

**Project Progress Report**

**Report Period September 2000 to April 2001**



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Senior Fishery Research Biologist**

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**September 2000 to April 2001 Annual Report**

**By**

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**To**

**U.S. Fish and Wildlife Service  
Lower Snake River Compensation Plan Office  
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## ABSTRACT

We interviewed 17,952 anglers who fished a total of 106,126 hours for steelhead *Oncorhynchus mykiss*; kept 3,933 fish and released 2,420 and 1,361 hatchery fish and wild fish, respectively, during the 2000 - 2001 fishing seasons in Idaho. Our creel surveys show anglers fished an average of 14 hours per fish caught and 27 hours per fish kept during the 2000 run year.

We examined 3,520 fish for coded-wire tags (CWT) and recovered 388 from steelhead reared by Lower Snake River Compensation Plan hatchery facilities in Idaho. We recovered CWTs from 62 of the 91 Lower Snake River Compensation Plan (LSRCP) mark groups expected to return during the 2000 run year. Our estimated sample rate for spring and fall fishing seasons was 10.5%.

Age composition and mean fork length of fish sampled from the creel were similar to criteria used to categorize fish as described in previous reports. Creel recoveries of CWT from A-stock steelhead reared by Magic Valley Fish Hatchery and Hagerman National Fish Hatchery primarily consisted of 1-ocean fish. Creel recoveries of CWT from B-stock steelhead reared by Clearwater Fish Hatchery consisted of 1-, 2-, and 3-ocean fish. Creel recoveries of CWT from B-stock steelhead reared by Magic Valley Fish Hatchery consisted of 1- and 2-ocean fish. The female to male sex ratio of returning adult fish harvested in the fishery was 1.2:1.

We estimated 11,961 A- and B-stock steelhead harvested by Idaho licensed anglers were produced by Lower Snake River Compensation Plan hatcheries. The statewide steelhead harvest estimate for all steelhead returning to Idaho was 33,602 fish.

More East Fork Salmon River B-stock fish were harvested in Idaho and returned to racks from juvenile fish released during 1998 compared to East Fork Salmon River Dworshak B-stock fish. However, adult return values were similar for both B-stocks of fish released during 1997. A review of data from past reports show possible differences regarding age at return between East Fork Salmon River B-stock fish and Dworshak B-stock fish, although the data is inconclusive.

Mark rates for steelhead that were CWTd for LSRCP hatchery facilities ranged from 18% to 25%. Both the greatest number of marked groups and marked fish released were from Magic Valley Fish Hatchery. The least number of marked fish released during 1997 to 1999 were from Clearwater Fish Hatchery.

We estimated approximately 84 juvenile steelhead were reared by Hagerman National Fish Hatchery for each adult LSRCP reared fish harvested in Idaho or a juvenile-to-adult harvest ratio of 84:1. The juvenile-to-adult harvest ratio for Magic Valley Fish Hatchery and Clearwater Fish Hatchery were 230:1 and 335:1, respectively. Juvenile-to-adult harvest ratios were elevated for Magic Valley Fish Hatchery and Clearwater Fish Hatchery because of low CWT recovery rates in fisheries associated with B-stock fish.

Our unadjusted counts of A- and B-stock steelhead at Bonneville Dam and Lower Granite Dam for the 2000 run year sample period significantly surpassed values from the previous year with regards to escapement of natural and hatchery fish. The total number of steelhead that passed Bonneville Dam and Lower Granite Dam during our sample period was

274,448 and 116,490, respectively. Ten year average values for steelhead that passed Bonneville Dam and Lower Granite Dam were 218,059 and 78,840, respectively.

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## INTRODUCTION

The purpose of this report is to provide an analysis and summary of steelhead *Oncorhynchus mykiss* that were reared in Idaho by Lower Snake River Compensation Plan (LSRCP) hatcheries and later harvested by Idaho sport anglers. In Idaho, Idaho's Department of Fish and Game's (IDFG) Harvest Management Program (HMP) is tasked with collecting this data for non-tribal sport anglers. Additionally, we incorporate statewide steelhead harvest (SWH) estimates into our analysis and distribute to IDFG programs and the angling public data regarding counts of wild-natural steelhead, hatchery steelhead, and A- and B-stocks of steelhead at Bonneville Dam and Lower Granite Dam and Idaho's catch effort and success.

We conduct angler creel on portions of the Clearwater River, South Fork of the Clearwater River, Snake River, Salmon River, and the Little Salmon River in Idaho. Our main objective for collecting creel information is to recover coded-wire tags (CWT) from LSRCP hatchery release groups. A secondary objective is to sample anglers for estimates of catch effort and success. An angler survey is conducted by mail by IDFG after each season to acquire information regarding overall angler harvest (SWH) and portions of wild-natural fish versus hatchery fish caught by anglers during the fishery. We use the SWH estimates and CWT data to develop estimates of fishery contribution for Hagerman National Fish Hatchery, Magic Valley Fish Hatchery, and Clearwater Fish Hatchery. We are able to identify which hatchery reared a particular angler caught steelhead, the river section where the fish was caught, the time of year the fish was caught, the size and sex of the fish, stock origin, and age of the fish.

The combined steelhead harvest and fish hatchery or in-river return data generated by our program provide conservative estimates of total returns for particular release groups. Our program provides steelhead harvest data to the IDFG Hatchery Evaluation Program (HEP located in Nampa, Idaho, for further analysis.

Our data is organized by major river system, river section and rearing facility. General summary tables are listed in the text with more detailed information provided in the appendices. Also, we have provided data for non-LSRCP reared steelhead in the appendices, as our creel is non-selective in terms of fish sampled.

## OBJECTIVES

- 1) Estimate the numbers of LSRCP-reared hatchery steelhead and wild/natural steelhead recovered in the fishery and overall LSRCP-reared hatchery returns to Idaho. Estimate the number of wild/natural and hatchery A- and B-stock steelhead returning to Bonneville Dam and Lower Granite Dam.
- 2) Collect and provide harvest and biological data of returning adult LSRCP-reared steelhead for the purpose of informing the angling public and maximizing fishery benefits to the State of Idaho.
- 3) Identify and analyze data and relationships that will assist managers regarding the continuing development of LSRCP steelhead harvest management plans.

## DESCRIPTION OF THE STUDY AREA

The LSRCP program releases juvenile steelhead into the Salmon River drainage and Clearwater River drainage. Consequently, Idaho's harvest of LSRCP produced steelhead occurs in the Snake River, Clearwater River, South Fork of the Clearwater River, Salmon River and the Little Salmon River.

Table 1. River section location codes for steelhead fisheries surveyed for the LSRCP program in Idaho.

<b>River Section</b>	<b>Location Code</b>
Snake River, below Salmon River	01
Clearwater River, below Orofino Bridge	03
Clearwater River, above Orofino Bridge	04
North Fork Clearwater River	05
South Fork Clearwater River	07
Salmon River, below Whitebird Creek	10
Salmon River, Whitebird Creek to Little Salmon	11
Salmon River, Little Salmon to Vinegar Creek	12
Salmon River, Vinegar Creek to South Fork	13
Salmon River, South Fork to Middle Fork	14
Salmon River, Middle Fork to North Fork	15
Salmon River, North Fork to Lemhi River	16
Salmon River, Lemhi River to Pahsimeroi River	17
Salmon River, Pahsimeroi River to East Fork	18
Salmon River, above East Fork	19
Little Salmon River	20

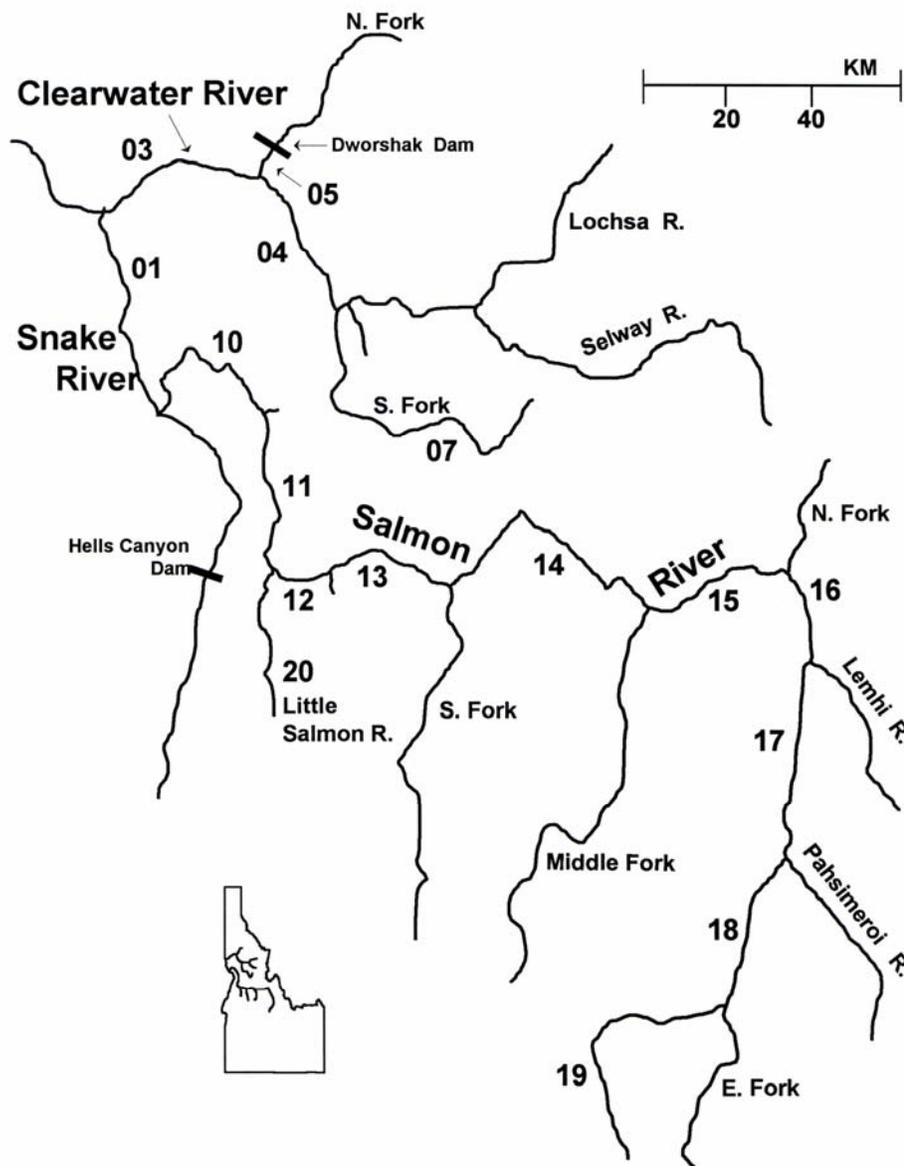


Figure 1. Map of steelhead harvest areas surveyed for the Lower Snake River Compensation Program by Idaho Department of Fish and Game.

## METHODS

### Creel Survey

We conducted interviews of Idaho licensed anglers at check stations, from jet boats, and from roving vehicles. Our angler interview schedules are designed to observe the maximum numbers of fish harvested. Technicians typically use a jet boat to survey anglers on the Clearwater River during the fall and winter months. In spring, we often conduct creel checks at boat ramps along the Clearwater River because of increased boat density. We use check stations and roving techniques to census anglers fishing in the lower and upper Salmon River portions of the project. We use surveys conducted at boat ramps, and occasionally from a jet boat, to census anglers on the Snake River.

The data we collect from anglers during creel surveys includes the number of anglers and hours fished, the number of fish kept or released, wild or hatchery origin of fish kept and released, fork length and sex of fish kept, and the date and river sections where fish were caught. Creel personnel inspect fish for tags and marks. We remove snouts if our CWT wand signals a positive detection and upon the angler's approval.

Water conditions during the fall season are usually conducive to harvest, and the interview schedule can be followed. However, anglers may encounter harsh weather and poor water conditions during winter and spring months. We did not attempt to interview anglers during periods of low harvest as the additional data doesn't significantly increase our monthly sample rates.

### Data Analysis

We acquired release numbers of juvenile steelhead reared at LSRCP facilities from Harrington (2003), Hansen and White (2004), and Hansen (2005). Estimates of pre-release shed CWT and mortalities are subtracted from juvenile release numbers before they are published. We acquired release numbers of juvenile steelhead from non-LSRCP programs from the Regional Mark Information System (RMIS) CWT database, located in Portland, Oregon, and the United States Fish and Wildlife Service's Idaho Fishery Resource Office, located in Ahsahka, Idaho. We obtained adult CWT recovery data from queries of the CWT Recovery Database maintained by the IDFG Hatchery Evaluation Program located in Nampa, Idaho.

All sample and harvest estimates were grouped by river section and month. We developed a sample rate for each unique CWT code with the algorithm

$$SR = \frac{T_{mr}}{SWH_{mr}}$$

where SR is the sample rate, T is equal to the total number of fish checked for marks in a particular strata, m is equal to the strata month, r is equal to the strata river section, and SWH is equal to the estimate of total harvest for the corresponding month and river section (or strata) where the CWT was recovered. SWH estimates were developed from a random sample of Idaho licensed steelhead permit holders via a mail survey conducted by IDFG.

We created harvest estimates by CWT tag group by expanding recoveries with the algorithm

$$H = \sum \left( \frac{T_{mr}}{SR_{mr}} \right)$$

Where H is equal to the harvest for a unique CWT tag code, T is the number of tags for a unique CWT code, m is equal to the month the tag was recovered, r is equal to the river section where the tag was recovered, and SR is the sample rate.

We developed estimates of harvest for unmarked fish release groups with the algorithm

$$HU = \left( \frac{\sum MH}{\sum MR} \right) UR$$

Where H is equal to harvest, U is equal to unmarked fish, M is the associated marked fish group or groups, and R is the number of fish released. Where possible, we tried to associate marked and unmarked groups of fish with similar rearing histories, stock origin, special diets, and experimental studies. In some cases, unmarked fish were released without an associated mark group. Occasionally, we used non-LSRCP mark groups to estimate harvest of unmarked LSRCP release groups if no LSRCP marked fish were released within the proximity of unmarked groups.

Hatchery personnel provided hatchery facility counts of fish returning to various hatcheries. We used CWT return rates at hatchery racks to estimate in-river returns of off-site released fish and to distribute unmarked fish returning to hatcheries among the various hatchery release groups. Often, there is a discrepancy between the estimated number of returning unmarked fish, based on CWT return rates, and the actually number provided by hatchery personnel. When this occurs, we distribute the error among the unmarked release groups based upon the original estimated proportions.

We calculated an exploitation rate, expressed as a decimal, for each individual release group for which we developed a harvest estimate with the following algorithm:

$$ER = \frac{H}{TR}$$

Where ER is equal to the exploitation rate, H is our estimate of harvest, and TR is total returns.

Occasionally, we recover 4-year-old A-stock or 5-year-old B-stock fish during creel. It requires considerable effort to track these groups and provide estimates of harvest and adult returns by release year. Additionally, we do not know if the fish held over in the ocean or fresh water. Therefore, survival rates for older A-strain and B-strain fish may be unique compared to “typical” groups. To simplify things, we do include these fish in our sample rate calculations. However, we do not provide estimates of total returns or survival for these fish. We list unexpanded recoveries of “unusual” fish in Appendix F.

## **B-stock Returns to the Upper Salmon River**

We used chi-square methods (Zarr 1996) to compare upper Salmon River adult returns of East Fork Salmon River B-stock and Dworshak B-stock fish from 9 different return years. Unlike previous reports, we made our comparisons based on estimates of fishery harvest – not CWT recoveries. We believe this method will reduce bias associated with variable creel sampling rates that often occur between river sections. Also, we did not include harvest that occurred outside of Idaho, as regional databases are sometimes incomplete in terms of data needed to expand CWT.

## **Escapement at Dams**

We obtained steelhead sample data at Bonneville Dam and Lower Granite Dam from fisheries personnel from Oregon Department of Fish and Wildlife (ODFW) and National Marine Fisheries Service (NMFS), respectively. Personnel sampled fish at Bonneville Dam from April 1 to November 15. Personnel sampled fish at Lower Granite Dam from June 1 to December 15, 2000 and March 1 to May 31, 2001. We collected our total dam count values from the United States Army Corps of Engineers internet site located at <http://www.nwp.usace.army.mil/op/fish/data/home.asp>

We categorized steelhead as either A-stock (< 78 cm FL) natural or hatchery fish or B-stock ( $\geq$  78 cm FL) natural or hatchery fish at Bonneville Dam and Lower Granite Dam. Fish were placed into length and disposition categories based on sampling that occurred at each hydroproject. We did not adjust for size overlap between groups after they were separated by category because our current model estimates a negative number of fish if we encounter low escapement values. For a more detailed discussion regarding dam counts and overlap adjustments see Ball and White (2001).

## **RESULTS**

### **Creel Survey**

We interviewed 17,952 anglers that fished a total of 106,126 hours (Table 2). Anglers kept 3,933 fish, of which we examined 3,520 fish for CWT. Also, anglers released 2,420 hatchery and 1,361 wild fish. Anglers averaged 14 hours per fish caught and 27 hours per fish kept for the fall and spring seasons. We provided monthly summaries of creel data for fall and spring seasons in Appendix A.

### **Biodata**

We were able to determine the age, length and stock composition of 387 fish based on CWT recoveries in the fishery (Table 3). B-stock fish reared at Clearwater Fish Hatchery (CFH) show slightly more 2-ocean fish returns compared to 1- and 3-ocean age classes. One 2-ocean B-stock fish, reared at CFH, was recovered in the lower Salmon River. The 2-ocean fish was unusually small for a B-stock fish, and possibly spent a portion of its life in mainstem reservoirs. The sex of CWT fish recovered from CFH releases included 9 male fish and 2 female fish.

Salmon River returns of Magic Valley Fish Hatchery (MVFH) A-stock fish consisted of 83% 1-ocean fish. We recovered CWT from 65 males and 98 females. Salmon River returns of B-stock fish reared at MVFH consisted of 30% 1-ocean fish and 70% 2-ocean fish. The sex ratio was 50% males and females for combined ocean ages.

Hagerman National Fish Hatchery (HNFH) reared steelhead were recovered in both the Snake River and Salmon River. Snake River recoveries of A-stock steelhead consisted of 60% 1-ocean and 40% 2-ocean fish. Salmon River recoveries of A-stock steelhead consisted of 73% 1-ocean and 27% 2-ocean fish. Overall, we recovered 84 male and 89 female HNFH reared A-stock fish.

Mean fork length values fit well into stock and age separation categories described in Hansen and White (2004). The exception was MVFH returns of B-stock steelhead to the Salmon River, where both male and female fish were slightly smaller compared to pre-determined age cut-off categories.

Statewide, we recovered CWT from 168 males and 204 females that were comprised of 147 A-stock males, 21 B-stock males, 184 A-stock females and 20 B-stock females. We recovered 41 B-stock fish from the Salmon River and 10 B-stock fish from the Clearwater River.

### **Harvest**

A SWH estimate of LSRCP-reared and non-LSRCP-reared steelhead shows approximately 18,051 fish were kept by anglers during fall 2000 (Table 4). Anglers kept approximately 15,551 steelhead during spring 2001 (Table 4). The total harvest for spring and fall seasons combined was 33,602. November was the most productive fall month for anglers. March was the most productive spring month for anglers. Anglers harvested approximately 18,188 fish from the Salmon River, 12,232 fish from the Clearwater River and 3,182 fish from the Snake River during both fall and spring seasons.

We provided creel sample rate values by river section and month in Table 5. Our mean sample rate value was 10.5% for all creel river sections. Sample rate values ranged from zero for section 10 to 23.3% for section 15. Mean sample rate values for the Clearwater River, Snake River and lower Salmon River were typically less compared to the mean statewide value, while sample rate values for the upper Salmon River were typically greater compared to the mean statewide value.

We reported estimated harvest of LSRCP-reared steelhead by CWT group in Appendix B. We recovered 173 CWT from 32 A-stock mark groups reared by HNFH. We recovered 204 CWT from 13 A-stock steelhead mark groups and 13 B-stock steelhead mark groups for a total of 26 CWT mark groups reared by MVFH. We recovered 11 CWT from 6 B-stock mark groups reared by CFH. Overall, we recovered 388 CWT from 62 LSRCP mark groups during fall and spring seasons.

Table 2. Summary of steelhead fishery interview data (unexpanded) of Idaho licensed anglers from the lower Snake River, the Clearwater River, and the Salmon River, September 2000 - April 2001.

Fishing Season River	No. Anglers	Total Hours Fished	Steelhead Kept	Steelhead Released		Total Catch	Hours Per Fish Caught	Hours Per Fish Kept	Checked For CWT	Snouts Taken	Snouts Not Taken
				Hatchery	Wild						
<u>Fall 2000</u>											
Snake River	628	2,447	45	5	23	73	34	54	43	3	0
Snake River WDFW data <sup>a</sup>	171	978	89	15	58	162	6	11	87	--	--
Clearwater River	2,665	9,421	412	74	148	634	15	23	391	20	6
Salmon River	4,197	35,064	1,400	667	545	2,612	13	25	1,276	243	1
Fall Totals	7,661	47,910	1,946	761	774	3,481	14	25	1,797	266	7
<u>Spring 2001</u>											
Clearwater River	3,631	13,661	589	302	143	1,034	13	23	496	12	6
Salmon River	6,660	44,555	1,398	1,357	444	3,199	14	32	1227	229	6
Spring Totals	10,291	58,216	1,987	1,659	587	4,233	14	29	1,723	241	12
IDFG Interviews Totals	17,781	105,148	3,844	2,405	1,303	7,552	14	27	3,433	507	19
<b>Grand Totals</b>	<b>17,952</b>	<b>106,126</b>	<b>3,933</b>	<b>2,420</b>	<b>1,361</b>	<b>7,714</b>	<b>14</b>	<b>27</b>	<b>3,520</b>	<b>507</b>	<b>19</b>

<sup>a</sup> Data collected by Washington Department of Fish and Wildlife. (J. Bumgarner, personal communication, 2003)

Table 3. Age composition and mean fork length ( $\pm$  95% confidence intervals) of known-age, coded-wire-tagged Lower Snake River Compensation Plan (LSRCP) hatchery fish sampled in creel surveys in the Snake River, Clearwater River, and Salmon River during the 2000-2001 run year. Returns are separated by rearing hatchery, recovery location, and stock and ocean age.

Recovery Location	Sex	Sample Size	Age Composition by Stock-Ocean Age			Mean Fork Length (cm) by Stock-Ocean Age		
<b>Clearwater Fish Hatchery</b>								
Clearwater River		N	<u>B-1</u> N (%)	<u>B-2</u> N (%)	<u>B-3</u> N (%)	<u>B-1</u>	<u>B-2</u>	<u>B-3</u>
	Males	8	3 (38%)	3 (38%)	2 (25%)	71 $\pm$ 9	91 $\pm$ 4	98 $\pm$ 7
	Females	2	0 (0%)	2 (100%)	0 (0%)	-	82 $\pm$ 3	-
	Clearwater River Total	10	3 (30%)	5 (50%)	2 (20%)	71 $\pm$ 9	87 $\pm$ 5	98 $\pm$ 7
Salmon River		N	<u>B-1</u> N (%)	<u>B-2</u> N (%)	<u>B-3</u> N (%)	<u>B-1</u>	<u>B-2</u>	<u>B-3</u>
	Males	1	0	1 (100%)	0	-	56	-
	Females	0	0	0	0	-	-	-
	Salmon River Total	1	0	1 (100%)	0	-	56	-
11 coded-wire tags were recovered in the 2000-2001 steelhead fishery from fish reared at Clearwater Fish Hatchery								
<b>Magic Valley Fish Hatchery</b>								
Salmon River		N	<u>A-1</u> N (%)	<u>A-2</u> N (%)		<u>A-1</u>	<u>A-2</u>	
	Males	65	56 (86%)	9 (14%)		61 $\pm$ 1	72 $\pm$ 2	
	Females	98	80 (82%)	18 (18%)		59 $\pm$ 1	68 $\pm$ 2	
Salmon River, A-stock Total		163	136 (83%)	27 (17%)		60 $\pm$ 1	69 $\pm$ 2	

Table 3. Continued.

Recovery Location	Sex	Sample Size	Age Composition by Stock-Ocean Age		Mean Fork Length (cm) by Stock-Ocean Age	
			<u>B-1</u> N (%)	<u>B-2</u> N (%)	<u>B-1</u>	<u>B-2</u>
		N				
	Males	20	10 (50%)	10 (50%)	63±1	78±3
	Females	20	2 (10%)	18 (90%)	58±0	75±2
Salmon River, B-stock	Total	40	12 (30%)	28 (70%)	62±2	76±2

203 coded-wire tags were recovered in the 2000-2001 steelhead fishery from fish reared at Magic Valley Fish Hatchery

**Hagerman National Fish Hatchery**

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Snake River		N	<u>A-1</u>	<u>A-2</u>	<u>A-1</u>	<u>A-2</u>
			N (%)	N (%)		
	Males	2	1 (50%)	1 (50%)	61	76
	Females	3	2 (67%)	1 (33%)	61±2	73
Snake River	Total	5	3 (60%)	2 (40%)	61±1	75±3

Salmon River		N	<u>A-1</u>	<u>A-2</u>	<u>A-1</u>	<u>A-2</u>
			N (%)	N (%)		
	Males	82	70 (85%)	12 (15%)	60±1	70±3
	Females	86	53 (62%)	33 (38%)	58±1	70±1
Salmon River	Total	168	123 (73%)	45 (27%)	59±1	70±1

173 coded-wire tags were recovered in the 2000-2001 steelhead fishery from fish reared at Hagerman National Fish Hatchery

**All LSRCP Hatcheries, Combined**

Statewide, 387 coded-wire tags were recovered in the 2000-2001 steelhead fishery from LSRCP-reared fish<sup>a</sup>

<sup>a</sup> One additional tag No. 105405, listed in the coded-wire tag database as recovered in the Snake River, was without specific biodata.

Table 4. Statewide harvest estimate of steelhead by river section and month of Idaho licensed anglers, fall 2000 and spring 2001.

River Section <sup>a</sup>	Fall 2000 Steelhead Harvest <sup>b</sup>				
	September	October	November	December	Total
Snake River					
01	145	919	1,307	571	2,942
Clearwater River					
03	855	2,301	1,866	1,176	6,198
04	0	243	237	52	532
05	0	38	26	52	116
06	0	0	13	26	39
07	13	0	0	0	13
Salmon River					
10	39	251	283	88	661
11	12	422	705	261	1,400
12	0	457	616	156	1,229
13	13	168	157	0	338
14	0	285	546	104	935
15	0	1,228	1,230	52	2,510
16	0	195	235	13	443
17	0	52	26	13	91
18	17	0	0	26	43
19	0	0	0	0	0
20	0	26	313	222	561
<b>Statewide Totals</b>	<b>1,094</b>	<b>6,585</b>	<b>7,560</b>	<b>2,812</b>	<b>18,051</b>

Table 4. (Continued).

River Section <sup>a</sup>	Spring 2001 Steelhead Harvest <sup>b</sup>				
	January	February	March	April	Total
Snake River					
01	163	77	0	0	240
Clearwater River					
03	644	1,042	659	80	2,425
04	59	259	249	136	703
05	82	392	436	117	1,027
06	0	0	12	0	12
07	36	182	622	327	1,167
Salmon River					
10	152	59	22	0	233
11	200	293	437	94	1,024
12	24	138	93	103	358
13	0	80	36	0	116
14	36	161	177	0	374
15	128	164	1,195	125	1,612
16	12	46	618	314	990
17	12	69	637	632	1,350
18	0	0	284	955	1,239
19	0	12	185	559	756
20	107	106	370	1,342	1,925
<b>Statewide Totals</b>	<b>1,654</b>	<b>3,080</b>	<b>6,031</b>	<b>4,783</b>	<b>15,551</b>

<sup>a</sup> Excludes river sections not creeded for the LSRCP.

<sup>b</sup> Data from Thomas J. McArthur, IDFG.

Our estimated harvest of LSRCP-reared steelhead during the fall 2000 and spring 2001 seasons was 11,961 fish (Table 6). Our estimated number of total adult returns from all three rearing facilities was 22,649 fish. MVFH contributed twice as many juvenile fish to the 2000 run year compared to HNFH and CFH. Mean CWT mark rates were similar for all rearing facilities, although the mean mark rate for CFH was 5% less compared to MVFH and 7% less compared to HNFH.

Mean exploitation rates ranged from 49% for HNFH steelhead to 77% for CFH fish. The mean exploitation rate for steelhead produced by all three LSRCP hatchery facilities was 53%. We recovered 62 of 91 returning LSRCP CWT mark groups. The CWT mark group recovery rate for both MVFH and CFH was approximately 50%. The CWT mark group recovery rate for HNFH reared steelhead was 94%. More detailed information regarding individual juvenile release groups and harvest is provided in Appendix C.

Table 5. Fishery sample rates by river section and month, 2000-2001.

Section Statistics	Fishery Statistics by Month								
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
<b>01</b>									
No. Fish Checked	0	55	68	7	--	--	--	--	130
Estimated Harvest <sup>a</sup>	145	919	1,307	571	163	77	0	0	3,182
Sample Rate	0	0.060	0.052	0.012	0	0	--	--	0.041
<b>03 &amp; 05</b>									
No. Fish Checked	--	153	166	72	134	203	70	0	798
Estimated Harvest	855	2,339	1,892	1,228	726	1,434	1,095	197	9,766
Sample Rate	0	0.065	0.088	0.059	0.185	0.142	0.064	0	0.082
<b>04</b>									
No. Fish Checked	--	--	--	--	1	14	14	0	29
Estimated Harvest	0	243	250	78	59	259	261	136	1,286
Sample Rate	--	0	0	0	0.017	0.054	0.054	0	0.023
<b>07</b>									
No. Fish Checked	--	--	--	--	--	4	36	20	60
Estimated Harvest	13	0	0	0	36	182	622	327	1,180
Sample Rate	0	--	--	--	0	0.022	0.058	0.061	0.051
<b>10</b>									
No. Fish Checked	--	0	0	--	--	--	--	--	0
Estimated Harvest	39	251	283	88	152	59	22	0	894
Sample Rate	0	0	0	0	0	0	0	--	0
<b>11</b>									
No. Fish Checked	--	9	19	--	--	5	13	--	46
Estimated Harvest	12	422	705	261	200	293	437	94	2,424
Sample Rate	0	0.021	0.027	0	0	0.017	0.030	0	0.019
<b>12</b>									
No. Fish Checked	--	124	119	--	--	26	75	--	344
Estimated Harvest	0	457	616	156	24	138	93	103	1,587
Sample Rate	--	0.271	0.193	0	0	0.188	0.806	0	0.217
<b>13</b>									
No. Fish Checked	--	4	10	--	--	--	12	--	26
Estimated Harvest	13	168	157	0	0	80	36	0	454
Sample Rate	0	0.024	0.064	--	--	0	0.333	--	0.057
<b>14</b>									
No. Fish Checked	--	88	95	--	--	12	50	--	245
Estimated Harvest	0	285	546	104	36	161	177	0	1,309
Sample Rate	--	0.309	0.174	0	0	0.075	0.282	--	0.187
<b>15</b>									
No. Fish Checked	--	361	320	--	--	4	273	2	960
Estimated Harvest	0	1,228	1,230	52	128	164	1,195	125	4,122
Sample Rate	--	0.294	0.260	0	0	0.024	0.228	0.016	0.233
<b>16</b>									
No. Fish Checked	--	65	49	--	--	12	143	31	300
Estimated Harvest	0	195	235	13	12	46	618	314	1,433
Sample Rate	--	0.333	0.209	0	0	0.261	0.231	0.099	0.209

Table 5. Continued.

Section	Statistics	Fishery Statistics by Month								Total
		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
<b>17</b>	No. Fish Checked	--	1	6	--	--	10	65	146	228
	Estimated Harvest	0	52	26	13	12	69	637	632	1,441
	Sample Rate	--	0.019	0.231	0	0	0.145	0.102	0.231	0.158
<b>18</b>	No. Fish Checked	--	--	--	--	--	--	14	113	127
	Estimated Harvest	17	0	0	26	0	0	284	955	1,282
	Sample Rate	0	--	--	0	--	--	0.049	0.118	0.099
<b>19</b>	No. Fish Checked	--	--	--	--	--	--	15	116	131
	Estimated Harvest	0	0	0	0	0	12	185	559	756
	Sample Rate	--	--	--	--	--	0	0.081	0.208	0.173
<b>20</b>	No. Fish Checked	--	1	5	--	--	1	19	70	96
	Estimated Harvest	0	26	313	222	107	106	370	1,342	2,486
	Sample Rate	--	0.038	0.016	0	0	0.009	0.051	0.052	0.039
									<b>Total Steelhead Checked</b>	<b>3,520</b>
									<b>Total Estimated Steelhead Harvested</b>	<b>33,602</b>
									<b>Annual Sample Rate</b>	<b>0.105</b>

<sup>a</sup> Harvest data from Statewide Harvest Survey data, Thomas J. McArthur, IDFG (unpublished).

During 1997, 1998 and 1999, LSRCP hatchery facilities released a total of approximately 8,670,940 juvenile steelhead comprised of 91 CWT mark groups and their associated unmarked groups. HNFH released approximately 2,164,510 juvenile A-stock steelhead that provided anglers with an estimated harvest of 6,369 fish. MVFH released approximately 4,478,145 combined A- and B-stock fish that provided anglers with an estimated harvest of 4,520 fish. CFH released approximately 2,028,285 B-stock steelhead that provided anglers with an estimated harvest of 1,072 fish.

We recovered 58 CWT from 24 unique steelhead mark groups from non-LSRCP hatcheries during creel (Appendix D). Thirteen A-stock mark groups were reared at Niagara Springs Fish Hatchery (NSFH) and 11 B-stock mark groups were reared at Dworshak National Fish Hatchery (DNFH). Our estimated harvest of marked group steelhead from those hatcheries, based on CWT expansions, is 483 fish.

We recovered 7 CWT tags from Idaho licensed anglers for steelhead released in Washington and Oregon (Appendix E). All 7 CWT were recovered in river section 01. Our estimated harvest of those groups, based on CWT expansions, is 126 fish.

We recovered 1 CWT from a 1997 upper Salmon River release of HNFH A-stock steelhead at Torrey's Hole (Appendix F). We did not attempt any harvest expansions of the CWT for the 4-year-old fish, as mentioned earlier in the Methods section.

Table 6. Idaho steelhead sport fishery statistics, by rearing facility, for Lower Snake River Compensation Plan hatchery fish, fall 2000 and spring 2001.

Mark Groups		No. of Fish			Mark Rate	Estimated Harvest	Hatchery In-river Returns	Total Returns	Exploitation Rate
Released	Recovered in Fishery	Coded-wire-tagged	Released						
<u>Hagerman National Fish Hatchery</u>									
34	32	533,880	2,164,510	0.25	6,369	6,639	13,008	0.49	
<u>Magic Valley Fish Hatchery</u>									
42	24	1,039,056	4,478,145	0.23	4,520	3,727	8,247	0.55	
<u>Clearwater Fish Hatchery</u>									
15	6	359,059	2,028,285	0.18	1,072	322	1,394	0.77	
<u>All LSRCP Hatchery, Combined</u>									
91	62	1,931,995	8,670,940	0.22	11,961	10,688	22,649	0.53	

### East Fork Salmon River Adult Returns

We provided a “stock” comparison of B steelhead expected to return to the East Fork Salmon River during 2000 in Table 7. Harvest expansions of CWT show that we recovered more B-stock fish that were spawned from adult returns to the East Fork Salmon River compared to B-stock fish spawned at DNFH. The same results were found pertaining to rack returns, with the exception of Dworshak 2-ocean fish that returned from a 1998 release. We also observed that Dworshak stock fish were not recovered in our fishery or at hatchery racks in significant numbers until they had spent two years in the ocean.

We reviewed data regarding returns of East Fork Salmon River B-stock steelhead and Dworshak B-stock steelhead from previous annual reports (Appendix G). Our chi-square analysis shows a statistically greater number of East Fork stock steelhead were recovered in the Idaho fishery compared to Dworshak stock fish (Table 8).

We found Idaho anglers recovered East Fork B-stock steelhead that returned to the upper Salmon River primarily as 1- and 2-ocean fish (Table 9). Idaho anglers recovered Dworshak B-stock steelhead that returned to the upper Salmon River primarily as 2-ocean fish.

Table 7. Expanded harvest estimates of Idaho sport fishery recoveries of coded-wire-tagged juvenile B steelhead released into the East Fork Salmon River.

Release Year, Stock <sup>a</sup> , Tag Codes, and No. of Fish Released	1-Ocean			2-Ocean			3-Ocean			Total Estimated Returns
	Estimated Harvest	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	
<u>1997<sup>b</sup></u>										
East Fork Stock CWT 10/52/19, 10/52/20, 10/52/21 N = 55,050	45	11	56	36	4	40	0	0	0	<b>96</b>
Dworshak Stock: CWT 10/52/22, 10/52/23, 10/52/24 N = 52,176	0	0	0	83	3	86	0	0	0	<b>86</b>
<u>1998</u>										
East Fork Stock: CWT 10/47/05, 10/47/06, 10/47/07 N = 63,241	13	2	15	87	2	89	ND <sup>c</sup>	ND	ND	<b>104</b>
Dworshak Stock: CWT 10/21/43, 10/21/44, 10/21/45 N = 61,110	0	0	0	6	7	0	ND	ND	ND	<b>13</b>
<u>1999</u>										
East Fork Stock: No CWT releases	--	--	--	--	--	--	--	--	--	--
Dworshak Stock: CWT 10/54/03 N = 59,129	0	2	0	ND	ND	ND	ND	ND	ND	<b>2</b>

<sup>a</sup> East Fork "stock" is originally from DNFH. Eggs are collected from adults returning to the East Fork. Dworshak stock eggs are collected from adults returning to DNFH. Both East Fork and Dworshak stock juvenile fish are reared at MVFH and released into the East Fork Salmon River.

<sup>b</sup> Estimated returns of 1-ocean fish released in 1997 are taken from Hansen and White (2004); estimated returns of 1-ocean fish released in 1998 and 2-ocean fish released in 1997 are from Hansen (2005).

<sup>c</sup> ND = No data

## **Steelhead Counts at Hydroprojects**

Our estimated total counts of steelhead at Bonneville Dam (Table 10) and Lower Granite Dam (Table 11) were 274,448 and 116,490 fish, respectively.

We estimated 162,324 A-stock hatchery steelhead and 34,181 B-stock hatchery steelhead passed Bonneville Dam between April 1 – November 15, 2000. We estimated 69,940 A-stock natural steelhead and 8,001 B-stock natural steelhead passed Bonneville Dam during the 2000 run year.

We estimated 79,094 A-stock hatchery steelhead and 17,133 B-stock hatchery steelhead passed Lower Granite Dam between June 1 – December 15, 2000 and March 1 – May 31, 2001. We estimated 17,389 A-stock natural steelhead and 2,874 B-stock natural steelhead passed Lower Granite Dam during the 2000 run year.

## **DISCUSSION**

We provided more detail in the methods section of this report, compared to previous reports, regarding the calculation of harvest estimates. However, readers should realize that with hundreds of groups of fish involve it's not always possible for us to describe every calculation. Therefore, the algorithms we provided in the methods section allow readers to repeat most calculations – not all calculations. Should readers encounter values they are unable to repeat they should contact the author for further explanation.

We interviewed 17,952 anglers during the 2000-01 seasons compared to 16,781 anglers during the 1999-00 seasons (Hansen 2005). We checked 3,520 fish for CWT compared to 3,078 fish during the previous year (Hansen 2005). Our overall sample rate was 10.5% for 2000-2001 compared to 11.4% for 1999-2000 (Hansen 2005). We interviewed more anglers during 2000-2001 compared to the previous season, but were unable to maintain a sample rate of 11%. However, SWH estimates show 6,539 more fish were harvested during 2000-2001 compared to 1999-2000 (Hansen 2005).

The data in this report illustrates challenges we encounter with regards to obtaining consistent and adequate sample rates and recoveries of CWTs. The area we sample is vast and encompasses both easy and difficult creel areas. We recommend a review of sampling strategies by river section to determine if it is possible for our program to sample a greater portion of the fish harvested. Additionally, our analysis should include a review of CWT mark rates and associated recovery efforts in the fishery. For example, our data shows 27% of anglers fishing the Clearwater River drainage for B-stock fish refused to surrender snouts our wands detected as CWT positive. In comparison, less than 2% of anglers fishing for mixed A- and B-stock fish on the Salmon River drainage refused to surrender snouts to creel personnel. Clearly, our data shows anglers are reluctant to surrender B-stock snouts, possibly because of trophy value. We should review CWT mark rates, by stock, to account for angler bias regarding snouts recovered. Of all LSRCP hatchery facilities, the Clearwater Fish Hatchery released the smallest proportion of CWT-tagged juvenile fish versus unmarked fish.

Table 8. Chi-square analysis of differences in returns of coded-wire-tagged B steelhead released in the East Fork Salmon River, 1989-1998.

$H_0$ : The rate of return of each year's releases of coded-wire-tagged steelhead is the same in two hatchery stocks.

$H_A$ : Steelhead from different stocks return at different rates for each release year

The observed frequency in each cell is shown, with the frequency expected if  $H_0$  is true in parentheses. Expected returns were calculated in a contingency table.

Release Year <sup>a</sup>	1989		1990		1991		1992		1994		
	No. Released	Estimated Returns									
East Fork Stock <sup>b</sup>	44,064	42 (33)	46,403	94 (84)	66,383	105 (233)	20,821	27 (11)	63,394	146 (81)	
Dworshak Stock	43,569	23 (32)	44,763	72 (82)	61,827	345 (217)	43,339	6 (22)	62,713	15 (80)	...continued
Totals	87,633	65	91,166	166	128,210	450	64,160	33	126,107	161	

Release Year	1995		1996		1997		1998		Total Returns
	No. Released	Estimated Returns							
East Fork Stock	61,767	135 (99)	32,856	22 (15)	55,050	96 (93)	63,241	104 (66)	771
continued... Dworshak Hatchery Stock	61,079	62 (98)	63,013	21 (28)	52,176	86 (89)	61,110	25 (63)	655
Totals	122,846	197	95,869	43	107,226	182	124,351	129	1,426

$$\text{Degrees of freedom} = (r-1)(c-1) = (2-1)(9-1) = 8$$

Table 8. Continued.

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$$\begin{aligned}
 \chi^2 &= \frac{(42-33)^2}{33} + \frac{(94-84)^2}{84} + \frac{(105-233)^2}{233} + \frac{(27-11)^2}{11} + \frac{(146-81)^2}{81} + \frac{(135-99)^2}{99} + \frac{(22-15)^2}{15} + \frac{(96-93)^2}{93} + \frac{(104-66)^2}{66} \\
 &+ \frac{(23-32)^2}{32} + \frac{(72-82)^2}{82} + \frac{(345-217)^2}{217} + \frac{(6-22)^2}{22} + \frac{(15-80)^2}{80} + \frac{(62-98)^2}{98} + \frac{(21-28)^2}{28} + \frac{(86-89)^2}{89} + \frac{(25-63)^2}{63} \\
 &= 2.656 + 1.070 + 70.314 + 24.782 + 52.307 + 13.047 + 3.580 + 0.070 + 22.470 + 2.686 + 1.109 + 75.495 \\
 &+ 11.906 + 52.875 + 13.194 + 1.867 + 0.074 + 23.254 \\
 &= 372.755
 \end{aligned}$$

$\chi^2_{0.05,8} = 15.507$  Therefore, reject  $H_0$ .

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<sup>a</sup> Return data of DNFH steelhead releases during 1993 and 1999 were excluded because there were no comparable releases of East Fork stock  
<sup>b</sup> East Fork "stock" is originally from DNFH. Eggs are collected from adults returning to the East Fork. Dworshak stock eggs are collected from adults returning to DNFH. Both East Fork and Dworshak stock juvenile fish are reared at MVFH and released into the East Fork Salmon River.

Table 9. Chi-square analysis of differences in returns of 1-, 2-, and 3-Ocean-aged, coded-wire-tagged B steelhead released into the East Fork Salmon River, 1989-1998.

Case I  $H_0$ : In the sampled population, the rate of return of different-aged, coded-wire-tagged steelhead is independent of hatchery stock.  
 $H_A$ : In the sampled population, age of return of coded-wire-tagged steelhead is not independent of hatchery stock.  
 The observed frequency in each cell is shown, with the frequency expected if  $H_0$  is true in parentheses. Expected returns were calculated in a contingency table.

	1-Ocean Returns	2-Ocean Returns	3-Ocean Returns	Totals <sup>a</sup>
East Fork Stock <sup>b</sup>	192 (218)	561 (533)	18 (19)	771
Dworshak Hatchery Stock	212 (186)	425 (453)	18 (17)	655
Totals	404	986	36	1,426

$$\text{Degrees of freedom} = (r-1)(c-1) = (2-1)(3-1) = 2$$

$$\begin{aligned} \chi^2 &= \frac{(192-218)^2}{218} + \frac{(561-533)^2}{533} + \frac{(18-19)^2}{19} + \frac{(212-186)^2}{186} + \frac{(425-453)^2}{453} + \frac{(18-17)^2}{17} \\ &= 3.20 + 1.46 + 0.11 + 3.76 + 1.72 + 0.13 \\ &= 10.38 \end{aligned}$$

$$\chi^2_{0.05,2} = 5.991 \quad \text{Therefore, reject } H_0.$$

Case II A single CWT return from the 1991 releases was estimated to represent the return of 200 steelhead. No other estimates resulted in such a large expansion. If the 1991 data is excluded from the analysis, the results are even more striking.

$H_0$ : In the sampled population, the rate of return different-aged, coded-wire-tagged steelhead is independent of hatchery stock.

$H_A$ : In the sampled population, age of return of coded-wire-tagged steelhead is not independent of hatchery stock.

The observed frequency in each cell is shown, with the frequency expected if  $H_0$  is true in parentheses.

	1-Ocean Returns	2- & 3-Ocean Returns	Totals <sup>a</sup>
East Fork Stock <sup>b</sup>	181 (127)	485 (539)	686
Dworshak Hatchery Stock	5 (59)	305 (251)	310
Totals	186	790	976

$$\text{Degrees of freedom} = (r-1)(c-1) = (2-1)(2-1) = 1$$

$$\begin{aligned} \chi^2 &= \frac{(181-127)^2}{127} + \frac{(485-539)^2}{539} + \frac{(5-59)^2}{59} + \frac{(305-251)^2}{251} \\ &= 23.04 + 5.42 + 49.50 + 11.65 \\ &= 89.62 \end{aligned}$$

$$\chi^2_{0.05,1} = 3.841 \quad \text{Therefore, reject } H_0.$$

<sup>a</sup> Return data of DNFH steelhead releases during 1993 and 1999 were excluded because there were no comparable releases of East Fork stock.

<sup>b</sup> East Fork "stock" is originally from DNFH. Eggs are collected from adults returning to the East Fork. Dworshak stock eggs are collected from adults returning to DNFH. Both East Fork and Dworshak stock juvenile fish are reared at MVFH and released into the East Fork Salmon River.

Table 10. Estimated steelhead run composition at Bonneville Dam, April 1-November 15, 2000.

Week	Dam Count	N	Dam Count		No. Hatchery		No. Natural		No. Hatchery		No. Natural		Estimated Counts			
			%	No. <78 <sup>a</sup>	%	<78	%	≥78	%	≥78	%	<78	<78	≥78	Natural	Hatchery
4/1-6/4	3,657	120	3.3	33	27.5	80	66.7	0	0	7	5.8	1,006	2,438		213	
6/5-11	1,318	53	4.0	20	37.7	32	60.4	0	0	1	1.9	497	796		25	
6/12-18	1,867	32	1.7	10	31.3	21	65.6	0	0	1	3.1	583	1,225		58	
6/19-25	5,116	76	1.5	26	34.2	45	59.2	0	0	5	6.6	1,750	3,029		337	
6/26-7/2	7,159	92	1.3	37	40.2	52	56.5	1	1	2	2.2	2,879	4,046	78	156	
7/3-9	8,294	145	1.7	56	38.6	84	57.9	0	0	5	3.4	3,203	4,805		286	
7/10-16	13,611	132	1.0	56	42.4	74	56.1	1	0	1	0.8	5,774	7,630	103	103	
7/17-23	24,626	290	1.2	116	40.0	170	58.6	2	0	2	0.7	9,850	14,436	170	170	
7/24-30	25,966	320	1.2	136	42.5	180	56.3	2	0	2	0.6	11,036	14,606	162	162	
7/31-8/6	22,406	230	1.0	76	33.0	149	64.8	5	2	0	0.0	7,404	14,515	487		
8/7-13	20,965	240	1.1	78	32.5	155	64.6	4	1	3	1.3	6,814	13,540	349	262	
8/14-20	29,378	260	0.9	62	23.8	191	73.5	2	0	5	1.9	7,006	21,582	226	565	
8/21-25	19,973	200	1.0	30	15.0	146	73.0	11	5	13	6.5	2,996	14,580	1,099	1,298	
8/26-27	5,746	200	3.5	30	15.0	146	73.0	11	5	13	6.5	862	4,195	316	373	
8/28-9/3	20,543	213	1.0	25	11.7	127	59.6	16	7	45	21.1	2,411	12,249	1,543	4,340	
9/4-10	22,589	240	1.1	27	11.3	107	44.6	16	6	90	37.5	2,541	10,071	1,506	8,471	
9/11-17	19,248	200	1.0	13	6.5	93	46.5	13	6	81	4.05	1,251	8,950	1,251	7,795	
9/18-24	10,277	200	1.9	12	6.0	78	39.0	8	4	102	51.0	617	4,008	411	5,241	
9/25-10/1	5,191	100	1.9	5	5.0	46	46.0	3	3	46	46.0	260	2,388	156	2,388	
10/2-8	3,157	64	2.0	15	23.4	29	45.3	1	1	19	29.7	740	1,431	49	937	
10/9-15	1,799	51	2.8	5	9.8	27	52.9	0	0	19	37.3	176	952		670	
10/16-11/15	1,562	33	2.1	6	18.2	18	54.5	2	6	7	21.2	284	852	95	331	
<b>Total</b>	<b>274,448</b>	<b>3,291</b>		<b>844</b>		<b>1,904</b>		<b>87</b>		<b>456</b>		<b>69,940<sup>b</sup></b>	<b>162,324</b>	<b>8,001<sup>b</sup></b>	<b>34,181</b>	
<b>%</b>			<b>1.2</b>									<b>25.5</b>	<b>59.1</b>	<b>2.9</b>	<b>12.5</b>	

<sup>a</sup> All fish measured in centimeter fork length.

<sup>b</sup> Estimates not adjusted for overlap in lengths of A-stock and B-stock steelhead. Two percent of naturally-produced A-stock steelhead are longer than 78 cm fork length. Thirty-six percent of naturally-produced B-stock steelhead are shorter than 78 cm fork length.

Table 11. Estimated steelhead run composition at Lower Granite Dam, June 1-December 15, 2000, and March 1-May 31, 2001.

Week	Dam Count	N	Dam Count		No. Natural		No. Hatchery		No. Natural		No. Hatchery		Estimated Counts			
			%	No. <78 <sup>a</sup>	%	No. <78	%	No. ≥78	%	No. ≥78	%	Natural <78	Hatchery <78	Natural ≥78	Hatchery ≥78	
6/1-9/10	18,151	203	1.1	44	21.7	150	73.9	4	2.0	5	2.5	3,934	13,412	358	447	
9/11-17	9,111	202	2.2	34	16.8	150	74.3	7	3.5	11	5.4	1,534	6,766	316	496	
9/18-24	22,013	300	1.4	49	16.3	218	72.7	7	2.3	26	8.7	3,595	15,996	514	1,908	
9/25-10/1	18,392	301	1.6	29	9.6	214	71.1	11	3.7	47	15.6	1,772	13,076	672	2,872	
10/2-8	10,760	300	2.8	35	11.7	201	70.0	10	3.3	45	15.0	1,255	7,532	359	1,614	
10/9-15	12,051	300	2.5	40	13.3	176	58.7	5	1.7	79	26.3	1,607	7,070	201	3,173	
10/16-22	9,226	299	3.2	33	11.0	202	67.6	2	0.7	62	20.7	1,018	6,233	62	1,913	
10/23-29	4,880	202	4.1	26	12.9	126	62.4	1	0.5	49	24.3	628	3,044	24	1,184	
10/30-11/5	2,656	125	4.7	17	13.6	82	65.6	2	1.6	24	19.2	361	1,742	42	510	
11/6-12	1,627	75	4.6	6	8.0	39	52.0	1	1.3	29	38.7	130	846	22	629	
11/13-19	1,090	50	4.6	4	8.0	28	56.0	0	0.0	18	36.0	87	610		392	
11/20-12/15	775	25	3.2	3	12.0	14	56.0	0	0.0	8	32.0	93	434		248	
3/1-25	2,663	60	2.3	10	16.7	21	35.0	4	6.7	25	41.7	444	932	178	1,110	
3/26-4/1	759	60	7.9	13	21.7	32	53.3	1	1.7	14	23.3	164	405	13	177	
4/2-5/31	2,336	61	2.6	20	32.8	26	42.6	3	4.9	12	19.7	766	996	115	460	
<b>Total</b>	<b>116,490</b>	<b>2,563</b>		<b>363</b>		<b>1,688</b>		<b>58</b>		<b>454</b>		<b>17,389<sup>b</sup></b>	<b>79,094</b>	<b>2,874<sup>b</sup></b>	<b>17,133</b>	
<b>%</b>			<b>2.2</b>									<b>14.9</b>	<b>67.9</b>	<b>2.5</b>	<b>14.7</b>	

<sup>a</sup> All fish measured in centimeter fork lengths.

<sup>b</sup> Estimates not adjusted for overlap in lengths of A-stock and B-stock steelhead. Fourteen percent of naturally-produced A-stock steelhead and one percent of hatchery-produced A-stock steelhead are longer than 77 cm fork length. Thirty-six percent of naturally-produced B-stock steelhead and 17% of hatchery-produced B-stock steelhead are shorter than 78 cm fork length.

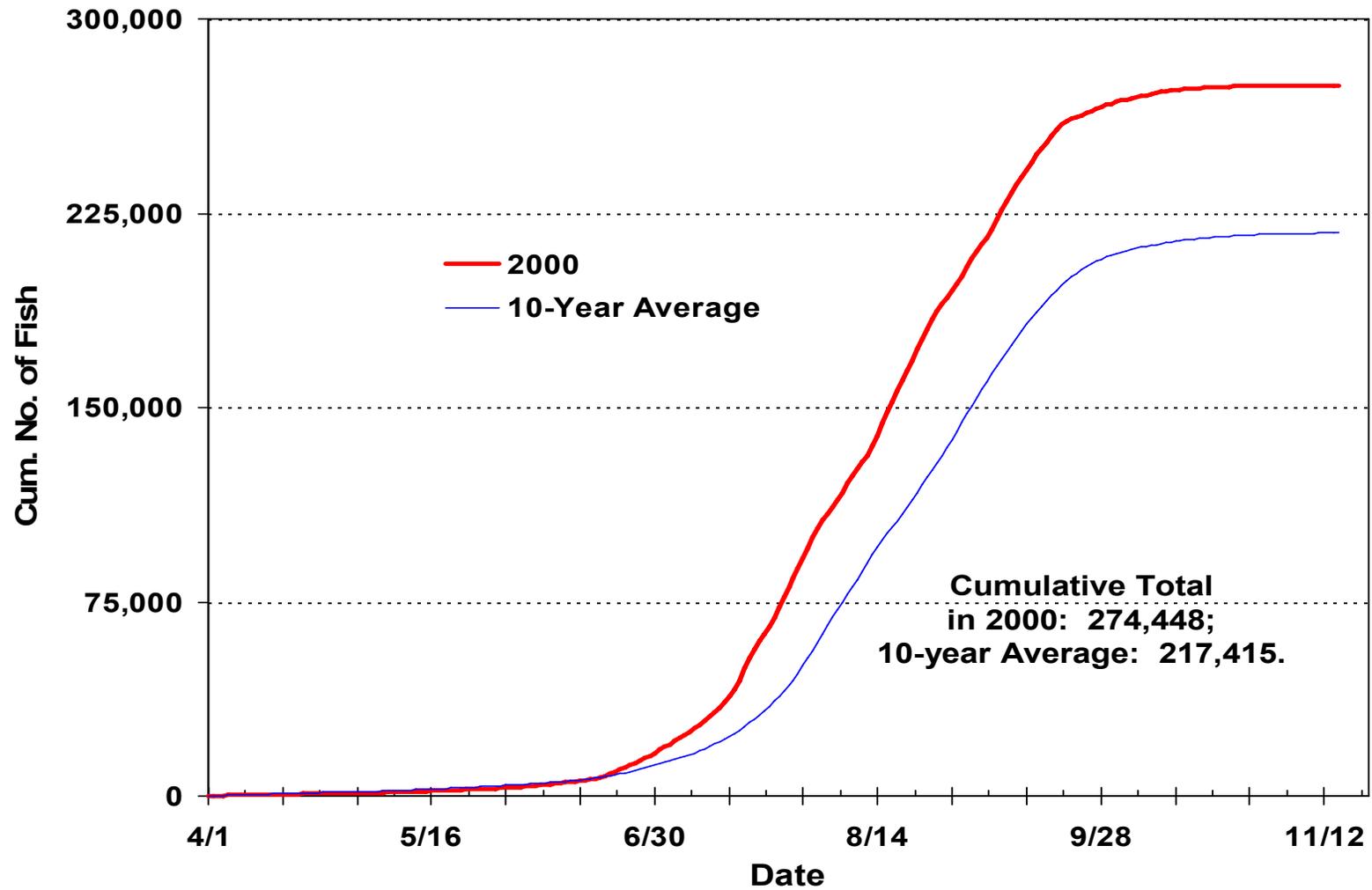


Figure 2. Cumulative counts of steelhead over Bonneville Dam between April 1 and November 15, 2000, and the 10-year average, 1990 – 1999. Data obtained from United States Army Corps of Engineers.

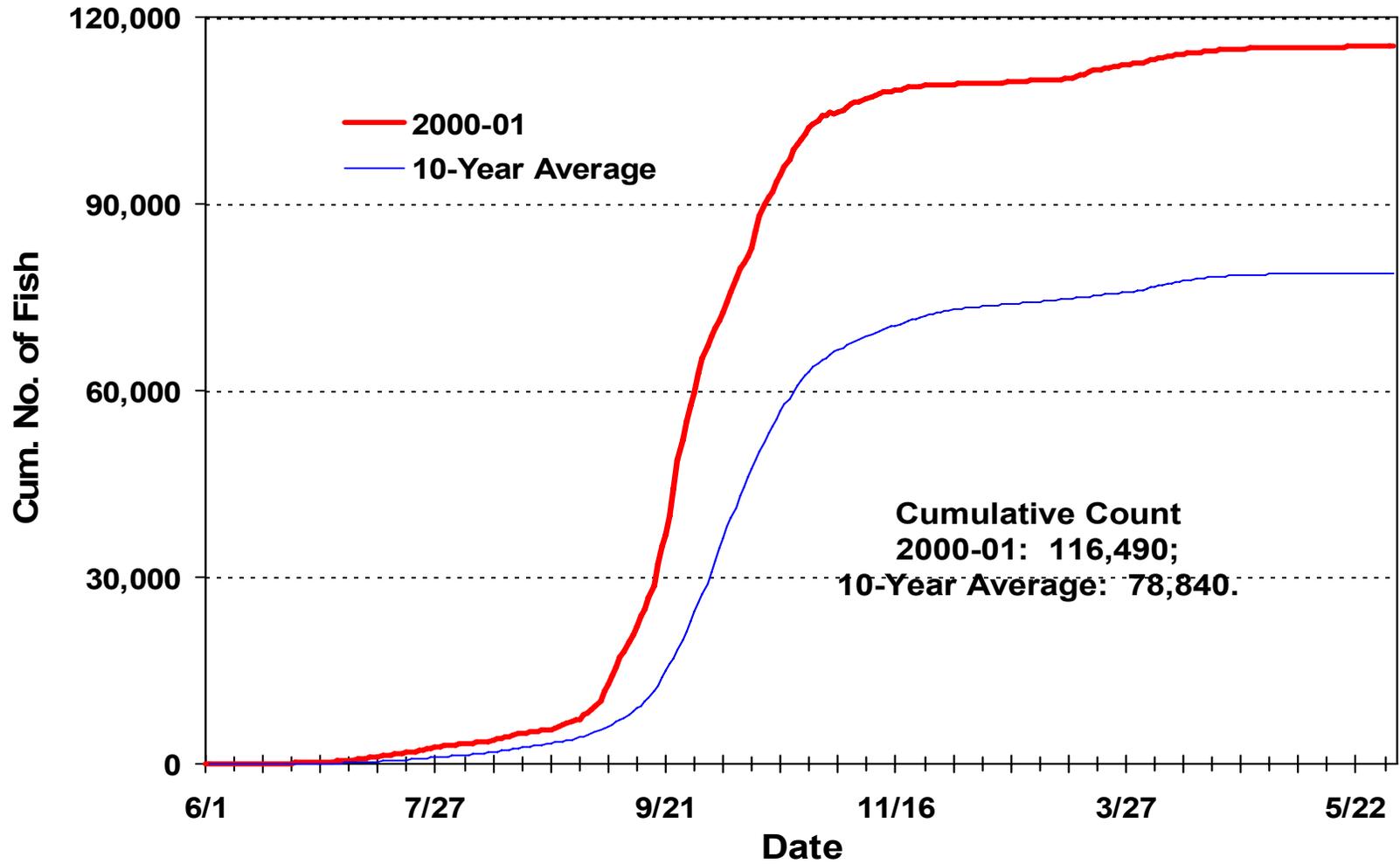


Figure 3. Cumulative counts of steelhead over Lower Granite Dam, June 1, 2000 through May 31, 2001, and the 10-year average, 1990 – 1999. Data obtained from United States Army Corps of Engineers.

Less than 3% of the 388 CWT recovered in the fishery were collected from the Clearwater River, the remainder of CWT were recovered from the Salmon and Snake rivers. If the 388 CWT we recovered during the 2000-2001 seasons were collected in proportion to release numbers, we would expect to recover 72 CWT from the Clearwater River drainage and 316 CWT from the Salmon River and Snake River drainages. However, our results show only 11 of the 388 CWT recovered during creel efforts came from the CFH. Many factors, including differential survival between A- and B-stock fish, may contribute to variation among CWT recovery values. We recommend a review of creel data and our sampling methods to explore ways to reduce disparities regarding CWT recoveries of fish produced by individual LSRCP hatchery facilities. We have implemented improvements within the sampling program pertaining to certain river sections since the data for this report was collected.

B-stock fish reared at CFH and recovered in the fishery show an even distribution across 1-ocean, 2-ocean, and 3-ocean age classes, although sample sizes were small. B-stock fish reared at MVFH and released into the Salmon River during 1997-1999 were recovered as 1- and 2-ocean fish in the fishery, with 2-ocean fish predominant. Data presented in Table 9 shows that the run of MVFH B-stock fish released into the upper Salmon River historically included a 3-ocean-aged component. It is not unusual for anglers to refuse to surrender snouts from large B-stock fish, so fishery recoveries of 3-ocean fish may be biased.

Fishery recoveries of A-stock steelhead reared at HNFH and MVFH show similar ocean ages. Approximately two thirds of A-stock fish recovered were 1-ocean fish. Our sample efforts determined more female A-stock fish were recovered in the fishery compared to male fish. However, some anglers intentionally keep female fish as a source of roe for fishing purposes.

We recovered 94% of the CWT mark groups reared at HNFH. We recovered only 57% of the CWT mark groups reared at MVFH and 40% of the CWT mark groups reared at CFH. There are considerably less fish checked for marks on the Clearwater River compared to the Snake River and Salmon River. Almost twice as many MVFH fish were marked with CWT compared to CFH and HNFH. However, further analysis shows all un-recovered CWT mark groups reared by MVFH were from B-stock fish. Additionally, we included some release years as "expected" returns, when the return at ocean age analysis we provided in this report shows we should not expect returns from all 3 ocean age classes for B-stock steelhead.

We analyzed 9 years of "complete" B-stock return data to the Salmon River starting with 1989 releases. We found that, given similar release numbers, fish derived from returning East Fork fish were recovered in statistically significant greater numbers in the fishery compared to progeny that were from fish spawned at Dworshak National Fish Hatchery. Additionally, we analyzed differences between the two stocks of fish regarding ocean age at return. One scenario in our chi-square analysis shows Dworshak stock fish returned primarily as 2-ocean fish, compared to East Fork "stock" fish that returned primarily as 1- and 2-ocean fish. However, another scenario shows the outcome of the analysis is changed by a single CWT recovered from a 1-ocean fish from river section 10. If actual differences exist regarding age at return for B-stocks of upper Salmon River fish, it may be the result of environmental selection or the hatchery environment. Conclusions regarding possible age at return differences for upper Salmon River B-stocks of fish will remain unclear unless we collect additional fishery and weir information or perhaps PIT tag certain release groups of fish.

There were approximately 72,000 and 42,000 more A- and B-stock steelhead over Bonneville Dam and Lower Granite Dam, respectively, during the 2000 run year compared to 1999 (Hansen 2005). We also saw a corresponding increase regarding the escapement of wild

fish at both hydro projects compared to 1999 (Hansen 2005). The timing of the 2000 steelhead run was early and numbers were well above when compared to the 10-year average for Bonneville Dam and Lower Granite Dam.

## RECOMMENDATIONS

We recommend a review of CWT mark rates for fish released into the Clearwater River given the reluctance of anglers to surrender snouts from larger fish. Additionally, we suggest a review of sample rates, by river section, as a means to identify ways to increase the number of fish checked for CWT.

We suggest the Hatchery Evaluation Program explore possible life history differences between East Fork Salmon River and Dworshak B-stock fish that return to the upper Salmon River. We suggest a review of historic adult steelhead data or literature pertaining to Middle Fork Salmon River B-stock fish and rack returns to Dworshak National Fish Hatchery with regards to ocean age at return. A review of historic ocean age at return data may show if stock or drainage differences exist between B-stock fish, as our findings may have been influenced by low sample sizes.

We recommend PIT-tagging comparison groups of B-stock and A-stock fish that are reared at MVFH for the purpose of evaluating adult survival to Lower Granite Dam. Adult survival information to Lower Granite Dam may help our program determine if low recovery rates of B-stock fish are a true reflection of survival values or reflect deficiencies in our marking or creel sampling program.

## **ACKNOWLEDGMENTS**

Ellen Smith, Idaho Department of Fish and Game, compiled the tables, appendices and dam count information for this report. This report would not have been possible without Ellen's effort and dedication to her field. Judy Dillon and Chris Harrington, Idaho Department of Fish and Game, provided coded-wire tag analysis and verification for Idaho fisheries. Bill Horton, Idaho Department of Fish and Game, provided manuscript review. Joe Bumgarner, Washington Department of Fish and Wildlife, cooperated with data collection and compilation of Snake River information. Brett Morgan, Oregon Department of Fish and Wildlife, provided adult sample data for Bonneville Dam. Jerry Harmon, National Marine Fisheries Service, provided adult sample data for Lower Granite Dam.

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## **APPENDICES**

Appendix A. Steelhead fishery interview data (unexpanded) from the lower Snake, Clearwater, and Salmon rivers, from September 2000, through April 2001. Only interviews of Idaho-licensed anglers are included.

Season/ River	Month	State Collecting Data <sup>a</sup>	No. Anglers	Total Hours Fished	Steelhead Kept	Steelhead Released		Total Catch	Percent Hatchery	No. Checked For CWT	No. Snouts Taken	Snouts Not Taken
						Hatchery	Wild					
<b>Fall 2000</b>												
1	<b>Sep Total</b>	WA	10	44	0	1	1	2	50	0	--	--
1	Oct	WA	75	449	36	12	22	70	69	34	--	--
1	Oct	ID	477	1896	22	4	14	40	65	21	1	0
1	<b>Oct Total</b>		552	2,345	58	16	36	110	67	55	1	0
1	Nov	WA	63	354	46	2	32	80	60	46	--	--
1	Nov	ID	151	551	23	1	9	33	73	22	2	0
1	<b>Nov Total</b>		214	905	69	3	41	113	64	68	2	0
1	<b>Dec Total</b>	WA	23	131	7	0	3	10	70	7	0	0
<b>Section 1 Fall Total</b>			<b>799</b>	<b>3,425</b>	<b>134</b>	<b>20</b>	<b>81</b>	<b>235</b>	<b>72</b>	<b>130</b>	<b>3</b>	<b>0</b>
3	Oct	ID	731	3,001	158	30	66	254	74	153	9	0
3	Nov	ID	1,314	4,547	178	24	36	238	85	166	7	5
3	Dec	ID	620	1,873	76	20	46	142	68	72	4	1
<b>Section 3 Fall Total</b>			<b>2,665</b>	<b>9,421</b>	<b>412</b>	<b>74</b>	<b>148</b>	<b>634</b>	<b>77</b>	<b>391</b>	<b>20</b>	<b>6</b>
10	Oct	ID	4	16	0	0	0	0	--	0	0	0
10	Nov	ID	7	28	0	0	0	0	--	0	0	0
<b>Section 10 Fall Total</b>			<b>11</b>	<b>44</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>	<b>0</b>	<b>0</b>	<b>0</b>
11	Oct	ID	151	658	11	3	5	19	74	9	2	0
11	Nov	ID	162	779	34	2	20	56	64	19	2	0
<b>Section 11 Fall Total</b>			<b>313</b>	<b>1,437</b>	<b>45</b>	<b>5</b>	<b>25</b>	<b>75</b>	<b>67</b>	<b>28</b>	<b>4</b>	<b>0</b>

Appendix A. Continued.

Season/ River Section	Month	State Collecting Data <sup>a</sup>	No. Anglers	Total Hours Fished	Steelhead Kept	Steelhead Released		Total Catch	Percent Hatchery	No. Checked For CWT	No. Snouts Taken	Snouts Not Taken
						Hatchery	Wild					
12	Oct	ID	547	3,704	146	19	51	216	76	124	20	0
12	Nov	ID	747	5,646	123	20	29	172	83	119	14	0
<b>Section 12 Fall Total</b>			<b>1,294</b>	<b>9,350</b>	<b>269</b>	<b>39</b>	<b>80</b>	<b>388</b>	<b>79</b>	<b>243</b>	<b>34</b>	<b>0</b>
13	Oct	ID	19	149	7	1	5	13	62	4	0	0
13	Nov	ID	38	348	11	1	11	23	52	10	1	0
<b>Section 13 Fall Total</b>			<b>57</b>	<b>497</b>	<b>18</b>	<b>2</b>	<b>16</b>	<b>36</b>	<b>56</b>	<b>14</b>	<b>1</b>	<b>0</b>
14	Oct	ID	184	2,446	98	21	75	194	61	88	16	0
14	Nov	ID	142	2,802	103	104	121	328	63	95	15	0
<b>Section 14 Fall Total</b>			<b>326</b>	<b>5,248</b>	<b>201</b>	<b>125</b>	<b>196</b>	<b>522</b>	<b>62</b>	<b>183</b>	<b>31</b>	<b>0</b>
15	Oct	ID	962	9,300	389	252	122	763	84	361	86	0
15	Nov	ID	647	6,908	338	195	78	611	87	320	64	1
<b>Section 15 Fall Total</b>			<b>1,609</b>	<b>16,208</b>	<b>727</b>	<b>447</b>	<b>200</b>	<b>1,374</b>	<b>85</b>	<b>681</b>	<b>150</b>	<b>1</b>
16	Oct	ID	275	1,144	70	31	21	122	83	65	12	0
16	Nov	ID	231	839	55	13	5	73	93	49	11	0
<b>Section 16 Fall Total</b>			<b>506</b>	<b>1,983</b>	<b>125</b>	<b>44</b>	<b>26</b>	<b>195</b>	<b>87</b>	<b>114</b>	<b>23</b>	<b>0</b>
17	Oct	ID	6	12	1	0	1	2	50	1	0	0
17	Nov	ID	17	65	6	1	1	8	88	6	0	0
<b>Section 17 Fall Total</b>			<b>23</b>	<b>77</b>	<b>7</b>	<b>1</b>	<b>2</b>	<b>10</b>	<b>80</b>	<b>7</b>	<b>0</b>	<b>0</b>
20	Oct	ID	17	50	2	1	0	3	100	1	0	0
20	Nov	ID	41	170	6	3	0	9	100	5	0	0
			<b>58</b>	<b>220</b>	<b>8</b>	<b>4</b>	<b>0</b>	<b>12</b>	<b>100</b>	<b>6</b>	<b>0</b>	<b>0</b>

Appendix A. Continued.

Season/ River Section	Month	State Collecting Data <sup>a</sup>	No. Anglers	Total Hours Fished	Steelhead Kept	Steelhead Released		Total Catch	Percent Hatchery	No. Checked For CWT	No. Snouts Taken	Snouts Not Taken
						Hatchery	Wild					
<b>Section 20 Fall Total</b>												
<b>Fall 2000 Total</b>			<b>7,661</b>	<b>47,910</b>	<b>1,946</b>	<b>761</b>	<b>774</b>	<b>3,481</b>	<b>78</b>	<b>1,797</b>	<b>266</b>	<b>7</b>
<b><u>Spring 2001</u></b>												
3	Jan	ID	733	2,646	149	53	44	246	82	133	6	1
3	Feb	ID	1,143	4,981	218	83	60	361	83	189	2	1
3	Mar	ID	513	2,057	68	73	13	154	92	53	0	0
<b>Section 3 Spring Total</b>			<b>2,389</b>	<b>9,684</b>	<b>435</b>	<b>209</b>	<b>117</b>	<b>761</b>	<b>85</b>	<b>375</b>	<b>8</b>	<b>2</b>
4	Jan	ID	7	33	1	0	0	1	100	1	0	0
4	Feb	ID	74	255	19	13	7	39	82	14	2	0
4	Mar	ID	277	862	26	8	6	40	85	14	2	2
4	Apr	ID	24	59	1	1	0	2	100	0	0	0
<b>Section 4 Spring Total</b>			<b>382</b>	<b>1,209</b>	<b>47</b>	<b>22</b>	<b>13</b>	<b>82</b>	<b>84</b>	<b>29</b>	<b>4</b>	<b>2</b>
5	Jan	ID	9	39	2	0	0	2	100	1	0	0
5	Feb	ID	74	323	17	5	1	23	96	14	0	0
5	Mar	ID	289	908	21	13	0	34	100	17	0	1
5	Apr	ID	25	68	1	2	0	3	100	0	0	0
<b>Section 5 Spring Total</b>			<b>397</b>	<b>1,338</b>	<b>41</b>	<b>20</b>	<b>1</b>	<b>62</b>	<b>98</b>	<b>32</b>	<b>0</b>	<b>1</b>
7	Feb	ID	35	91	4	1	0	5	100	4	0	0
7	Mar	ID	309	1,016	38	25	4	67	94	36	0	0
7	Apr	ID	119	323	24	25	8	57	86	20	0	1

Appendix A. Continued.

Season/ River Section	Month	State Collecting Data <sup>a</sup>	No. Anglers	Total Hours Fished	Steelhead Kept	Steelhead Released		Total Catch	Percent Hatchery	No. Checked For CWT	No. Snouts Taken	Snouts Not Taken
						Hatchery	Wild					
<b>Section 7 Spring Total</b>			<b>463</b>	<b>1,430</b>	<b>66</b>	<b>51</b>	<b>12</b>	<b>129</b>	<b>91</b>	<b>60</b>	<b>0</b>	<b>1</b>
11	Feb	ID	81	352	10	0	1	11	91	5	0	0
11	Mar	ID	173	735	16	5	5	26	81	13	1	0
<b>Section 11 Spring Total</b>			<b>254</b>	<b>1,087</b>	<b>26</b>	<b>5</b>	<b>6</b>	<b>37</b>	<b>84</b>	<b>18</b>	<b>1</b>	<b>0</b>
12	Feb	ID	408	1,920	28	10	10	48	79	26	1	2
12	Mar	ID	738	3,562	80	16	15	111	86	75	7	1
<b>Section 12 Spring Total</b>			<b>1,146</b>	<b>5,482</b>	<b>108</b>	<b>26</b>	<b>25</b>	<b>159</b>	<b>84</b>	<b>101</b>	<b>8</b>	<b>3</b>
13	Mar	ID	55	719	16	36	52	104	50	12	1	0
<b>Section 13 Spring Total</b>			<b>55</b>	<b>719</b>	<b>16</b>	<b>36</b>	<b>52</b>	<b>104</b>	<b>50</b>	<b>12</b>	<b>1</b>	<b>0</b>
14	Feb	ID	31	357	12	1	7	20	65	12	5	0
14	Mar	ID	195	2,373	52	23	91	166	45	50	12	1
<b>Section 14 Spring Total</b>			<b>226</b>	<b>2,730</b>	<b>64</b>	<b>24</b>	<b>98</b>	<b>186</b>	<b>47</b>	<b>62</b>	<b>17</b>	<b>1</b>
15	Feb	ID	72	435	4	9	5	18	72	4	0	0
15	Mar	ID	764	8,408	296	341	106	743	86	273	54	0
15	Apr	ID	11	99	2	3	2	7	71	2	0	0
<b>Section 15 Spring Total</b>			<b>847</b>	<b>8,942</b>	<b>302</b>	<b>353</b>	<b>113</b>	<b>768</b>	<b>85</b>	<b>279</b>	<b>54</b>	<b>0</b>
16	Feb	ID	76	241	12	9	3	24	88	12	1	0
16	Mar	ID	905	3,760	151	122	29	302	90	143	28	0
16	Apr	ID	175	842	36	53	9	98	91	31	11	0
<b>Section 16 Spring Total</b>			<b>1,156</b>	<b>4,843</b>	<b>199</b>	<b>184</b>	<b>41</b>	<b>424</b>	<b>90</b>	<b>186</b>	<b>40</b>	<b>0</b>
17	Feb	ID	84	275	10	4	3	17	82	10	1	0

Appendix A. Continued.

Season/ River Section	Month	State Collecting Data <sup>a</sup>	No. Anglers	Total Hours Fished	Steelhead Kept	Steelhead Released		Total Catch	Percent Hatchery	No. Checked For CWT	No. Snouts Taken	Snouts Not Taken
						Hatchery	Wild					
17	Mar	ID	774	5,130	75	26	14	115	88	65	16	0
17	Apr	ID	443	4,308	169	129	19	317	94	146	28	0
<b>Section 17 Spring Total</b>			<b>1,301</b>	<b>9,713</b>	<b>254</b>	<b>159</b>	<b>36</b>	<b>449</b>	<b>92</b>	<b>221</b>	<b>45</b>	<b>0</b>
18	Mar	ID	212	1,477	15	21	8	44	82	14	5	0
18	Apr	ID	387	3,325	129	124	18	271	93	113	23	0
<b>Section 18 Spring Total</b>			<b>599</b>	<b>4,802</b>	<b>144</b>	<b>145</b>	<b>26</b>	<b>315</b>	<b>92</b>	<b>127</b>	<b>28</b>	<b>0</b>
19	Mar	ID	69	651	27	51	1	79	99	15	5	0
19	Apr	ID	618	3,831	161	333	36	530	93	116	14	0
<b>Section 19 Spring Total</b>			<b>687</b>	<b>4,482</b>	<b>188</b>	<b>384</b>	<b>37</b>	<b>609</b>	<b>94</b>	<b>131</b>	<b>19</b>	<b>0</b>
20	Feb	ID	34	59	1	0	0	1	100	1	0	0
20	Mar	ID	173	734	21	9	2	32	94	19	2	0
20	Apr	ID	182	962	75	32	8	115	93	70	14	2
<b>Section 20 Spring Total</b>			<b>389</b>	<b>1,755</b>	<b>97</b>	<b>41</b>	<b>10</b>	<b>148</b>	<b>93</b>	<b>90</b>	<b>16</b>	<b>2</b>
<b>Spring 2001 Total</b>			<b>10,291</b>	<b>58,216</b>	<b>1,987</b>	<b>1,659</b>	<b>587</b>	<b>4,233</b>	<b>86</b>	<b>1,723</b>	<b>241</b>	<b>12</b>
<b>2000-2001 Season Total</b>			<b>17,952</b>	<b>106,126</b>	<b>3,933</b>	<b>2,420</b>	<b>1,361</b>	<b>7,714</b>	<b>82</b>	<b>3,520</b>	<b>507</b>	<b>19</b>

<sup>a</sup> Some Snake River creel data collected by Washington Department of Fish and Wildlife personnel (J. Bumgarner, Washington Department of Fish and Wildlife, personal communication, 2003).

Appendix B. Coded-wire tag recoveries of Lower Snake River Compensation Plan steelhead, by rearing facility, tag code, release site, number of coded-wire-tagged fish released, harvest estimates by month and river section, and total harvest estimates, 2000 -2001.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Subtotal)	No. Tags	Sample Rate	Estimated Harvest
<b>Hagerman National Fish Hatchery Releases</b>								
10/45/04	A-2	Sawtooth Hatchery	19,891	October	15	1	0.294	3
				March	12	1	0.806	1
				March	15	1	0.228	4
				March	16	1	0.231	4
				<b>Subtotal</b>	<b>4</b>			<b>12</b>
10/45/47	A-2	Sawtooth Hatchery	18,337	October	14	1	0.309	3
				November	15	1	0.260	4
				March	15	1	0.228	4
				<b>Subtotal</b>	<b>3</b>			<b>11</b>
10/45/48	A-2	Sawtooth Hatchery	17,839	March	12	1	0.806	1
				March	15	3	0.228	13
				April	18	1	0.118	9
				<b>Subtotal</b>	<b>5</b>			<b>23</b>
10/45/50	A-2	Sawtooth Hatchery	19,891	October	15	2	0.294	7
				November	14	1	0.174	6
				November	15	1	0.260	4
				November	16	1	0.209	5
				March	15	1	0.228	4
				April	18	1	0.118	9
				<b>Subtotal</b>	<b>7</b>			<b>35</b>
10/46/08	A-2	Sawtooth Hatchery	19,208	October	16	1	0.333	3
				April	17	1	0.231	4
				<b>Subtotal</b>	<b>2</b>			<b>7</b>
10/46/09	A-2	Sawtooth Hatchery	20,927	October	15	2	0.294	7
				March	18	1	0.049	20
				March	19	1	0.081	12
				April	17	1	0.231	4
				<b>Subtotal</b>	<b>5</b>			<b>43</b>
10/46/14	A-2	Little Salmon River	10,544	October	12	1	0.271	4
				March	12	1	0.806	1
				April	20	1	0.052	19
				<b>Subtotal</b>	<b>3</b>			<b>24</b>
10/46/34	A-1	Sawtooth Hatchery	9,851	November	15	1	0.260	4
				February	14	1	0.075	13
				April	17	1	0.231	4
				April	19	1	0.208	5
				<b>Subtotal</b>	<b>4</b>			<b>26</b>

Appendix B. Continued.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Subtotal)	No. Tags	Sample Rate	Estimated Harvest
10/46/35	A-1	Little Salmon River	10,326	October	12	2	0.271	7
				November	12	1	0.193	5
				March	12	1	0.806	1
				April	20	1	0.052	19
				<b>Subtotal</b>	<b>5</b>			<b>32</b>
10/46/36	A-1	Little Salmon River	10,137	October	12	2	0.271	7
				<b>Subtotal</b>	<b>2</b>			<b>7</b>
10/46/37	A-1	Little Salmon River	10,003	October	12	2	0.271	7
				November	12	1	0.193	5
				March	12	1	0.806	1
				March	20	1	0.051	20
				April	20	1	0.052	19
<b>Subtotal</b>	<b>6</b>			<b>52</b>				
10/46/38	A-1	Little Salmon River	10,316	October	12	3	0.271	11
				November	12	4	0.193	21
				<b>Subtotal</b>	<b>7</b>			<b>32</b>
10/46/43	A-1	Sawtooth Hatchery	9,257	October	15	1	0.294	3
				March	15	1	0.228	4
				April	17	1	0.231	4
				April	18	1	0.118	9
<b>Subtotal</b>	<b>4</b>			<b>20</b>				
10/46/44	A-1	Sawtooth Hatchery	9,234	November	15	1	0.260	4
				February	14	1	0.075	13
				February	17	1	0.145	7
				March	15	1	0.228	4
				March	17	1	0.102	10
<b>Subtotal</b>	<b>5</b>			<b>38</b>				
10/46/45	A-1	Sawtooth Hatchery	9,509	October	15	2	0.294	7
				November	15	2	0.260	8
				March	14	1	0.282	4
				April	15	1	0.228	4
<b>Subtotal</b>	<b>6</b>			<b>23</b>				
10/46/46	A-1	Sawtooth Hatchery	9,875	November	15	1	0.260	4
				February	14	1	0.075	13
				March	14	1	0.282	4
				March	15	2	0.228	9
				April	19	1	0.208	5
<b>Subtotal</b>	<b>6</b>			<b>35</b>				
10/47/08	A-2	Little Salmon River	19,295	April	20	1	0.052	19
				<b>Subtotal</b>	<b>1</b>			<b>19</b>
10/47/17	A-2	Sawtooth Hatchery	19,103	October	15	1	0.294	3
				November	15	1	0.260	4
				March	15	2	0.228	9
<b>Subtotal</b>	<b>4</b>			<b>16</b>				
10/47/18	A-2	Sawtooth Hatchery	20,053	October	15	1	0.294	3

Appendix B. Continued.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Subtotal)	No. Tags	Sample Rate	Estimated Harvest
10/47/18	A-2	Sawtooth Hatchery, continued.		November	15	1	0.260	4
				March	14	1	0.282	4
				March	15	1	0.228	4
				<b>Subtotal</b>		<b>4</b>		<b>15</b>
10/47/19	A-2	Sawtooth Hatchery	20,168	October	15	2	0.294	7
				October	16	1	0.333	3
				<b>Subtotal</b>		<b>3</b>		<b>10</b>
10/47/20	A-2	Sawtooth Hatchery	19,442	October	15	1	0.294	3
				October	16	2	0.333	6
				November	15	3	0.260	12
				<b>Subtotal</b>		<b>6</b>		<b>21</b>
10/51/07	A-1	Sawtooth Hatchery	9,158	October	15	2	0.294	7
				March	14	2	0.282	7
				March	15	1	0.228	4
				March	17	1	0.102	10
				April	17	1	0.231	4
				April	18	1	0.118	9
				April	19	1	0.208	5
				<b>Subtotal</b>		<b>9</b>		<b>46</b>
10/51/09	A-1	Sawtooth Hatchery	9,495	October	16	2	0.333	6
				November	14	1	0.174	6
				<b>Subtotal</b>		<b>3</b>		<b>12</b>
10/51/10	A-1	Sawtooth Hatchery	9,309	October	15	1	0.294	3
				March	15	1	0.228	4
				April	18	1	0.118	9
				<b>Subtotal</b>		<b>3</b>		<b>16</b>
10/52/57	A-1	Sawtooth Hatchery	18,973	October	15	3	0.294	10
				November	15	1	0.260	4
				March	17	1	0.102	10
				March	19	1	0.081	12
				<b>Subtotal</b>		<b>6</b>		<b>36</b>
10/52/58	A-1	Sawtooth Hatchery	18,786	October	15	1	0.294	3
				March	16	1	0.231	4
				<b>Subtotal</b>		<b>2</b>		<b>7</b>
10/52/59	A-1	Sawtooth Hatchery	19,171	October	15	4	0.294	14
				October	16	1	0.333	3
				November	15	2	0.260	8
				March	15	1	0.228	4
				March	17	1	0.102	10
				<b>Subtotal</b>		<b>9</b>		<b>39</b>
10/52/60	A-1	Sawtooth Hatchery	19,426	October	15	1	0.294	3
				November	14	2	0.174	12
				November	16	1	0.209	5
				March	15	2	0.228	9
				March	16	1	0.231	4
				April	17	1	0.231	4
				<b>Subtotal</b>		<b>8</b>		<b>37</b>

Appendix B. Continued.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Subtotal)	No. Tags	Sample Rate	Estimated Harvest
10/52/61	A-1	Sawtooth Hatchery	17,807	October	15	1	0.294	3
				November	11	1	0.027	37
				November	14	2	0.174	12
				November	16	1	0.209	5
				March	15	1	0.228	4
				March	17	1	0.102	10
				April	18	1	0.118	9
				<b>Subtotal</b>		<b>8</b>		<b>80</b>
10/52/63	A-1	Sawtooth Hatchery	19,678	October	11	1	0.021	48
				October	14	3	0.309	10
				October	15	3	0.294	10
				October	16	1	0.333	3
				November	15	5	0.260	19
				November	16	1	0.209	5
				March	17	1	0.102	10
				March	18	1	0.049	20
				April	19	1	0.208	5
				<b>Subtotal</b>		<b>17</b>		<b>130</b>
10/53/01	A-1	Sawtooth Hatchery	20,133	November	15	1	0.260	4
				March	16	4	0.231	17
				March	17	1	0.102	10
				April	19	1	0.208	5
<b>Subtotal</b>		<b>7</b>		<b>36</b>				
10/53/02	A-1	Sawtooth Hatchery	18,088	October	15	1	0.294	4
				November	15	3	0.260	12
				February	12	1	0.188	5
				February	14	1	0.075	13
				March	16	2	0.231	9
				April	19	1	0.208	5
				<b>Subtotal</b>		<b>9</b>		<b>48</b>
<b>Hagerman National Fish Hatchery Total</b>		<b>32 Mark Groups</b>				<b>173</b>		<b>988</b>
<b>Magic Valley Fish Hatchery Releases</b>								
10/21/34	A-2	Salmon River at Red Rock	21,407	October	15	1	0.294	3
				November	12	1	0.193	5
				April	18	2	0.118	17
				<b>Subtotal</b>		<b>4</b>		<b>25</b>
10/21/35	A-2	Salmon River at Red Rock	21,639	October	14	1	0.309	3
				November	15	1	0.260	4
				March	14	1	0.282	4
				March	16	1	0.231	4
				April	16	1	0.099	10
				<b>Subtotal</b>		<b>5</b>		<b>25</b>
10/21/36	A-2	Salmon River at Red Rock	16,299	November	15	2	0.260	8
<b>Subtotal</b>		<b>2</b>		<b>8</b>				
10/21/37	A-2	Salmon River at Shoup Bridge	21,696	March	15	2	0.228	9

Appendix B. Continued.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Subtotal)	No. Tags	Sample Rate	Estimated Harvest
					<b>Subtotal</b>	<b>2</b>		<b>9</b>
10/21/38	A-2	Salmon River at Shoup Bridge	21,478	October	15	1	0.294	3
					<b>Subtotal</b>	<b>1</b>		<b>3</b>
10/21/39	A-2	Salmon River at Shoup Bridge	17,514	October	15	2	0.294	7
				November	15	2	0.260	8
				March	16	1	0.231	4
					<b>Subtotal</b>	<b>5</b>		<b>19</b>
10/21/40	A-2	Salmon River at McNabbs Point	21,016	February	12	1	0.188	5
				March	13	1	0.333	3
					<b>Subtotal</b>	<b>2</b>		<b>8</b>
10/21/41	A-2	Salmon River at McNabbs Point	20,192	October	15	1	0.294	3
				March	18	1	0.049	20
				April	17	1	0.231	4
					<b>Subtotal</b>	<b>3</b>		<b>27</b>
10/21/42	A-2	Salmon River at McNabbs Point	19,786	November	15	1	0.260	4
				March	18	1	0.049	20
				April	17	1	0.231	4
					<b>Subtotal</b>	<b>3</b>		<b>28</b>
10/21/43	B-2	East Fork Salmon River at Dumpster	20,367	October	15	1	0.294	3
				March	14	1	0.282	4
				March	15	1	0.228	4
					<b>Subtotal</b>	<b>3</b>		<b>11</b>
10/21/44	B-2	East Fork Salmon River at Dumpster	20,932	October	15	1	0.294	3
				April	17	1	0.231	4
					<b>Subtotal</b>	<b>2</b>		<b>7</b>
10/21/45	B-2	East Fork Salmon River at Dumpster	19,811	October	15	1	0.294	3
				March	14	1	0.282	4
					<b>Subtotal</b>	<b>2</b>		<b>7</b>
10/21/46	B-2	Slate Creek	21,173	October	15	3	0.294	10
				November	15	1	0.260	4
				March	15	1	0.228	4
				April	16	1	0.099	10
				April	18	1	0.118	9
					<b>Subtotal</b>	<b>7</b>		<b>37</b>
10/21/47	B-2	Slate Creek	21,178	October	14	1	0.309	3
				October	15	1	0.294	3
				November	14	1	0.174	6
				November	15	1	0.260	4
				March	17	1	0.102	10
				April	17	1	0.231	4
				April	19	1	0.208	5
					<b>Subtotal</b>	<b>7</b>		<b>35</b>
10/21/48	B-2	Slate Creek	17,324	March	14	1	0.282	4
					<b>Subtotal</b>	<b>1</b>		<b>4</b>
10/47/06	B-2	East Fork Trap	21,088	November	15	1	0.260	4

Appendix B. Continued.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Subtotal)	No. Tags	Sample Rate	Estimated Harvest
				February	14	1	0.075	13
					<b>Subtotal</b>	<b>2</b>		<b>17</b>
<b>10/47/07</b>	B-2	East Fork Trap	20,781	October	14	2	0.309	7
				March	11	1	0.017	59
				March	15	1	0.228	4
					<b>Subtotal</b>	<b>4</b>		<b>70</b>
<b>10/52/53</b>	B-1	Squaw Pond Below Outlet	16,755	November	15	1	0.260	4
				March	15	1	0.228	4
					<b>Subtotal</b>	<b>2</b>		<b>8</b>
<b>10/52/54</b>	B-1	Squaw Pond Below Outlet	17,683	November	15	2	0.260	8
				April	17	1	0.231	4
					<b>Subtotal</b>	<b>3</b>		<b>12</b>
<b>10/54/02</b>	B-1	Squaw Creek	58,514	October	12	1	0.271	4
				October	15	1	0.294	4
				November	12	1	0.193	5
				November	14	1	0.174	6
				April	18	1	0.118	9
					<b>Subtotal</b>	<b>5</b>		<b>28</b>
<b>10/54/03</b>	B-1	East Fork Salmon River at Dumpster	9,129	November	13	1	0.064	16
				April	18	1	0.118	9
					<b>Subtotal</b>	<b>2</b>		<b>25</b>
<b>10/54/04</b>	A-1	Salmon River at Tunnel Rock	60,661	October	14	3	0.309	10
				October	15	3	0.294	10
				October	16	1	0.333	3
				November	12	1	0.193	5
				November	15	1	0.260	4
				November	16	2	0.209	10
				February	16	1	0.261	4
				March	14	1	0.282	4
				March	15	5	0.228	22
				March	16	3	0.231	13
				March	17	3	0.102	29
				April	17	4	0.231	17
				April	18	3	0.118	25
				April	19	2	0.208	10
					<b>Subtotal</b>	<b>33</b>		<b>166</b>
<b>10/54/05</b>	A-1	Salmon River at Shoup Bridge	60,453	October	01	1	0.060	17
				October	12	1	0.271	4
				October	14	3	0.309	10
				October	15	16	0.294	54
				November	12	2	0.193	10
				November	14	1	0.174	6
				November	15	11	0.260	42
				March	15	4	0.228	18
				March	16	3	0.231	13
				March	17	2	0.102	20
				April	16	3	0.099	30
				April	17	6	0.231	26

Appendix B. Continued.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Subtotal)	No. Tags	Sample Rate	Estimated Harvest
10/54/05	A-1	Salmon River at Shoup Bridge, Continued.		April	18	1	0.118	9
					<b>Subtotal</b>	<b>54</b>		<b>259</b>
10/54/06	A-1	Salmon River at Red Rock	60,343	October	11	1	0.021	48
				October	12	1	0.271	4
				October	14	2	0.309	7
				October	15	9	0.294	31
				October	16	1	0.333	3
				November	14	2	0.174	12
				November	15	10	0.260	39
				November	16	1	0.209	5
				March	14	1	0.282	4
				March	15	8	0.228	35
				March	16	8	0.231	35
				April	16	5	0.099	51
				April	17	1	0.231	4
					<b>Subtotal</b>	<b>50</b>		<b>278</b>
<b>Magic Valley Fish Hatchery Total</b>		<b>24 Mark Groups</b>				<b>204</b>		<b>1116</b>
<b>Clearwater Fish Hatchery</b>								
10/47/38	B-2	South Fork Clearwater River	21,859	November	11	1	0.027	37
				January	03	2	0.185	11
					<b>Subtotal</b>	<b>3</b>		<b>48</b>
10/51/45	B-3	Clear Creek	31,672	October	03	1	0.065	15
				January	03	1	0.185	5
					<b>Subtotal</b>	<b>2</b>		<b>20</b>
10/52/25	B-2	Clear Creek	20,851	October	03	1	0.065	15
				December	03	1	0.059	17
				March	04	1	0.054	19
					<b>Subtotal</b>	<b>3</b>		<b>51</b>
10/52/34	B-1	Clear Creek	20,322	February	04	1	0.054	19
					<b>Subtotal</b>	<b>1</b>		<b>19</b>
10/52/35	B-1	South Fork Clearwater River	20,763	April	07	1	0.061	16
					<b>Subtotal</b>	<b>1</b>		<b>16</b>
10/52/36	B-1	South Fork Clearwater River	20,763	November	03	1	0.088	11
					<b>Subtotal</b>	<b>1</b>		<b>11</b>
<b>Clearwater Fish Hatchery Total</b>		<b>6 Mark Groups</b>				<b>11</b>		<b>165</b>
<b>Grand Total</b>		<b>62 Mark Groups</b>				<b>388</b>		<b>2,269</b>

Appendix C. Summary of 2000-2001 harvest estimates and hatchery returns of steelhead produced by LSRCP hatcheries.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate	
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total		
<b>HAGERMAN NATIONAL FISH HATCHERY RELEASES</b>													
1999	A-1	Sawtooth Hatchery	SFH <sup>b</sup>	Late Egg Progeny	CWT 10/46/34 <sup>c</sup>	9,701			26	18	44	0.59	
					CWT 10/46/43	9,257		20	16	36	0.56		
					CWT 10/46/44	9,343		38	12	50	0.76		
					CWT 10/46/45	9,509		23	18	41	0.56		
					CWT 10/46/46	9,875		35	23	58	0.60		
					CWT 10/51/07 <sup>c</sup>	9,008		46	21	67	0.69		
			None		7,069	23	29	52	0.44				
			SFH	Early Egg Progeny	CWT 10/51/09	9,495		12	8	20	0.60		
					CWT 10/51/10	9,309		16	9	25	0.64		
					CWT 10/53/01 <sup>c</sup>	20,133		36	31	67	0.54		
					CWT 10/53/02	18,088		48	7	55	0.87		
			None		1,127	2	5	7	0.29				
	SFH	Acclimated Feed/Fast	CWT 10/52/59 <sup>c</sup>	19,171		39	31	70	0.56				
			CWT 10/52/60 <sup>c</sup>	19,426		37	41	78	0.47				
			CWT 10/52/63 <sup>c</sup>	19,678		130	34	164	0.79				
			None		2,013	7	8	15	0.47				
	SFH	Acclimated % Body Wt.Diet	CWT 10/52/57 <sup>c</sup>	18,973		36	36	72	0.50				
			CWT 10/52/58 <sup>c</sup>	18,786		7	32	39	0.18				
			CWT 10/52/61 <sup>c</sup>	17,807		80	21	101	0.79				
			None		372,500	825	1,519	2,344	0.35				
	SFH	Direct Release	None		104,521		275	426	701	0.39			
	<b>Subtotals</b>						<b>227,559</b>	<b>487,230</b>					
							<b>No. Released</b>	<b>714,789</b>	<b>0.32</b>	<b>1,761</b>	<b>2,345</b>	<b>4,106</b>	<b>0.43</b>
						<b>16 Mark Groups; 16 Mark Groups Recovered in Fishery</b>							
1998	A-2	Sawtooth Hatchery	SFH	Acclimated	CWT 10/45/03	20,789			0	1	1	0	
					CWT 10/45/04	19,534		12	6	18	0.67		
					CWT 10/47/20 <sup>c</sup>	19,442		21	4	25	0.84		
					None		1,245	1	1	2	0.50		
					SFH	Acclimated Feed-Fast	CWT 10/45/47 <sup>c</sup>	18,337		11	1	12	0.92
							CWT 10/45/48 <sup>c</sup>	17,839		23	4	27	0.85
	CWT 10/45/49 <sup>c</sup>	20,409		0			3	3	0				

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total	
1998	A-2	Sawtooth Hatchery, continued.	SFH	Acclimated Normal Diet	CWT 10/45/50 <sup>c</sup>	19,891			35	0	35	1.00
					CWT 10/46/08 <sup>c</sup>	19,208		7	4	11	0.64	
					CWT 10/46/09 <sup>c</sup>	20,927		43	4	47	0.91	
					None		445,653	631	474	1,105	0.57	
			SFH	Non-Acclimated Feed-Fast	CWT 10/47/17	19,103		16	4	20	0.80	
					CWT 10/47/18	20,053		15	3	18	0.83	
					CWT 10/47/19 <sup>c</sup>	20,168		10	1	11	0.91	
					None		617	0	1	1	0	
<b>Subtotals</b>						<b>235,700</b>	<b>447,515</b>					
						<b>No. Released</b>	<b>683,215</b>	<b>0.34</b>	<b>825</b>	<b>511</b>	<b>1,336</b>	<b>0.62</b>
						<b>12 Mark Groups; 10 Mark Groups Recovered in Fishery</b>						
<b>Sawtooth Hatchery Subtotals</b>						<b>463,259</b>	<b>934,745</b>					
						<b>No. Released</b>	<b>1,398,004</b>	<b>0.33</b>	<b>2,586</b>	<b>2,856</b>	<b>5,442</b>	<b>0.48</b>
						<b>28 Mark Groups; 26 Mark Groups Recovered in Fishery</b>						
1999	A-1	Little Salmon River	HC <sup>d</sup>	Contribution	CWT 10/46/35	10,326			32	32	64	0.50
					CWT 10/46/36	10,137		7	7	14	0.50	
					CWT 10/46/37	10,003		52	52	104	0.50	
					CWT 10/46/38	10,316		32	32	64	0.50	
					None		378,254	3,159	3,159	6,318	0.50	
<b>Subtotals</b>						<b>40,782</b>	<b>378,254</b>					
						<b>No. Released</b>	<b>419,036</b>	<b>0.10</b>	<b>3,282</b>	<b>3,282</b>	<b>6,564</b>	<b>0.50</b>
						<b>4 Mark Groups; 4 Mark Groups Recovered in Fishery</b>						
1998	A-2	Little Salmon River	PFH <sup>e</sup>	Contribution	CWT 10/46/14 <sup>c</sup>	10,544			24	24	48	0.50
					CWT 10/47/08	19,295		19	19	38	0.50	
					None		317,631	458	458	916	0.50	
<b>Subtotals</b>						<b>29,839</b>	<b>317,631</b>					
						<b>No. Released</b>	<b>347,470</b>	<b>0.09</b>	<b>501</b>	<b>501</b>	<b>1,002</b>	<b>0.50</b>
						<b>2 Mark Groups; 2 Mark Groups Recovered in Fishery</b>						
<b>Little Salmon River Subtotals</b>						<b>70,621</b>	<b>695,885</b>					
						<b>No. Released</b>	<b>766,506</b>	<b>0.09</b>	<b>3,783</b>	<b>3,783</b>	<b>7,566</b>	<b>0.50</b>
						<b>6 Mark Groups; 6 Mark Groups Recovered in Fishery</b>						

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total	
<b>Releases from Hagerman National Fish Hatchery ("A" Stock Releases)</b>						<b>533,880</b>	<b>1,630,630</b>	<b>0.25</b>	<b>6,369</b>	<b>6,639</b>	<b>13,008</b>	<b>0.49</b>
						<b>No. Released 34 Mark Groups; 32 Mark Groups Recovered in Fishery</b>						
<b>MAGIC VALLEY FISH HATCHERY RELEASES</b>												
1999	A-1	Sawtooth Hatchery	PFH	Contribution	None		39,660		104	162	266	0.39
<b>Sawtooth Hatchery Subtotals</b>						<b>0</b>	<b>39,660</b>	<b>0</b>	<b>104</b>	<b>162</b>	<b>266</b>	<b>0.39</b>
						<b>No. Released 0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
1999	A-1	Salmon River at Tunnel	PFH	Contribution	CWT 10/54/04	60,661			166	192	358	0.46
		Rock			None		68,552		188	217	405	0.47
<b>Subtotals</b>						<b>60,661</b>	<b>68,552</b>	<b>0.47</b>	<b>354</b>	<b>409</b>	<b>763</b>	<b>0.46</b>
						<b>No. Released 1 Mark Group; 1 Mark Group Recovered in Fishery</b>						
1999	B-1	Salmon River at Tunnel	DNFH <sup>f</sup>	Contribution	CWT 10/54/01 <sup>c</sup>	53,680			0	0	0	--
		Rock			None		24,454		0	0	0	--
<b>Subtotals</b>						<b>53,680</b>	<b>24,454</b>	<b>0.69</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
						<b>No. Released 1 Mark Group; 0 Mark Groups Recovered in Fishery</b>						
<b>Salmon River at Tunnel Rock Subtotals</b>						<b>114,341</b>	<b>93,006</b>	<b>0.55</b>	<b>354</b>	<b>409</b>	<b>763</b>	<b>0.46</b>
						<b>No. Released 2 Mark Groups; 1 Mark Group Recovered in Fishery</b>						
1999	A-1	Salmon River at McNabb Point	PFH	Contribution	None		121,210		332	383	715	0.46
<b>Subtotals</b>						<b>0</b>	<b>121,210</b>	<b>0</b>	<b>332</b>	<b>383</b>	<b>715</b>	<b>0.46</b>
						<b>No. Released 0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
1998	A-2	Salmon River at McNabb Point	SFH	Contribution	CWT 10/21/40 <sup>c</sup>	21,016			8	28	36	0.22
					CWT 10/21/41 <sup>c</sup>	20,192			27	27	54	0.50

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate	
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total		
1998	A-2	Salmon River at McNabb Point, continued	SFH	Contribution	CWT 10/21/42 <sup>c</sup>	19,786			28	26	54	0.52	
					None		97,666	101	128	229	0.44		
		<b>Subtotals</b>				<b>60,994</b>	<b>97,666</b>						
						<b>No. Released</b>		<b>158,660</b>	<b>0.38</b>	<b>164</b>	<b>209</b>	<b>373</b>	<b>0.44</b>
						<b>3 Mark Groups; 3 Mark Groups Recovered in Fishery</b>							
<b>Salmon River at McNabb Point Subtotals</b>							<b>60,994</b>	<b>218,876</b>					
						<b>No. Released</b>		<b>279,870</b>	<b>0.22</b>	<b>496</b>	<b>592</b>	<b>1,088</b>	<b>0.46</b>
						<b>3 Mark Groups; 3 Mark Groups Recovered in Fishery</b>							
1999	A-1	Salmon River at Cottonwood Campground	PFH	Contribution	None			85,980	235	272	507	0.46	
						<b>Subtotals</b>		<b>0</b>	<b>85,980</b>				
						<b>No. Released</b>		<b>85,980</b>	<b>0</b>	<b>235</b>	<b>272</b>	<b>507</b>	<b>0.46</b>
						<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>							
1998	A-2	Salmon River at Cottonwood Campground	SFH	Contribution	None			142,650	147	188	335	0.44	
						<b>Subtotals</b>		<b>0</b>	<b>142,650</b>				
						<b>No. Released</b>		<b>142,650</b>	<b>0</b>	<b>147</b>	<b>188</b>	<b>335</b>	<b>0.44</b>
						<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>							
<b>Salmon River at Cottonwood Campground Subtotals</b>							<b>0</b>	<b>228,630</b>					
						<b>No. Released</b>		<b>228,630</b>	<b>0</b>	<b>382</b>	<b>460</b>	<b>842</b>	<b>0.45</b>
						<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>							
1999	A-1	Salmon River at Shoup Bridge	PFH	Contribution	CWT 10/54/05 <sup>c</sup>	60,453			259	191	450	0.58	
					None		71,967	311	228	538	0.58		
		<b>Subtotals</b>				<b>60,453</b>	<b>71,967</b>						
						<b>No. Released</b>		<b>132,420</b>	<b>0.46</b>	<b>570</b>	<b>419</b>	<b>989</b>	<b>0.58</b>
						<b>1 Mark Group; 1 Mark Group Recovered in Fishery</b>							
1998	A-2	Salmon River at Shoup Bridge	SFH	Contribution	CWT 10/21/37 <sup>c</sup>	21,696			9	29	38	0.24	
					CWT 10/21/38 <sup>c</sup>	21,478			3	28	31	0.10	
					CWT 10/21/39 <sup>c</sup>	17,514			19	23	42	0.45	
					None		48,227	25	63	88	0.28		
					<b>Subtotals</b>				<b>60,688</b>	<b>48,227</b>			
						<b>No. Released</b>		<b>108,915</b>	<b>0.56</b>	<b>56</b>	<b>143</b>	<b>199</b>	<b>0.28</b>

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate	
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total		
<b>3 Mark Groups; 3 Mark Groups Recovered in Fishery</b>													
<b>Salmon River at Shoup Bridge Subtotals</b>							121,141	120,194					
						<b>No. Released</b>		241,335	0.50	626	562	1,188	0.53
<b>4 Mark Groups; 4 Mark Groups Recovered in Fishery</b>													
1999	A-1	Salmon River at Lemhi River	PFH	Contribution	None <sup>c</sup>		157,865		682	499	1,181	0.58	
<b>Subtotals</b>							0	157,865					
						<b>No. Released</b>		157,865	0	682	499	1,181	0.58
<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>													
1998	A-2	Salmon River at Lemhi River	PFH	Contribution	None		154,565		79	203	282	0.28	
<b>Subtotals</b>							0	154,565					
						<b>No. Released</b>		154,565	0	79	203	282	0.28
<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>													
<b>Salmon River at Lemhi River Subtotals</b>							0	312,430					
						<b>No. Released</b>		312,430	0	761	702	1,463	0.52
<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>													
1999	A-1	Salmon River at Red Rock	PFH	Contribution	CWT 10/54/06	60,343			278	191	469	0.59	
									481	352	833	0.58	
<b>Subtotals</b>							60,343	111,421					
						<b>No. Released</b>		171,764	0.35	759	543	1,302	0.58
<b>1 Mark Group; 1 Mark Group Recovered in Fishery</b>													
1998	A-2	Salmon River at Red Rock	PFH	Contribution	CWT 10/21/34 <sup>c</sup>	21,407			25	28	53	0.47	
						CWT 10/21/35 <sup>c</sup>	21,639		25	28	53	0.47	
						CWT 10/21/36 <sup>c</sup>	16,299		8	21	29	0.28	
						None		77,715	76	102	178	0.43	
<b>Subtotals</b>							59,345	77,715					
						<b>No. Released</b>		137,060	0.43	134	179	313	0.43
<b>3 Mark Groups; 3 Mark Groups Recovered in Fishery</b>													
<b>Salmon River at Red Rock Subtotals</b>							119,688	189,136					
						<b>No. Released</b>		308,824	0.39	893	722	1,615	0.55
<b>4 Mark Groups; 4 Mark Groups Recovered in Fishery</b>													

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total	
1999	A-1	Little Salmon River at Stinky Springs	PFH	Contribution	None		41,620		82	82	164	0.50
<b>Subtotals</b>						<b>0</b>	<b>41,620</b>					
						<b>No. Released</b>	<b>41,620</b>	<b>0</b>	<b>82</b>	<b>82</b>	<b>164</b>	<b>0.50</b>
						<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
1999	B-1	Little Salmon River at Stinky Springs	DNFH	Contribution	CWT 10/52/56	16,416			0	0	0	--
						None <sup>c</sup>	308,139		0	0	0	--
<b>Subtotals</b>						<b>16,416</b>	<b>308,139</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
						<b>No. Released</b>	<b>324,555</b>	<b>0.05</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
						<b>1 Mark Group; 0 Mark Groups Recovered in Fishery</b>						
1998	B-2	Little Salmon River at Stinky Springs	DNFH	Contribution	CWT 10/21/31 <sup>c</sup>	21,428			0	0	0	--
						CWT 10/21/32 <sup>c</sup>	20,983		0	0	0	--
						CWT 10/21/33 <sup>c</sup>	20,212		0	0	0	--
						None <sup>c</sup>	218,327		0	0	0	--
<b>Subtotals</b>						<b>62,623</b>	<b>218,327</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
						<b>No. Released</b>	<b>280,950</b>	<b>0.22</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
						<b>3 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
1997	B-3	Little Salmon River at Stinky Springs	DNFH	Contribution	CWT 10/51/06	9,505			0	0	0	--
						CWT 10/52/06	19,407		0	0	0	--
						None	211,618		0	0	0	--
<b>Subtotals</b>						<b>28,912</b>	<b>211,618</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
						<b>No. Released</b>	<b>240,530</b>	<b>0.12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
						<b>2 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
<b>Little Salmon River at Stinky Springs Subtotals</b>						<b>107,951</b>	<b>779,704</b>					
						<b>No. Released</b>	<b>887,655</b>	<b>0.12</b>	<b>82</b>	<b>82</b>	<b>164</b>	<b>0.50</b>
						<b>6 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
1999	B-1	Squaw Creek	DNFH	Contribution	CWT 10/54/02 <sup>c</sup>	58,514			28	0	28	1.00
						None	146,292		70	0	70	1.00
<b>Squaw Creek Subtotals</b>						<b>58,514</b>	<b>146,292</b>		<b>98</b>	<b>0</b>	<b>98</b>	<b>1.00</b>
						<b>No. Released</b>	<b>204,806</b>	<b>0.29</b>	<b>98</b>	<b>0</b>	<b>98</b>	<b>1.00</b>

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total	
<b>1 Mark Group; 1 Mark Group Recovered in Fishery</b>												
1999	B-1	Squaw Creek Pond	DNFH/EF <sup>9</sup>	Contribution	None		78,244		37	0	37	1.00
1999	B-1	Squaw Creek Pond, continued.	DNFH/EF	Contribution	CWT 10/52/53	16,755			8	0	8	1.00
					CWT 10/52/54 <sup>c</sup>	17,683			12	0	12	1.00
					CWT 10/52/55	14,407			0	0	0	--
					None		58,164		24	0	24	1.00
<b>Subtotals</b>						<b>48,845</b>	<b>136,408</b>					
<b>No. Released</b>							<b>185,253</b>	<b>0.26</b>	<b>81</b>	<b>0</b>	<b>81</b>	<b>1.00</b>
<b>3 Mark Groups; 2 Mark Groups Recovered in Fishery</b>												
1998	B-2	Squaw Creek Pond	DNFH	Volitional Release	None <sup>c</sup>		52,800		0	0	0	--
<b>Subtotals</b>						<b>0</b>	<b>52,800</b>					
<b>No. Released</b>							<b>52,800</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>												
<b>Squaw Creek Pond Subtotals</b>						<b>48,845</b>	<b>189,208</b>					
<b>No. Released</b>							<b>238,053</b>	<b>0.21</b>	<b>81</b>	<b>0</b>	<b>81</b>	<b>1.00</b>
<b>3 Mark Groups; 2 Mark Groups Recovered in Fishery</b>												
1998	B-2	Slate Creek (Upper Salmon River)	EF	Contribution	CWT 10/21/46 <sup>c</sup>	21,173			37	1	38	0.97
					CWT 10/21/47 <sup>c</sup>	21,178			35	1	36	0.97
					CWT 10/21/48	17,324			4	1	5	0.80
					None		114,905		146	4	150	0.97
<b>Subtotals</b>						<b>59,675</b>	<b>114,905</b>					
<b>No. Released</b>							<b>174,580</b>	<b>0.34</b>	<b>222</b>	<b>7</b>	<b>229</b>	<b>0.97</b>
<b>3 Mark Groups; 3 Mark Groups Recovered in Fishery</b>												
1997	B-3	Slate Creek (Upper Salmon River)	DNFH	Contribution	CWT 10/51/60 <sup>c</sup>	20,273			0	0	0	--
					CWT 10/51/61 <sup>c</sup>	21,448			0	0	0	--
					CWT 10/51/62 <sup>c</sup>	15,480			0	0	0	--
					None		156,010		0	0	0	--
<b>Subtotals</b>						<b>57,201</b>	<b>156,010</b>					
<b>No. Released</b>							<b>213,211</b>	<b>0.27</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
<b>3 Mark Groups; 0 Mark Groups Recovered in Fishery</b>												
<b>Slate Creek Subtotals</b>						<b>116,876</b>	<b>270,915</b>					
<b>No. Released</b>							<b>387,791</b>	<b>0.30</b>	<b>222</b>	<b>7</b>	<b>229</b>	<b>0.97</b>

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate	
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total		
<b>6 Mark Groups; 3 Mark Groups Recovered in Fishery</b>													
1998	B-2	East Fork Trap	EF	Contribution	CWT 10/47/05 <sup>c</sup>	21,372			0	1	1	0	
					CWT 10/47/06 <sup>c</sup>	21,088			17	1	18	0.94	
1998	B-2	East Fork Trap, continued.	EF	Contribution	CWT 10/47/07 <sup>c</sup>	20,781			70	0	70	1.00	
					None		63,679		88	27	115	0.77	
<b>Subtotals</b>						<b>63,241</b>	<b>63,679</b>						
						<b>No. Released</b>		<b>126,920</b>	<b>0.50</b>	<b>175</b>	<b>29</b>	<b>204</b>	<b>0.86</b>
<b>3 Mark Groups; 2 Mark Groups Recovered in Fishery</b>													
1997	B-3	East Fork Trap	EF	Contribution	CWT 10/52/19 <sup>c</sup>	19,376			0	0	0	--	
					CWT 10/52/20 <sup>c</sup>	20,667			0	0	0	--	
					CWT 10/52/21 <sup>c</sup>	15,007			0	0	0	--	
					None		76,170		0	0	0	--	
<b>Subtotals</b>						<b>55,050</b>	<b>76,170</b>						
						<b>No. Released</b>		<b>131,220</b>	<b>0.42</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>--</b>
<b>3 Mark Groups; 0 Mark Groups Recovered in Fishery</b>													
<b>East Fork Trap Subtotals</b>						<b>118,291</b>	<b>139,849</b>						
						<b>No. Released</b>		<b>258,140</b>	<b>0.46</b>	<b>175</b>	<b>29</b>	<b>204</b>	<b>0.86</b>
<b>6 Mark Groups; 2 Mark Groups Recovered in Fishery</b>													
1999	B-1	East Fork Salmon River at Dumpster	DNFH	Contribution	CWT 10/54/03 <sup>c</sup>	59,129			25	0	25	1.00	
					None		209,796		89	0	89	1.00	
<b>Subtotals</b>						<b>59,129</b>	<b>209,796</b>						
						<b>No. Released</b>		<b>268,925</b>	<b>0.22</b>	<b>114</b>	<b>0</b>	<b>114</b>	<b>1.00</b>
<b>1 Mark Group; 1 Mark Group Recovered in Fishery</b>													
1998	B-2	East Fork Salmon River at Dumpster	DNFH	Contribution	CWT 10/21/43 <sup>c</sup>	20,367			11	0	11	1.00	
					CWT 10/21/44 <sup>c</sup>	20,932			7	0	7	1.00	
					CWT 10/21/45 <sup>c</sup>	19,811			7	0	7	1.00	
					None <sup>c</sup>		260,615		107	0	107	1.00	
<b>Subtotals</b>						<b>61,110</b>	<b>260,615</b>						
						<b>No. Released</b>		<b>321,725</b>	<b>0.19</b>	<b>132</b>	<b>0</b>	<b>132</b>	<b>1.00</b>
<b>3 Mark Groups; 3 Mark Groups Recovered in Fishery</b>													
1997	B-3	East Fork Salmon River at Dumpster	DNFH	Contribution	CWT 10/52/22 <sup>c</sup>	19,347			0	0	0	--	
					CWT 10/52/23 <sup>c</sup>	19,797			0	0	0	--	
					CWT 10/52/24 <sup>c</sup>	13,032			0	0	0	--	

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate	
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total		
					None		240,778		0	0	0	--	
		<b>Subtotals</b>					52,176	240,778					
					<b>No. Released</b>			292,954	0.18	0	0	0	--
							<b>3 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
		<b>East Fork Salmon River at Dumpster Subtotals</b>					172,415	711,189					
					<b>No. Released</b>			883,604	0.20	246	0	246	1.00
							<b>7 Mark Groups; 4 Mark Groups Recovered in Fishery</b>						
		<b>Releases from Magic Valley Fish Hatchery</b>											
		<b>“A” Stock Releases</b>					362,484	1,219,098					
					<b>No. Released</b>			1,581,582	0.23	3,698	3,691	7,389	0.50
							<b>12 Mark Groups; 12 Mark Groups Recovered in Fishery</b>						
		<b>“B” Stock Releases</b>					676,572	2,219,991					
					<b>No. Released</b>			2,896,563	0.23	822	36	858	0.96
							<b>30 Mark Groups; 12 Mark Groups Recovered in Fishery</b>						
		<b>All Releases</b>					1,039,056	3,439,089					
					<b>No. Released</b>			4,478,145	0.23	4,520	3,727	8,247	0.55
							<b>42 Mark Groups; 24 Mark Groups Recovered in Fishery</b>						
<b>CLEARWATER FISH HATCHERY RELEASES</b>													
1999	B-1	Red River at Soda Creek Bridge	DNFH	Supplementation	None <sup>c</sup>			4,993		0	3 <sup>h</sup>	3	0
		<b>Subtotals</b>						0	4,993				
					<b>No. Released</b>			4,993	0	0	3	3	0
							<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
1998	B-2	Red River	DNFH	Supplementation	None <sup>c</sup>			4,497		0	8	8	0
		<b>Subtotals</b>						0	4,497				
					<b>No. Released</b>			4,497	0	0	8	8	0
							<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
1997	B-3	Red River at Soda Creek Bridge	DNFH	Supplementation	None <sup>c</sup>			4,991		0	0	0	--
		<b>Subtotals</b>						0	4,991				

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total	
					No. Released		4,991	0	0	0	0	--
					0 Mark Groups; 0 Mark Groups Recovered in Fishery							
<b>Red River Subtotals</b>							0	14,481				
					No. Released		14,481	0	0	11	11	0
					0 Mark Groups; 0 Mark Groups Recovered in Fishery							
1997	B-3	South Fork Red River	DNFH	Supplementation	CWT 10/51/20 <sup>i</sup>	42,426			0	8	8	0
					None <sup>c,i</sup>		6,304		0	1	1	0
<b>South Fork Red River Subtotals</b>							42,426	6,304				
					No. Released		48,730	0.87	0	9	9	0
					1 Mark Group; 0 Mark Groups Recovered in Fishery							
1999	B-1	South Fork Clearwater River at Red House Hole	DNFH	Contribution	CWT 10/52/35	20,645			16	1	17	0.94
					CWT 10/52/36 <sup>c</sup>	21,200			11	1	12	0.92
					CWT 10/52/37	20,763			0	1	1	0
					None		337,858		146	13	159	0.92
<b>Subtotals</b>							62,608	337,858				
					No. Released		400,466	0.16	173	16	189	0.92
					3 Mark Groups; 2 Mark Groups Recovered in Fishery							
1998	B-2	South Fork Clearwater River	DNFH	Contribution	CWT 10/47/38 <sup>c</sup>	21,859			48	7	55	0.87
					CWT 10/47/39 <sup>c</sup>	21,079			0	7	7	0
					CWT 10/47/40 <sup>c</sup>	21,093			0	7	7	0
					None		468,274		351	157	508	0.69
<b>Subtotals</b>							64,031	468,274				
					No. Released		532,305	0.12	399	178	577	0.69
					3 Mark Groups; 1 Mark Groups Recovered in Fishery							
1997	B-3	South Fork Clearwater River	DNFH	Contribution	CWT 10/21/29 <sup>c</sup>	21,292			0	1	1	0
					CWT 10/21/30 <sup>c</sup>	21,163			0	0	0	--
					CWT 10/46/10 <sup>c</sup>	21,451			0	0	0	--
					None		357,267		0	6	6	0
<b>Subtotals</b>							63,906	357,267				
					No. Released		421,173	0.15	0	7	7	0
					3 Mark Groups; 0 Mark Groups Recovered in Fishery							
<b>South Fork Clearwater River Subtotals</b>							190,545	1,163,399				

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total	
						<b>No. Released</b>	<b>1,353,944</b>	<b>0.14</b>	<b>572</b>	<b>201</b>	<b>773</b>	<b>0.74</b>
						<b>9 Mark Groups; 3 Mark Groups Recovered in Fishery</b>						
1999	B-1	Clear Creek	DNFH	Moore/Clark Diet (Feed Exp.)	CWT 10/52/33 <sup>c</sup>	20,668			0	0	0	--
					None		110,901		0	4	4	0
			DNFH	Bio-Diet Feed (Feed Exp.)	CWT 10/52/34 <sup>c</sup>	20,322			19	1	20	0.95
					None		38,648		20	2	22	0.91
<b>Subtotals</b>						<b>40,990</b>	<b>149,549</b>					
						<b>No. Released</b>	<b>190,539</b>	<b>0.22</b>	<b>39</b>	<b>7</b>	<b>46</b>	<b>0.85</b>
						<b>2 Mark Groups; 1 Mark Groups Recovered in Fishery</b>						
1998	B-2	Clear Creek	DNFH	Contribution	CWT 10/52/25 <sup>c</sup>	20,851			51	7	58	0.88
					None		144,633		354	84	438	0.81
<b>Subtotals</b>						<b>20,851</b>	<b>144,633</b>					
						<b>No. Released</b>	<b>165,484</b>	<b>0.13</b>	<b>405</b>	<b>91</b>	<b>496</b>	<b>0.82</b>
						<b>1 Mark Group; 1 Mark Group Recovered in Fishery</b>						
1997	B-3	Clear Creek	DNFH	Coded-wire Tag Length Exp.	CWT 10/46/63	32,575			0	0	0	--
					CWT 10/51/45	31,672			20	2	22	0.91
					None		114,966		36	0	36	1.00
<b>Subtotals</b>						<b>64,247</b>	<b>114,966</b>					
						<b>No. Released</b>	<b>179,213</b>	<b>0.36</b>	<b>56</b>	<b>2</b>	<b>58</b>	<b>0.97</b>
						<b>2 Mark Groups; 1 Mark Group Recovered in Fishery</b>						
<b>Clear Creek Subtotals</b>						<b>126,088</b>	<b>409,148</b>					
						<b>No. Released</b>	<b>535,236</b>	<b>0.24</b>	<b>500</b>	<b>100</b>	<b>600</b>	<b>0.83</b>
						<b>5 Mark Groups; 3 Mark Groups Recovered in Fishery</b>						
1997	B-3	Crooked River	Selway <sup>j</sup>	Selway Program; RV clip only	RV Clip		75,894		0	1	1	0
<b>Crooked River Subtotals</b>						<b>0</b>	<b>75,894</b>					
						<b>No. Released</b>	<b>75,894</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>
						<b>0 Mark Groups; 0 Mark Groups Recovered in Fishery</b>						
<b>Releases from Clearwater Fish Hatchery</b>						<b>359,059</b>	<b>1,669,226</b>					

Appendix C. Continued.

Release Year	Strain and Ocean Age	Release Site	Stock Name	Marking Purpose	Marks	No. of Fish Released		Mark Rate	Estimated No. of Fish			Exploitation Rate
						Tagged	Untagged		Harvest	Hatchery Returns <sup>a</sup>	Total	
("B" Stock Releases)						No. Released	2,028,285	0.18	1,072	322	1,394	0.77
15 Mark Groups; 6 Mark Groups Recovered in Fishery												
<b>Total Returns for Run Year 2000-2001</b>						1,931,995	6,738,945					
						No. Released	8,670,940	0.22	11,961	10,688	22,649	0.53
						91 Mark Groups; 62 Mark Groups Recovered in Fishery						

- <sup>a</sup> Includes estimated off-site escapement and strays to hatchery racks.
- <sup>b</sup> SFH = Sawtooth Fish Hatchery stock.
- <sup>c</sup> Release group includes fish marked with passive integrated transponder (PIT tag).
- <sup>d</sup> HC = Hells Canyon stock.
- <sup>e</sup> PFH = Pahsimeroi Fish Hatchery stock.
- <sup>f</sup> DNFH = Dworshak National Fish Hatchery stock.
- <sup>g</sup> EF = East Fork Salmon River stock.
- <sup>h</sup> Based on PIT tag returns to Lower Granite Dam.
- <sup>i</sup> Fall release.
- <sup>j</sup> Selway = Selway River stock.

Appendix D. Coded-wire tag recoveries of steelhead released in Idaho by non-Lower Snake River Compensation Plan hatcheries, by tag code, release site, and number of coded-wire-tagged fish released, harvest estimates by month and river section, and total harvest estimates, 2000 - 2001.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Total)	No. Tags	Sample Rate	Estimated Harvest
05/39/57	B-2	Clearwater River	18,173	October	03	1	0.065	15
				December	03	1	0.059	17
				February	03	1	0.142	7
				<b>Total</b>		<b>3</b>		<b>39</b>
05/39/58	B-2	Clearwater River	21,015	October	03	1	0.065	15
				January	03	1	0.185	5
				<b>Total</b>		<b>2</b>		<b>20</b>
05/39/59	B-2	Clearwater River	20,296	October	03	1	0.065	15
				<b>Total</b>		<b>1</b>		<b>15</b>
05/39/62	B-2	Clearwater River	16,966	November	03	1	0.088	11
				March	04	1	0.054	19
				<b>Total</b>		<b>2</b>		<b>30</b>
05/39/63	B-2	Clearwater River	17,965	December	03	1	0.059	17
				March	04	1	0.054	19
				<b>Total</b>		<b>2</b>		<b>36</b>
05/40/01	B-2	Clear Creek	18,840	January	03	1	0.185	5
				<b>Total</b>		<b>1</b>		<b>5</b>
05/42/23	B-1	Clearwater River	18,344	October	03	1	0.065	15
				December	03	1	0.059	17
				<b>Total</b>		<b>2</b>		<b>32</b>
05/42/24	B-1	Clearwater River	15,580	ND <sup>a</sup>	03	1	--	--
				<b>Total</b>		<b>1</b>		<b>--</b>
05/42/25	B-1	Clearwater River	21,239	November	03	1	0.088	11
				<b>Total</b>		<b>1</b>		<b>11</b>
10/45/52	A-2	Salmon River at Hammer Creek	20,191	April	17	1	0.231	4
				<b>Total</b>		<b>1</b>		<b>4</b>
10/45/54	A-2	Little Salmon River	17,814	April	20	1	0.052	19
				<b>Total</b>		<b>1</b>		<b>19</b>
10/45/55	A-2	Pahsimeroi Hatchery	19,945	October	15	1	0.294	3
				March	15	1	0.228	4
				March	17	1	0.102	10
				April	17	1	0.231	4
				<b>Total</b>		<b>4</b>		<b>21</b>
10/45/56	A-2	Pahsimeroi Hatchery	20,070	November	14	1	0.174	6
				April	18	1	0.118	9
				<b>Total</b>		<b>2</b>		<b>15</b>

Appendix D. Continued.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Total)	No. Tags	Sample Rate	Estimated Harvest
10/45/57	A-2	Pahsimeroi Hatchery	20,162	October	15	1	0.294	3
				November	15	1	0.260	4
				March	15	1	0.228	4
				<b>Total</b>	<b>3</b>	<b>3</b>		<b>11</b>
10/52/26	B-2	South Fork Clearwater River	18,711	November	03	1	0.088	11
				February	03	1	0.142	7
				April	07	1	0.061	16
				<b>Total</b>	<b>3</b>	<b>3</b>		<b>34</b>
10/52/28	B-2	South Fork Clearwater River	20,316	October	03	1	0.065	15
				February	04	1	0.054	19
				<b>Total</b>	<b>2</b>	<b>2</b>		<b>34</b>
10/52/44	A-1	Pahsimeroi Hatchery	13,372	October	15	1	0.294	3
				March	15	2	0.228	9
				April	17	1	0.231	4
				April	18	1	0.118	9
				<b>Total</b>	<b>5</b>	<b>5</b>		<b>25</b>
10/52/45	A-1	Pahsimeroi Hatchery	13,844	October	15	3	0.294	10
				November	15	1	0.260	4
				March	15	1	0.228	4
				April	17	1	0.231	4
				<b>Total</b>	<b>6</b>	<b>6</b>		<b>22</b>
10/52/46	A-1	Pahsimeroi Hatchery	8,959	November	14	1	0.174	6
				November	15	1	0.260	4
				March	15	1	0.228	4
				<b>Total</b>	<b>3</b>	<b>3</b>		<b>14</b>
10/52/47	A-1	Salmon River at Hammer Creek	13,244	October	12	2	0.271	7
				November	11	1	0.027	37
				November	12	1	0.193	5
				<b>Total</b>	<b>4</b>	<b>4</b>		<b>49</b>
10/52/48	A-1	Salmon River at Hammer Creek	13,218	March	15	1	0.228	4
<b>Total</b>	<b>1</b>	<b>1</b>		<b>4</b>				
10/52/49	A-1	Salmon River at Hammer Creek	12,259	October	12	2	0.271	7
<b>Total</b>	<b>2</b>	<b>2</b>		<b>7</b>				
10/52/51	A-1	Little Salmon River	8,688	October	12	1	0.271	4
				March	12	1	0.806	1
				<b>Total</b>	<b>2</b>	<b>2</b>		<b>5</b>
10/52/52	A-1	Little Salmon River	9,552	October	12	2	0.271	7
				November	12	1	0.193	5
				April	20	1	0.052	19
				<b>Total</b>	<b>4</b>	<b>4</b>		<b>31</b>
<b>Grand Total</b>		<b>24 Marked Groups</b>				<b>58</b>		<b>483</b>

Appendix E. Miscellaneous coded-wire tag steelhead groups released in Oregon and Washington and recovered by Idaho anglers, 2000 - 2001.

Tag Code	Strain and Ocean-age	Release Site	No. Fish Released	Recovery Month	River Section (Total)	No. Tags	Sample Rate	Estimated Harvest
09/23/31 <sup>a</sup>	A-2	Wallowa River	28,427	October	01	1	0.060	17
					<b>Total</b>	<b>1</b>		<b>17</b>
09/25/62	A-1	Wallowa River	25,671	October	01	1	0.060	17
					<b>Total</b>	<b>1</b>		<b>17</b>
09/26/02	A-1	Wallowa Hatchery	26,353	October	01	1	0.060	17
					<b>Total</b>	<b>1</b>		<b>17</b>
63/04/60 <sup>b</sup>	A-1	Grande Ronde River	89,161	October November	01 01	1 3	0.060 0.052	17 58
					<b>Total</b>	<b>4</b>		<b>75</b>
<b>Grand Total</b>	<b>4 Marked Groups</b>					<b>7</b>		<b>126</b>

<sup>a</sup> Tag codes beginning with 09 numerals were from steelhead released by Oregon Department of Fish and Wildlife.

<sup>b</sup> Tag codes beginning with 63 numerals were from steelhead released by Washington Department of Fish and Wildlife.

Appendix F. Summary of 4-year-old A-stock steelhead recovered in the Idaho fishery, 2000 – 2001.

Release Year	No. of Fish Released	Release Site	Hatchery Rearing	Marks	No. of Tags Recovered
1997	57,115	Salmon River at Torreys Hole	HNFH	CWT 10/51/46	1
<b>Total</b>		<b>1 Marked Group</b>			<b>1</b>

Appendix G. Estimated returns of coded-wire-tagged B steelhead released into the East Fork Salmon River, 1989-1999.

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Release Year, Stock, Tag Codes, and No. of Fish Released	1-Ocean			2-Ocean			3-Ocean			Total Estimated Returns
	Estimated Harvest <sup>a</sup>	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	
<u>1989</u>										
East Fork Stock: CWT 10/41/44, 10/41/45, 10/41/46 n = 44,064	5	4	9	30	3	33	0	0	0	<b>42</b>
Dworshak Stock: CWT 10/41/32, 10/41/33, 10/41/34 n = 43,569	1	1	2	13	1	14	7	0	7	<b>23</b>
<u>1990</u>										
East Fork Stock: CWT 10/42/36, 10/42/37, 10/42/38 n = 46,403	18	4	22	62	10	72	0	0	0	<b>94</b>
Dworshak Stock: CWT 10/42/33, 10/42/34, 10/42/35 n = 44,763	2	0	2	69	1	70	0	0	0	<b>72</b>
<u>1991</u>										
East Fork Stock: CWT 10/43/20, 10/43/21, 10/43/22 n = 66,383	4	7	11	73	3	76	18	0	18	<b>105</b>
Dworshak Stock: CWT 10/43/14, 10/43/15, 10/43/16 n = 61,827	205	2	207	127	0	127	11	0	11	<b>345</b>

Appendix G. Continued.

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Release Year, Stock, Tag Codes, and No. of Fish Released	1-Ocean			2-Ocean			3-Ocean			Total
	Estimated Harvest <sup>a</sup>	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	Estimated Returns
<u>1992</u>										
East Fork Stock: CWT 10/44/20 n = 20,821	20	1	21	4	2	6	0	0	0	<b>27</b>
Dworshak Stock: CWT 10/44/18, 10/44/19 n = 43,339	0	0	0	5	1	6	0	0	0	<b>6</b>
<u>1993</u>										
East Fork Stock: No CWT Groups	--	--	--	--	--	--	--	--	--	--
Dworshak Stock: CWT 10/50/05, 10/50/07,10/50/09 n = 54,076	4	1	5	0	12	12	0	1	1	<b>18</b>
<u>1994</u>										
East Fork Stock: CWT 10/47/11, 10/47/12, 10/47/13 n = 63,394	18	12	30	81	35	116	0	0	0	<b>146</b>
Dworshak Stock: CWT 10/47/10, 10/47/21, 10/47/22 n = 62,713	0	0	0	15	0	15	0	0	0	<b>15</b>
<u>1995</u>										
East Fork Stock: CWT 10/20/24 n = 61,767	8	11	19	113	3	116	0	0	0	<b>135</b>
Dworshak Stock: CWT 10/20/03, 10/20/04, 10/20/12 n = 61,079	1	0	1	60	1	61	0	0	0	<b>62</b>

Appendix G. Continued.

Release Year, Stock, Tag Codes, and No. of Fish Released	1-Ocean			2-Ocean			3-Ocean			Total Estimated Returns
	Estimated Harvest <sup>a</sup>	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	
<u>1996</u>										
East Fork Stock: CWT 10/46/13, 10/47/09 n = 32,856	7	2	9	10	3	13	0	0	0	<b>22</b>
Dworshak Stock: CWT 10/35/08 N = 63,013	0	0	0	17	4	21	0	0	0	<b>21</b>
<u>1997</u>										
East Fork Stock CWT 10/52/19, 10/52/20, 10/52/21 n = 55,050	45	11	56	36	4	40	0	0	0	<b>96</b>
Dworshak Stock: CWT 10/52/22, 10/52/23, 10/52/24 n = 52,176	0	0	0	83	3	86	0	0	0	<b>86</b>
<u>1998</u>										
East Fork Stock: CWT 10/47/05, 10/47/06, 10/47/07 n = 63,241	13	2	15	87	2	89	0	0	0	<b>104</b>
Dworshak Stock: CWT 10/21/43, 10/21/44, 10/21/45 n = 61,110	0	0	0	25	0	25	0	0	0	<b>25</b>

Appendix G. Continued.

Release Year, Stock, Tag Codes, and No. of Fish Released	1-Ocean			2-Ocean			3-Ocean			Total
	Estimated Harvest <sup>a</sup>	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	Estimated Harvest	Hatchery Rack	Annual Returns	Estimated Returns
<u>1999</u>										
East Fork Stock: No CWT Groups	--	--	--	--	--	--	--	--	--	--
Dworshak Stock: CWT 10/54/03 n = 59,129	25	0	25	86	0	86	ND <sup>b</sup>	ND	ND	<b>111</b>

<sup>a</sup> Estimated returns of coded-wire-tagged steelhead taken from Ball (1992b, 1994, 1996, 1997, 1998, and 1999), Ball and White (2001), Hansen and White (2003, 2004) and Hansen (2005). Includes Idaho in-state harvest only.

<sup>b</sup> ND = No data

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