FISHERY RESEARCH

STEELHEAD FISH HATCHERY EVALUATIONS—IDAHO

Project Progress Report

Period Covered: October 1, 1994 to September 30, 1995

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LSRCP Hatchery Evaluation Studies in Idaho
Part 1: Steelhead Trout

1995 Annual Report

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ABSTRACT

This annual report summarizes activities associated with Idaho-Lower Snake River Compensation Plan (LSRCP) hatcheries' activities from October 1, 1994 to September 30, 1995. Included in this report are all fall 1994 and spring 1995 adult steelhead *Oncorhynchus mykiss* returns and all releases of juvenile steelhead made within the reporting period. Information presented in this report supersedes that included in previous reports.

An estimated 6,878 LSRCP steelhead returned to Idaho during this reporting period. Magic Valley Fish Hatchery produced an estimated 3,551 adult steelhead, and Hagerman National Fish Hatchery produced an estimated 3,327 adult steelhead. Steelhead returns to Idaho remain well below the LSRCP program mitigation goal of 39,260 adult steelhead.

Adult returns to Idaho-LSRCP hatchery racks included 532 A-strain steelhead to Sawtooth Fish Hatchery and 38 B-strain steelhead to East Fork Salmon River satellite facility. Approximately 71.2% of the steelhead that returned to Sawtooth Fish Hatchery were males as compared to 55.3% of the fish that returned to the East Fork Salmon River satellite.

Coded-wire tags (CWTs) were used to determine smolt-to-adult return rates. Smolt-to-adult return rates for brood year 1991 A-strain steelhead reared at Hagerman National Fish Hatchery and released into the Salmon River at Sawtooth Fish Hatchery ranged from 0.08% to 0.59%. Brood year 1990, East Fork B- and Dworshak B-stock, steelhead reared at Magic Valley Fish Hatchery and released into the East Fork Salmon River had smolt-to-adult return rates of 0.16% and 0.56%, respectively. Brood year 1991, A-strain, steelhead reared at Magic Valley Fish Hatchery and released at Warm Springs and Hazard Creek had smolt-to-adult return rates of 0.08% and 0.28%, respectively.

In April 1995, Idaho-LSRCP hatcheries released 3,468,994 brood year 1994 steelhead smolts. A total of 1,076,134 of these fish were tagged with CWTs. In addition, 5,953 juvenile steelhead were released with passive integrated transponder (PIT) tags.

In October 1994, Clearwater Fish Hatchery released 49,781 brood year 1994 steelhead fingerlings into the South Fork Red River for Idaho's Supplementation Studies program. A total of 43,641 of these fish were tagged with CWTs. In addition, 4,790 fingerlings were released with PIT tags.

In September 1995, Clearwater Fish Hatchery released 47,236 brood year 1995 steelhead fingerlings into the South Fork Red River for Idaho's Supplementation Studies program. A total of 40,970 and 4,999 of these fingerlings were released with CWTs and PIT tags, respectively.

INTRODUCTION

The Water Resources Development Act of 1976 (90 Stat. 2917) authorized the Lower Snake River Compensation Plan (LSRCP) to mitigate for fish losses caused by the construction and operation of Ice Harbor, Lower Monumental, Little Goose, and Lower Granite dams on the lower Snake River. Mitigation for anadromous fishery losses included the construction and operation of fish hatchery facilities and smolt passage improvements at the lower Snake River dams. The United States Fish and Wildlife Service (USFWS) was authorized to administer the operation and maintenance for 12 hatcheries and 11 satellite facilities in Idaho, Oregon, and Washington.

In Idaho, the Idaho Department of Fish and Game (IDFG) operates Clearwater Fish Hatchery, McCall Fish Hatchery, Magic Valley Fish Hatchery, Sawtooth Fish Hatchery, South Fork Salmon River Trap, East Fork Salmon River Trap, and Red River, Crooked River, and Powell satellite facilities. The USFWS operates Dworshak National Fish Hatchery and Hagerman National Fish Hatchery. Adult return goals for the entire LSRCP program are 8,000 summer chinook salmon *Oncorhynchus tshawytscha*, 50,700 spring chinook salmon, 18,300 fall chinook salmon, and 55,100 steelhead *O. mykiss* to the Snake River basin. Adult return goals for the Idaho portion of the LSRCP program call for the return of 8,000 adult summer chinook salmon, 40,432 adult spring chinook salmon, and 39,260 adult steelhead. Adult return goals for Idaho-LSRCP steelhead hatcheries are as follows: Clearwater Fish Hatchery—14,000, Hagerman National Fish Hatchery—13,600, and Magic Valley Fish Hatchery—11,660.

The LSRCP program includes a Hatchery Evaluation Study component to monitor and evaluate the mitigation hatchery program. The primary objective of the Hatchery Evaluation Study is to determine the best hatchery management practices for mitigation hatcheries to meet LSRCP and IDFG anadromous fisheries goals. Only if we understand the effects of hatchery operations on adult return characteristics (e.g., return rates, sex ratios, age structure) can we prescribe effective management actions. Tasks defined to satisfy the primary objective are divided into two categories: 1) documentation, and 2) investigation. We document hatchery practices for each brood year, or cohort, of fish and mitigation status in terms of annual adult returns. Our success at achieving LSRCP and IDFG goals can then be related to hatchery practices through the documentation tasks. Investigation tasks are manipulative experiments involving modified or alternative hatchery practices that show potential for increasing adult returns and achieving LSRCP and IDFG goals.

OBJECTIVES

This report summarizes steelhead Hatchery Evaluation Study activities carried out from October 1, 1994 through September 30, 1995. Juvenile steelhead released from Clearwater, Hagerman National, and Magic Valley fish hatcheries during this reporting period are documented, as well as adult steelhead that returned to Idaho during the fall of 1994 and the spring of 1995 (hereafter referred to as the 1994-1995 return). Specific objectives identified in Cooperative Work Agreement 14-48-0001-95513 and covered in this report are as follows.

Objective 1. Document the success of the IDFG-LSRCP program in meeting mitigation goals.

Subobjective 1.1 Develop a computerized hatchery database standardizing all necessary variables for monitoring and evaluation.

Subobjective 1.2 Document LSRCP fish rearing and release practices and adult returns in Idaho.

Objective 2 Identify factors limiting hatchery success and recommend possible improvements based on existing knowledge and experimentation.

Subobjective 2.1 Continue ongoing documentation and monitoring to determine the relationships between adult returns and hatchery practices, characteristics of hatchery products, and juvenile survival.

Subobjective 2.2 Conduct controlled studies (short-term experiments) to determine the relationships between adult returns and hatchery practices, characteristics of hatchery products, and juvenile survival.

The results of experiments performed under Subobjective 2.2 are printed separately from this report. Some results from those experiments, such as juvenile migration characteristics and adult return rates for experimental groups, are included in this report.

METHODS

IDFG-LSRCP Program Success Documentation—Objective 1

To document the overall success of the program, we compared the estimated number of adult steelhead that returned above Lower Granite Dam between October 1, 1994 and September 30, 1995 to the Idaho-LSRCP goal of 39,260 adult steelhead. The Harvest Monitoring Project estimated the total number of returning adults and partitioned the total return between Clearwater, Hagerman National, and Magic Valley fish hatcheries based on coded-wire tag (CWT) data. Results for Objective 1 are reported under *Results, Adult Returns*.

Hatchery Database Development—Subobjective 1.1

The database will consist of seven major sections: Trapping, Spawning, Adult Inventory, Incubation, Rearing, Marking/Tagging, and Release. A requirement for the Trapping, Spawning, and Adult Inventory sections of the database is that each fish is tagged and assigned an identification number. We will conduct a literature review of fish tags and then experiment with selected tags to determine the best tag for adult chinook and steelhead. Refer to Rhine et al. (1999b) for additional information on developing the hatchery database program.

Hatchery Operations Documentation—Subobjective 1.2

Hatchery operations between October 1, 1994 and September 30, 1995 are documented in this report. Pertinent rearing information affecting brood years 1994 and 1995 are discussed.

Additional information which occurred before this reporting period may be included for brood year 1994 steelhead for completeness. Information was collected from Hatchery Brood Year and Run reports, memorandums, and verbal communications with hatchery personnel. Fish marking and tagging information was provided by IDFG's Coded-wire Tag Laboratory.

Migration Conditions

Snake River discharge during smolt migration is a major factor affecting the survival of Idaho's anadromous fishes. Flow conditions at Lower Granite Dam for the 1995 emigration period, the year that brood year 1994 steelhead smolts emigrated, are reported. Adults that returned during this reporting period were from the 1990, 1991, or 1992 broods (depending on the stock and age-at-return). Flow conditions for 1991, 1992, and 1993 are reported since steelhead smolts are reared on a one-year program and released the following spring. Water flow data were obtained from Fish Passage Center reports and the United States Geological Survey Internet site.

Petrosky (1991) defined two time periods that accounted for most of the chinook emigration past Lower Granite Dam. The Extended period runs from April 20 to May 30 and includes the time when most of the wild and natural yearling chinook salmon emigrate, whereas the Peak period runs from April 15 to May 5 and encompasses the time when approximately 50% of the yearling chinook salmon emigrate past the dam. Hatchery steelhead smolts are generally released in April and emigrate during the same time period as chinook. Therefore, flows during the Extended and Peak time periods are reported.

Migration Timing and Juvenile Survival

Passive integrated transponder (PIT) tags were used to evaluate downstream migration. The interrogation rate of PIT-tagged juvenile salmonids at lower Snake River dams serves as a minimum survival index because: 1) an unknown (but we believe small) number of PIT-tagged fish that die in the hatchery may go undetected, although we scan the dead fish, 2) not all fish pass through detectors, 3) some PIT tags fail (approximately 2%, Russell Kiefer, IDFG, personal communication) or are lost between tagging and arrival at detection sites, 4) some fish arrive while detection gear is not being operated, and 5) mortality occurs between dams.

Brood year 1994 steelhead juveniles were PIT tagged by IDFG Fish Marking personnel. PIT tag data were submitted to PTAGIS, a computerized PIT tag database operated by Pacific States Marine Fisheries Commission (Columbia River Basin PIT Tag Information System 1997). Interrogation rates and median travel times for specific PIT-tagged groups of steelhead were calculated after retrieving relevant interrogation data from PTAGIS. Interrogation rates were calculated for each PIT tag file (or files depending on the purpose of the tagging), by dividing the number of unique interrogations at Lower Granite, Little Goose, Lower Monumental, and McNary dams by the number of PIT-tagged fish released, multiplied by 100. Median travel times were calculated for each PIT tag file (or files) to Lower Granite Dam.

Adult Returns

Adult return goals for Clearwater Fish Hatchery, Hagerman National Fish Hatchery, and Magic Valley Fish Hatchery are 14,000, 13,600, and 11,660 adult steelhead above Lower Granite Dam, respectively. The Harvest Monitoring Project (i.e., Ball 1998) estimated the total number of LSRCP steelhead that returned to Idaho in the 1994-1995 return. This estimate

included LSRCP-reared fish that were harvested in Idaho's sport fishery and returned to hatchery racks. For steelhead released at in-river locations (i.e., not released at a weir), Ball (1998) estimated the number of LSRCP-reared steelhead that escaped to spawn naturally. Ball's estimate for total return should be considered a minimum estimate because tributary and mainstem strays were not accounted for, nor were in-river prespawning mortalities. The number of steelhead smolts released and the estimated number of adults that returned were compared to facility design production targets and projected adult return goals for each facility.

Fisheries Contribution

Fish Marking personnel from IDFG tagged juvenile steelhead with coded-wire tags (CWTs) according to marking/tagging plans developed by fishery managers and research biologists. Before 1994, steelhead tagged with CWTs had the left pelvic fin excised to indicate the presence of a tag. Coded-wire tagged (CWTed) steelhead from the 1994 brood were not pelvic-fin clipped, with the exception of B-strain steelhead reared at Clearwater Fish Hatchery, because researchers in Washington State found that fin clipping had an adverse effect on adult returns. The snouts from tagged adult steelhead harvested in Idaho's sport fishery were sent to the Coded-wire Tag Laboratory and processed. The Harvest Monitoring Project used these data, along with data from a statewide telephone survey, to estimate the total number of steelhead harvested in Idaho. The numbers of steelhead harvested from specific release groups were estimated by expanding CWT recoveries for specific groups. See Ball (1998) for CWT expansion methods.

Hatchery Weirs

The numbers of steelhead that returned to the East Fork Salmon River and Sawtooth Fish Hatchery weirs were documented by hatchery personnel. The length, sex, and disposition of each fish were recorded. Fish length and strain (A or B) were used to determine age-at-return. Snouts from CWTed steelhead were sent to the Coded-wire Tag Laboratory and processed. The Harvest Monitoring Project used these data to estimate the total number of LSRCP-reared steelhead that returned to hatchery racks or escaped to spawn naturally.

Smolt-to-Adult Return Rate

The Harvest Monitoring Project estimated the total number of LSRCP-produced steelhead that returned to Idaho. For each CWT code, we summed the estimated number of steelhead that returned to Idaho in the 1992-1993 (Ball 1996), 1993-1994 (Ball 1997), and 1994-1995 (Ball 1998) harvest seasons. For specific groups of fish (i.e., individual CWT codes by release site), we calculated a smolt-to-adult return rate (SAR) by dividing the estimated number of adults that returned (provided by the Harvest Monitoring Project) by the number of smolts released (provided by the Coded-wire Tag Laboratory), multiplied by 100.

Experimentation—Objective 2

Interim progress reports, printed independently of this report, document the current status of Hatchery Evaluation Study experiments. Results for some experiments, particularly adult return rates and emigration rates for experimental groups, are included in this report.

Clearwater Fish Hatchery

Cover Experiment-This experiment was initiated in 1992 using Dworshak B-stock steelhead from the 1992 brood. The purpose of this experiment was to test the effects of shade covers on adult return and juvenile emigration rates. Refer to Rhine et al. (1999a) for experimental design and methods for this experiment. Steelhead from each group were tagged with CWTs and PIT tags (Appendix B. Table 1). Adults will return between 1995 and 1997. Adult return data will be reported in future reports.

Fin Erosion Experiment-The purpose of this experiment was to test the effects of raceways (design and feeding method) and baffles (raceways with and without baffles) on adult steelhead return and juvenile emigration rates. Dworshak B-stock from the 1993 brood were used for the study. Contact Clearwater Fish Hatchery personnel for study design and completion report.

Hagerman National Fish Hatchery

Size-at-Release Experiment-The purpose of this study was to determine the optimal size (length) to rear steelhead juveniles at Hagerman National Fish Hatchery. The experiment was conducted for two consecutive years using A-strain steelhead from the 1990 and 1991 broods. Refer to Rhine et al. (1999a) for methods for this experiment. See Cannamela (1992) for complete details of the experimental design.

Acclimation Experiment-This is a continuation of the study initiated in 1992 (Rhine et al. 1999a) which compared juvenile emigration and adult return rates of steelhead that were trucked from Hagerman National Fish Hatchery and acclimated at Sawtooth Fish Hatchery for two weeks (Acclimated Group) to steelhead that were trucked from Hagerman National Fish Hatchery two weeks later and released directly into the Salmon River (Nonacclimated Group). Results from this experiment will include adult return data from the 1991 (2-ocean) and 1992 (1-ocean) (Pahsimeroi A-stock) broods and juvenile emigration data from the 1994 brood (Sawtooth A-stock). Adults from brood year 1994 will return in 1997 and 1998. Adult return data and juvenile emigration data will be analyzed by brood year. The total number of adults that return from each group will be tested using chi-square analysis (α = 0.05). Passive integrated transponder tags will be used to determine unique interrogation rates at Snake and Columbia river dams and median travel time to Lower Granite Dam for each group. Chi-square analysis (α = 0.05) will be used to test interrogation rates between groups. Travel times for the two groups will be tested for differences using the Mann-Whitney test (α = 0.05) (SYSTAT Inc. 1992).

RESULTS

Hatchery Database Development—Subobjective 1.1

The Project Manager Database and the data input screens for the Trapping and Spawning sections of the database were completed. We conducted a literature review of fish tags and obtained examples of specific tags for experimentation. We tested 11 external tags on rainbow trout at Clearwater Fish Hatchery in 1995. Tags were applied to fish for a period of two months and were rated based on ease of application, durability, loss rate, and effects on fish

health. Of the tags tested, the operculum staple tag ranked highest. We tested operculum staple tags on chinook in the summer of 1995. Tag loss on chinook was unexpectedly high. Initially, operculum staple tags performed well, but tag loss increased as the spawning season progressed. The primary reason for the tag loss was attributed to the rigidity of the plastic tags.

Hatchery Operations Documentation—Subobjective 1.2

Clearwater Fish Hatchery

Brood Year 1994-Clearwater Fish Hatchery received 905,000 Dworshak B-stock eyed eggs from Dworshak National Fish Hatchery in May 1994 (McGehee 1998). Eggs were collected in April at Dworshak National Fish Hatchery during the Number 10, 11, 12, and 13 egg-takes. Survival to the fry stage was 96.5% (873,511 fry) and survival to release was 80.0% (724,325 smolts), which included 136,363 steelhead that were held for two-year rearing. Adipose fins were excised from all fish in September and October 1994.

Clearwater Fish Hatchery also received 67,516 eyed eggs for the National Biological Survey (NBS) to conduct a study which examined stock performance and stock productivity impacts of hatchery supplementation. Eggs were comprised of wild Selway B-stock fish, hatchery Dworshak B-stock fish, and a cross between the two stocks. These steelhead were also reared on a two-year rearing program. See Rankin and McGehee (*In Press*) for details on egg collection and hatchery rearing and Rubin et al. (1994) for the experimental design of the NBS study.

In September and October 1994, 269,812 fish were tagged with CWTs and marked by excising the left pelvic fin. Fish were tagged with CWTs to estimate adult contribution to the fishery and to test the effects of feeding method and raceway baffles on fin quality. In addition, 1,764 steelhead were tagged with PIT tags in January 1995. An additional 43,641 Dworshak B-stock steelhead were tagged with CWTs for the Idaho Steelhead Supplementation program. Steelhead used for supplementation were not marked with a fin clip, and 4,790 were tagged with PIT tags. Contact IDFG's Idaho Supplementation Studies (Alan Byrne) for program details and PIT tag interrogation results.

Clearwater Fish Hatchery released 404,250 brood year 1994 steelhead smolts into the South Fork Clearwater River between April 19 and 20, 1995 (Appendix A. Table 1). There were 85,187 fish released with CWTs and 865 fish released with PIT tags. In addition, 183,712 brood year 1994 steelhead smolts were released into Clear Creek on April 18, 1995. Of those, 177,724 and 899 were released with CWTs and PIT tags, respectively.

Clearwater Fish Hatchery released an additional 49,781 unmarked brood year 1994 steelhead fingerlings into Red River on October 27, 1994 for supplementation. Of those, 43,641 were released with CWTs and 4,790 were released with PIT tags.

Interrogation rates for groups of PIT-tagged fish, excluding those fish used for supplementation, ranged from 58.9% to 81.4% (Table 1). Median travel times to Lower Granite Dam for groups of PIT-tagged fish ranged from 9.5 to 13.7 days (Table 1).

Brood Year 1995-Clearwater Fish Hatchery received 95,338 Selway B-stock eyed eggs from Dworshak National Fish Hatchery in May 1995. Survival to the fry stage was 97.8% (93,208 fry).

Clearwater Fish Hatchery received 911,153 Dworshak B-stock eyed eggs from Dworshak National Fish Hatchery in April and May of 1995. Eggs were collected at Dworshak National Fish Hatchery in April during the Number 8 through 11 egg-takes. Due to poor egg quality, the first eyed egg shipment encountered 74% mortality.

A total of 47,236 unmarked Dworshak B-stock steelhead were released into the South Fork Red River as fingerlings in September 1995 for supplementation. A total of 40,970 steelhead were tagged with CWTs, and 4,999 were tagged with PIT tags. Steelhead used for supplementation were not adipose fin-clipped. Contact IDFG's Idaho Supplementation Studies (Alan Byrne) for program details and PIT tag interrogation results.

Hagerman National Fish Hatchery

Brood Year 1994-Hagerman National Fish Hatchery received 1,673,647 eyed eggs comprised of three different stocks of steelhead: Sawtooth A-stock (593,953 eggs), Pahsimeroi A-stock (362,118 eggs), and Oxbow A-stock (717,576 eggs) (Hagerman National Fish Hatchery 1994). Survival rates from the eyed egg stage to the fry stage for the Sawtooth A-, Pahsimeroi A-, and Oxbow A-stocks were 92.5% (549,312 fish), 98.1% (355,234 fish), and 94.7% (679,699 fish), respectively. A total of 265,910 excess steelhead fingerlings, Oxbow A-stock, were stocked into Brownlee (184,272 fingerlings) and Salmon Falls (81,638 fingerlings) reservoirs in October 1994.

Adipose fins were excised from all fish in October 1994. In November 1994, 334,458 steelhead were tagged with CWTs. Coded-wire tagged steelhead from the 1994 brood were not marked with pelvic fin clips. Fish were tagged with CWTs to estimate adult contribution to the fishery and to test the effects of acclimating smolts at Sawtooth Fish Hatchery. In March and April 1995, 1,803 steelhead were tagged with PIT tags to evaluate juvenile emigration.

Whereas other LSRCP steelhead hatcheries derive the number of smolts released by subtracting mortalities from the number of fish which were adipose fin-clipped, Hagerman National Fish Hatchery personnel use the pound count method during shipping to determine the total number of fish released. Thus, final inventory numbers may differ from earlier inventory numbers. Hagerman National Fish Hatchery released 1,149,677 steelhead smolts into the Salmon and Little Salmon rivers between April 10 and 21, 1995 (Appendix A. Table 2). The total release included 439,191 Sawtooth A-stock, 396,304 Pahsimeroi A-stock, and 314,182 Oxbow A-stock steelhead. Fish were released at three locations: Sawtooth Fish Hatchery weir (685,006), Torrey's Hole (64,167), and Warm Springs Bridge (400,504). There were 330,187 fish released with CWTs and 1,803 fish released with PIT tags. Hatchery personnel reported no major health problems for brood year 1994 steelhead.

Interrogation rates for groups of PIT-tagged fish ranged from 51.7% to 77.7% (Table 1). Median travel times to Lower Granite Dam for groups of PIT-tagged fish ranged from 16.4 to 28.5 days (Table 1).

Brood Year 1995-Hagerman National Fish Hatchery received 1,652,565 eyed steelhead eggs in May and June 1995 comprised of three different stocks: Sawtooth A-stock (562,513 eggs), Pahsimeroi A-stock (345,164 eggs), and Oxbow A-stock (744,888 eggs) (Hagerman

National Fish Hatchery 1995). Survival rates from the eyed egg stage to the fry stage for the Sawtooth A, Pahsimeroi A, and Oxbow A-stocks were 97.4% (547,888 fry), 96.2% (332,048 fry), and 95.2% (709,133 fry), respectively.

Magic Valley Fish Hatchery

Brood Year 1994-Magic Valley Fish Hatchery received 2,396,340 eyed eggs comprised of three different stocks of steelhead: Dworshak B-stock (1,520,160 eggs), Pahsimeroi A-stock (800,785 eggs), and East Fork B-stock (75,395 eggs) (Moore et al. 1996). Overall survival to the fry stage was 80.5% (1,929,210 fish) and survival to release was 72.2% (1,731,355 fish).

In October 1994, all steelhead were marked with adipose fin clips, and in November 1994, 483,036 fish were tagged with CWTs. Coded-wire-tagged steelhead from the 1994 brood were not marked with pelvic fin clips. CWTs were used to determine fishery contribution. In January 1995, furunculosis was detected during a monthly health exam, and the fish were treated with Romet-30 and Terramycin. In March 1995, 2,400 steelhead were tagged with PIT tags.

Magic Valley Fish Hatchery released 1,731,355 brood year 1994 steelhead at seven different locations between April 8 and May 1, 1995 (Appendix A. Table 3). The total release included 982,320 Dworshak B-stock, 684,035 Pahsimeroi A-stock, and 65,000 East Fork B-stock steelhead. A total of 483,036 fish were released with CWTs. In addition, 2,386 steelhead were released with PIT tags (Appendix A. Table 3).

Interrogation rates for groups of PIT-tagged fish ranged from 45.0% to 75.0% (Table 1). Median travel times to Lower Granite Dam for groups of PIT-tagged fish ranged from 11.4 to 30.4 days (Table 1).

Brood Year 1995-Magic Valley Fish Hatchery received 2,345,200 eyed steelhead eggs comprised of three different stocks: Dworshak B-stock (1,502,200 eggs), Pahsimeroi A-stock (803,000 eggs), and East Fork B-stock (40,000 eggs) (Moore et al. 1998). Survival rates from the eyed egg stage to the fry stage were as follows: Dworshak B-stock—85.0% (1,276,927 fry), Pahsimeroi A-stock—96.0% (770,880 fry), and East Fork B-stock—95.9% (38,352 fry). Overall survival rates (eyed egg-to-release) for Dworshak B-, Pahsimeroi A-, and East Fork B-stocks were 73.0% (1,096,080 smolts), 91.9% (738,133 smolts), and 84.7% (33,872 smolts), respectively.

Migration Conditions

Snake River in-flows (mean in-flow) at Lower Granite Dam during the Peak and Extended periods in 1995 was 72.9 and 74.1 thousand cubic feet per second (kcfs), respectively (Table 2). Flows recorded during the Peak period in 1995 were the largest since 1989 (Table 2). Flows during the Extended period in 1995 were less than those in 1993 and 1994.

Comparing Snake River flow conditions for the three brood years of steelhead that returned to Idaho as adults during this reporting period (broods 1990, 1991, and 1992), the 1992 brood (which emigrated in 1993) had the largest river discharge during both the Peak and Extended migration periods (Table 2). The 1990 brood (which emigrated in 1991) had the lowest river discharge during the Peak migration period.

Migration Timing and Juvenile Survival

A total of 5,953 steelhead smolts were released with PIT tags in 1995: Clearwater Fish Hatchery—1,764, Hagerman National Fish Hatchery—1,803, and Magic Valley Fish Hatchery—2,386 (Table 1). Overall, 66% (3,946) of the fish PIT tagged were interrogated at downstream dams. Interrogation rates of PIT-tagged steelhead, by PIT tag file, ranged from 45.0% to 81.4% (Table 1). Median travel times to Lower Granite Dam for PIT-tagged steelhead, by PIT tag file, ranged from 9.5 to 30.4 days (Table 1). Most of the steelhead tagged with PIT tags were interrogated at Lower Granite Dam between April 20 and May 30 (Figure 1). Flow conditions for the Snake River at Lower Granite Dam during this time period ranged from approximately 50 to 130 kcfs.

Adult Returns

The Harvest Monitoring Project (Ball 1998) estimated that Magic Valley Fish Hatchery and Hagerman National Fish Hatchery returned 6,878 steelhead to Idaho in 1994-1995 (Table 3). Ball (1998) estimated that 4,577 steelhead were harvested in Idaho's sport fishery, and 2,301 steelhead returned to hatchery racks or escaped to spawn naturally. These estimates do not include tributary and mainstem strays or prespawning mortalities. The 1994-1995 return included 1-ocean, 2-ocean, and 3-ocean fish. The number of steelhead smolts released and the estimated number of adults that returned are compared to facility design production targets and projected adult return goals in Table 4. Hagerman National Fish Hatchery and Magic Valley Fish Hatchery achieved a minimum of 18% of their combined adult return goals (Table 4). Adult return estimates include only steelhead that returned to hatchery weirs, steelhead that were harvested in Idaho's sport fishery, and steelhead that escaped to spawn naturally.

Fisheries Contribution

Ball (1998) estimated that 4,577 LSRCP-reared steelhead were harvested during the 1994-1995 Idaho sport fishing season. See Ball (1998) for creel survey methods and results.

Hatchery Weirs

Sawtooth Fish Hatchery Weir-Hatchery steelhead returning to the Sawtooth Fish Hatchery weir in 1995 were A-strain fish released in 1992 and 1993 (brood years 1991 and 1992, respectively). Smolts were reared at Hagerman National and Magic Valley fish hatcheries before being trucked to Sawtooth Fish Hatchery and released.

A total of 532 adult steelhead (A-strain), comprised of 379 males (71.2%) and 153 females (28.8%), returned to the Sawtooth Fish Hatchery weir between March 15 and May 10, 1995 (Table 5) (Snider 1995). The male component of the run was comprised of 377 hatchery-origin fish and 2 natural-origin (unmarked) fish; the female component was made up of 151 hatchery-origin fish and 2 natural-origin fish. All of the natural-origin fish and 94 of the hatchery-origin fish (87 males and 7 females) were released to spawn naturally. A total of 143 females and 290 males were spawned on 10 different dates to yield 630,300 green eggs. A total of 543,100 eggs (86.2%) developed to the eyed stage. Disease samples collected during the spawning operations tested negative for IHN virus and bacteria.

East Fork Salmon River Weir-Hatchery steelhead returning to the East Fork Salmon River weir in 1995 were B-strain fish released in 1991, 1992, and 1993 (brood years 1990,

1991, and 1992, respectively). Smolts were reared at Hagerman National and Magic Valley fish hatcheries.

A total of 38 adult steelhead (B-strain), comprised of 21 males (55.3%) and 17 females (44.7%), returned to the East Fork Salmon River weir between April 4 and May 1, 1995 (Table 6) (Snider 1995). The male component of the run was comprised of all hatchery-origin fish and the female component was made up of 15 hatchery-origin fish (88.2%) and 2 natural-origin fish (11.8%). All of the natural-origin fish and 4 of the hatchery-origin fish (all males) were released to spawn naturally. Fourteen females and 17 males were spawned on three different dates to produce 53,370 green eggs. A total of 40,170 eggs (75.3%) developed to the eyed stage.

Smolt-to-Adult Return Rates

Clearwater Fish Hatchery

In 1993, Clearwater Fish Hatchery release 326,300 steelhead smolts (brood year 1992) (Appendix B. Table 1). Brood year 1992 steelhead would have returned as 1-ocean fish during this reporting period. However, the Harvest Monitoring Project reported that none of the steelhead that returned to Idaho in 1994-1995 were reared at Clearwater Fish Hatchery.

Hagerman National Fish Hatchery

The 1994-1995 steelhead return included three age classes of fish which were released from Hagerman National Fish Hatchery in 1991 (brood year 1990), 1992 (brood year 1991), and 1993 (brood year 1992). Brood year 1990, 1991, and 1992 steelhead returned as 3-ocean, 2-ocean, and 1-ocean fish, respectively. The Harvest Monitoring Project estimated that 3,327 of the steelhead that returned to Idaho in 1994-1995 were reared at Hagerman National Fish Hatchery (Table 3). This equals 24.5% of the hatchery's adult return goal (13,600). The adult return goal for Hagerman National Fish Hatchery was calculated based on the release of 2,400,000 smolts. However, smolt production for brood years 1990, 1991, and 1992 was only about 60% of the production target (Table 4).

A total of 2,402,873 steelhead were released in 1991 (brood year 1990). An estimated 5,269 adults returned from the 1,436,910 smolts released in 1991 to yield a smolt-to-adult rate (SAR) of 0.37% (Appendix C. Table 1). In 1992, 1,448,155 steelhead smolts (brood year 1991) were released. The 2-ocean adult component for this brood returned in 1995. To date, an estimated 1,900 steelhead have returned to Idaho to yield a SAR of 0.13% (Appendix C. Table 2). In 1993, Hagerman National Fish Hatchery released 1,487,842 steelhead smolts (brood year 1992). Adult return data, specifically the 2-ocean component, for brood year 1992 are incomplete at this time (Appendix C. Table 3).

The final adult steelhead from the 1990 (B-strain) and 1991 (A-strain) broods returned to Idaho during this reporting period. Smolt-to-adult return rates were calculated for CWTed smolts by stock and release site (Table 7). Dworshak B-stock steelhead smolts, brood year 1990, released into the Little Salmon River had a SAR of 0.15%. Smolt-to-adult return rates for Pahsimeroi A-stock steelhead smolts, brood year 1991, released at the Sawtooth Fish Hatchery weir ranged from 0.08% to 0.59%.

Magic Valley Fish Hatchery

The 1994-1995 steelhead return included three age classes of fish which were released from Magic Valley Fish Hatchery in 1991 (brood year 1990), 1992 (brood year 1991), and 1993 (brood year 1992). Brood year 1990, 1991, and 1992 steelhead returned as 3-ocean, 2-ocean, and 1-ocean fish, respectively. The Harvest Monitoring Project estimated that 3,551 of the adult steelhead that returned to Idaho in 1994-1995 were reared at Magic Valley Fish Hatchery (Table 3). This equals 30.5% of the hatchery's adult return goal (11,660).

A total of 2,062,000 steelhead smolts were released in 1991 (brood year 1990) from Magic Valley Fish Hatchery. An estimated 7,460 of these smolts returned to Idaho as adults (Appendix D. Table 1). The SAR for brood year 1990 was 0.36%. A total of 2,160,400 steelhead smolts were released from Magic Valley Fish Hatchery in 1992 (brood year 1991). An estimated 2,354 of these smolts returned to Idaho as adults (Appendix D. Table 2). The 3-ocean adult component of brood year 1991 is not complete. To date, the SAR for brood year 1991 is 0.11%. In 1993, Magic Valley Fish Hatchery released 1,925,700 steelhead smolts (brood year 1992). Adult return data, specifically the 2- and 3-ocean components, for brood year 1992 are incomplete at this time (Appendix D. Table 3).

The final adult steelhead from the 1990 (B-strain) and 1991 (A-strain) broods returned to Idaho during this reporting period. Smolt-to-adult return rates were calculated for CWTed smolts by stock and release site (Table 7). Smolt-to-adult return rates for East Fork B- and Dworshak B-stock steelhead smolts, brood year 1990, released at the East Fork Salmon River were 0.16 and 0.56%, respectively. Smolt-to-adult return rates for Oxbow A-stock steelhead smolts, brood year 1991, released at Warm Springs and Hazard Creek were 0.08% and 0.28%, respectively.

Experimentation—Objective 2

Clearwater Fish Hatchery

Cover Experiment-See Rhine et al. (1999a) for experimental design and PIT tag interrogation results. Adults from the 1992 brood would have returned as 1-ocean fish during this reporting period, however, no CWT data are available. Steelhead smolts from the 1992 brood were not released at a weir, which means that adult return estimates will be totally dependent on sport harvest. Dworshak B-stock steelhead primarily return as 2-ocean fish, which could also explain why no CWTs were recovered. Adults from the 1992 brood will return as 2-ocean and 3-ocean fish in 1996 and 1997, respectively.

Fin Erosion Experiment-Contact Clearwater Fish Hatchery personnel for study design and results.

Hagerman National Fish Hatchery

Size-at-Release Experiment-A total of 25 adult steelhead from the 1991 brood returned as 2-ocean fish during this reporting period. Of those, 16 were from the large size group, and 9 were from the regular size group (Table 8). For adults that returned from the large size group, 69% (11) were females and 31% (5) were males. Adult returns from the regular size smolts were composed of 44% (4) females and 56% (5) males. Sixty-two percent of the adults recovered from the large size smolts returned as 2-ocean fish, whereas 60% of the adults

recovered from the regular size smolts returned as 2-ocean fish. Complete results of this study will be reported under a separate title.

Acclimation Experiment-A total of 177 (59.0%) of the PIT-tagged acclimated steelhead, Sawtooth A-stock, were interrogated at downriver dams as compared to 183 (61.0%) of the tagged nonacclimated fish (Table 1). No significant differences (χ^2 = 0.17, P = 0.677) were detected between interrogation rates of acclimated and nonacclimated steelhead. Median travel times to Lower Granite Dam were 22.4 days for the acclimated group and 17.7 days for the nonacclimated group (Table 1). Passive integrated transponder-tagged steelhead which were not acclimated had significantly (P = 0.01) shorter travel times to Lower Granite Dam than those fish which were acclimated.

A total of 79, 1-ocean (brood year 1992), adult steelhead returned to Idaho during the reporting period (Table 9). Of those, 47 were from the acclimated group and 32 were from the nonacclimated group. For 1-ocean adults that returned from the acclimated group, 32% (15) were females and 68% (32) were males. Adult returns from the nonacclimated group were composed of 28% (9) females and 72% (23) males.

A total of 14, 2-ocean (brood year 1991), adult steelhead returned to Idaho during the reporting period (Table 9). Of those, five were from the acclimated group and nine were from the nonacclimated group. All of the 2-ocean adults that returned from the acclimated group were females. Adult returns from the nonacclimated group were composed of 44% (4) females and 56% (5) males. Complete results of this study will be reported under a separate title.

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Table 1. Number of unique interrogations of PIT-tagged steelhead smolts, by PIT tag file, at Lower Granite Dam (GRJ), Little Goose Dam (GOJ), Lower Monumental Dam (LMJ), and McNary Dam (MCJ) for the 1995 migration period. A total of 5,953 PIT-tagged steelhead were released from Hagerman National, Magic Valley, and Clearwater fish hatcheries between April 8 and April 26, 1995. Median travel time is to Lower Granite Dam, Washington.

				Number/Percent Interrogated										Median
		Rel.	No.	GRJ		GOJ		LMJ		MCJ		TOTAL		Travel Time
File Name	Release Site	Date	Rel.	No.	%	No.	%	No.	%	No.	%	No.	%	(Days)
Magic Valley Steelhead Hatchery														
Pahsimeroi A-stock														
Salmon R. at Bruno														
DAC95063.14E	Salmon R.	4/17	95	45	46.9	6	6.3	1	1.0	1	1.0	53	55.2	19.5
DAC95063.15E	Salmon R.	4/18	96	39	40.6	6	6.3	10	10.4	0	0.0	55	57.3	19.6
DAC95063.16E	Salmon R.	4/19	97	43	44.8	9	9.4	3	3.1	1	1.0	56	58.3	20.8
Total			**288**									**164**	**56.9**	
Salmon R. at McNabb Point														
DAC95063.13W	Salmon R.	4/10	100	52	52.0	7	7.0	3	3.0	0	0.0	62	62.0	24.5
DAC95063.14W	Salmon R.	4/11	99	43	44.3	12	12.4	7	7.2	0	0.0	62	63.9	27.3
DAC95063.15W	Salmon R.	4/11	100	33	33.0	8	8.0	7	7.0	1	1.0	49	49.0	28.7
Total			**299**									**173**	**58.3**	
Lemhi R.														
DAC95062.11W	Lemhi R.	4/8	100	56	56.0	10	10.0	7	7.0	0	0.0	73	73.0	30.4
DAC95062.12E	Lemhi R.	4/15	99	53	53.5	13	13.1	7	7.1	1	1.0	74	74.8	22.4
DAC95063.13E	Lemhi R.	4/15	98	55	56.1	5	5.1	8	8.2	0	0.0	68	69.4	23.2
Total			**297**									**215**	**72.4**	
North Fork Salmon R.														
DAC95062.10E	N.F. Salmon R.	4/13	150	81	54.0	11	7.3	10	6.7	0	0.0	102	68.0	19.7
DAC95062.11E	N.F. Salmon R.	4/14	153	97	63.4	10	6.5	5	3.3	2	1.3	114	74.5	24.7
Total			**303**									**216**	**71.3**	
Dworshak B-stock														
Slate Cr. (upper Salmon R.)														
DAC95061.2E	Salmon R.	4/18	100	49	49.0	11	11.0	5	5.0	1	1.0	66	66.0	19.3
DAC95062.7E	Salmon R.	4/12	99	31	31.3	13	13.1	3	3.0	0	0.0	47	47.5	28.0
DAC95061.1E	Salmon R.	4/20	99	44	44.4	6	6.1	9	9.1	1	1.0	60	60.6	19.7
Total			**298**									**173**	**58.1**	

Table 1. (Continued.)

File Name	Release Site	Rel. Date	No. Rel.	Number/Percent Interrogated GRJ No.	GRJ %	GOJ No.	GOJ %	LMJ No.	LMJ %	MCJ No.	MCJ %	TOTAL No.	TOTAL %	Median Travel Time (Days)
Hazard Cr.														
DAC95062.4W	Hazard Cr.	4/26	100	60	60.0	10	10.0	2	2.0	0	0.0	72	72.0	11.4
DAC95062.5W	Hazard Cr.	4/26	100	45	45.0	16	16.0	7	7.0	1	1.0	69	69.0	12.1
DAC95062.9E	Hazard Cr.	4/26	100	48	48.0	16	16.0	11	11.0	0	0.0	75	75.0	13.0
Total			**300**									**216**	**72.0**	
East Fork Salmon R.														
DAC95062.4E	Herd Cr.	4/21	100	46	46.0	9	9.0	8	8.0	0	0.0	63	63.0	17.1
DAC95061.1W	Herd Cr.	4/21	100	37	37.0	5	5.0	3	3.0	0	0.0	45	45.0	21.8
DAC95061.3E	Herd Cr.	4/21	100	38	38.0	15	15.0	7	7.0	2	2.0	62	62.0	19.9
Total			**300**									**170**	**56.7**	
East Fork B-stock														
East Fork Salmon R.														
DAC95062.10W	E.F. Salmon R.	4/25	301	125	41.5	38	12.6	20	6.6	5	1.7	188	62.5	15.3
Magic Valley Fish Hatchery Grand Total			**2,386**									**1,515**	**63.5**	
Hagerman National Fish Hatchery														
Acclimation Study, Treatment Group (Acclimated)														
Sawtooth A-stock														
DAC95064.H51	Sawtooth Hatchery	4/21	300	123	41.0	34	11.3	18	6.0	2	0.7	177	59.0	22.4
Pahsimeroi A-stock														
DAC95065.H66	Sawtooth Hatchery	4/21	300	131	43.7	35	11.7	19	6.3	1	0.3	186	62.0	23.0
Acclimation Study, Control Group (Nonacclimated)														
Sawtooth A-stock														
DAC95064.H48	Sawtooth Hatchery	4/17	300	135	45.0	21	7.0	24	8.0	3	1.0	183	61.0	17.7
Salmon R.														
DAC95064.H54	Torrey's Hole	4/19	300	112	37.3	26	8.7	15	5.0	2	0.7	155	51.7	21.4

Table 1. (Continued.)

File Name	Release Site	Rel. Date	No. Rel.	Number/Percent Interrogated GRJ No.	GRJ %	GOJ No.	GOJ %	LMJ No.	LMJ %	MCJ No.	MCJ %	TOTAL No.	TOTAL %	Median Travel Time (Days)
Little Salmon R.														
DAC95064.H63	Warm Springs	4/10	300	180	60.0	31	10.3	22	7.3	0	0.0	233	77.7	28.5
DAC95065.100	Warm Springs	4/18	197	102	51.8	15	7.6	16	8.1	1	0.5	134	68.0	16.4
DAC95096.101	Warm Springs	4/18	106	56	52.8	10	9.4	9	8.5	1	0.9	76	71.7	20.7
Total			**603**									**443**	**73.5**	
Hagerman National Fish Hatchery Grand Total			**1,803**									**1,144**	**63.4**	
Clearwater Fish Hatchery														
Clear Cr.														
DAC95058.10A	Clear Cr.	4/18	299	140	46.8	19	6.4	16	5.4	1	0.3	176		58.9
DAC95058.C6E	Clear Cr.	4/18	300	191	63.7	26	8.7	16	5.3	1	0.3	234		78.0
DAC95058.C6W	Clear Cr.	4/18	300	180	60.0	16	5.3	19	6.3	5	1.7	220		73.3
Total			899									630		70.1
Cottonwood Cr. (S. F. Clearwater R.)														
DAC95059.C4E	S.F. Clearwater R.	4/20	145	97	66.9	10	6.9	7	4.8	3	2.1	117		80.7
DAC95059.C3E	S.F. Clearwater R.	4/20	145	97	66.9	9	6.2	9	6.2	1	0.7	116		80.0
Total			290									233		80.3
Stites–M.P. 18 (S. F. Clearwater R.)														
DAC95059.C4W	S.F. Clearwater R.	4/19	145	86	59.3	17	11.7	15	10.3	0	0.0	118		81.4
DAC95059.C5W	S.F. Clearwater R.	4/19	145	72	49.7	12	8.3	13	9.0	2	1.4	99		68.3
Total			**290**									**217**		**74.8**
Red House Hole (S. F. Clearwater R.)														
DAC95059.C5E	S.F. Clearwater R.	4/20	95	60	63.2	9	9.5	6	6.3	0	0.0	75		79.0
DAC95059.C7E	S.F. Clearwater R.	4/19	95	59	62.1	8	8.4	7	7.4	0	0.0	74		77.9
DAC95059.C7W	S.F. Clearwater R.	4/19	95	47	49.5	7	7.4	4	4.2	0	0.0	58		61.1
Total			**285**									**207**		**72.6**
Clearwater Fish Hatchery Grand Total			**1,764**									**1,287**		**73.0**

Table 2. Snake River mean daily in-flow (thousand cubic feet per second) at Lower Granite Dam, Washington, from 1977-1995 during the Peak and Extended chinook salmon smolt migration periods as defined by Petrosky (1991).

Year	Peak (04/15–05/05)	Extended (04/20–05/30)
1977	39.1	40.2
1978	85.4	95.8
1979	64.8	89.9
1980	87.5	102.9
1981	76.2	86.7
1982	116.8	131.6
1983	85.6	111.3
1984	121.9	146.1
1985	86.9	87.2
1986	93.4	105.7
1987	59.0	62.4
1988	55.1	64.2
1989	93.6	87.2
1990	63.8	66.4
1991	44.0	70.5
1992	54.2	57.3
1993	69.8	114.0
1994	64.1	77.5
1995	72.9	74.1

Table 3. Estimated number of LSRCP steelhead that returned to Idaho in 1994-1995. The adult return in 1994-1995 included fish from three age classes. Steelhead were reared at Hagerman National, Magic Valley, and Clearwater fish hatcheries. These estimates were prepared by the Idaho Department of Fish and Game's Harvest Monitoring Project and only include steelhead harvested in Idaho's sport fisheries, steelhead that returned to hatchery racks, and steelhead that escaped to spawn naturally. These are minimum estimates and do not include all tributary and mainstem strays or in-river prespawning mortalities.

		Estimated Return		
Hatchery	**Brood Year**	**3-ocean**	**2-ocean**	**1-ocean**
Hagerman	1990	0	---	---
Hagerman	1991	---	634	---
Hagerman	1992	---	---	2,693
Hagerman Subtotal			**3,327**	
Magic Valley	1990	204	---	---
Magic Valley	1991	---	1,712	---
Magic Valley	1992	---	---	1,635
Magic Valley Subtotal			**3,551**	
Clearwater	1992	---	---	0
Clearwater Subtotal			**0**	
GRAND TOTAL			**6,878**	

Table 4. Steelhead smolts released from Magic Valley and Hagerman National fish hatcheries that contributed to the 1994-1995 Idaho steelhead return. The number of steelhead smolts released and the estimated number of adults that returned were compared to facility design production targets and projected adult return goals.

Releases Contributing to 1994-1995 Adult Returns					
Brood Year	**Fish Hatchery**	**Number Released**	**Design Target**	**Percent of Target**	**1994-95 Adult Returns**
1990	Magic Valley	2,062,000	2,000,000	103%	204
1990	Hagerman NFH	1,436,910	2,400,000	60%	0
	Total	**3,498,910**	**4,400,000**	**80%**	**204**
1991	Magic Valley	2,160,400	2,000,000	108%	1,712
1991	Hagerman National	1,448,155	2,400,000	60%	634
	Total	**3,608,555**	**4,400,000**	**82%**	**2,346**
1992	Magic Valley	1,925,700	2,000,000	96%	1,635
1992	Hagerman National	1,487,842	2,400,000	62%	2,693
1992	Clearwater	637,743	1,750,000	36%	0
	Total	**4,051,285**	**6,150,000**	**66%**	**4,328**
	Mean annual release as percent of target:			**76%**	
			Total adult return:[a]		**6,878**
			Adult return goal:		**39,260**
			Percent of goal achieved:		**18%**

[a] Estimate includes only steelhead harvested in Idaho's sport fisheries, steelhead that returned to hatchery racks, and off-site escapement. These are minimum estimates and do not include all tributary and mainstem strays or in-river prespawning mortalities.

Table 5. Summary of the 1995 A-strain steelhead return to the Sawtooth Fish Hatchery weir. The fish return included fish of hatchery and natural origin. Hatchery aging criteria, based on length, were used to determine age[a]. ND indicates "No Data" (i.e., data were not available).

Hatchery Origin (n = 528)										
	Males n = 377					Females n = 151				
Age[b]	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	353	ND	ND	0	0	97	ND	ND	0	ND
2-ocean	24	ND	ND	0	0	54	ND	ND	0	ND
Total	**377**	**87[c]**	**290**	**0**	**0**	**151**	**7[d]**	**143**	**0**	**1[e]**

Natural Origin (n = 4)										
	Males n = 2					Females n = 2				
Age[b]	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	0	0	0	0	0	2	2	0	0	0
2-ocean	2	2	0	0	0	0	0	0	0	0
Total	**2**	**2[d]**	**0**	**0**	**0**	**2**	**2[d]**	**0**	**0**	**0**

Total number trapped	**532**	**Green egg number**	**630,300**	
Trapping period	**3/15-5/10/95**	**Eyed egg number**	**543,100**	**(86.2% eye–up)**

[a] Fish were aged using the following aging criteria:

RUN	SEX	LENGTH	AGE (years in ocean)
A	Male	≤68 cm	1-ocean
A	Male	>68 cm	2-ocean
A	Female	≤65 cm	1-ocean
A	Female	>65 cm	2-ocean

[b] Hatchery fish classified as 1-ocean were released in 1993, brood year 1992. Hatchery fish classified as 2-ocean were released in 1992, brood year 1991.

[c] Three fish were released above the weir, 12 fish were released into Beaver Creek, and 72 fish were released below the weir.

[d] Fish were released above the weir.

[e] The fish was spawned out.

Table 6. Summary of the 1995 B-strain steelhead return to the East Fork Salmon River weir. The fish return included fish of hatchery and natural origin. Hatchery aging criteria, based on length, were used to determine age[a]. ND indicates "No Data" (i.e., data were not available).

Hatchery Origin (n = 36)										
	Males n = 21					Females n = 15				
Age[b]	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	9	ND	ND	0	0	0	0	ND	0	0
2-, 3-ocean	12	ND	ND	0	0	15	0	ND	0	0
Total	**21**	**4[c]**	**1 7**	**0**	**0**	**15**	**0**	**14**	**0**	**1[d]**

Natural Origin (n = 2)										
	Males n = 0					Females n = 2				
Age[b]	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	0	0	0	0	0	2	2	0	0	0
2-, 3-ocean	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**2**	**2[c]**	**0**	**0**	**0**

Total number trapped	**38**	**Green egg number**	**53,370**	
Trapping period	**4/4-5/1/95**	**Eyed egg number**	**40,170**	**(75.3% eye-up)**

[a] Fish were aged using the following aging criteria:

RUN	SEX	LENGTH	AGE (years in ocean)
B	Male	≤73 cm	1-ocean
B	Male	>73 cm	2- or 3-ocean
B	Female	≤65 cm	1-ocean
B	Female	>65 cm	2- or 3-ocean

[b] Hatchery fish classified as 1-ocean were released in 1993, brood year 1992. Hatchery fish classified as 2- or 3-ocean were released in 1992 and 1991, respectively, (brood years 1991 and 1990, respectively).

[c] Fish were released above the weir.

[d] The fish was spawned-out.

Table 7. Smolt-to-adult return rates of coded-wire-tagged steelhead smolts released from Hagerman National and Magic Valley fish hatcheries. The number of adults was estimated by Ball (1998) and only include steelhead harvested in Idaho's sport fisheries, steelhead that returned to hatchery racks, and steelhead that escaped to spawn naturally. These are minimum estimates and do not include all tributary and mainstem strays or in-river prespawning mortalities.

HATCHERY	STOCK	BROOD	RELEASE SITE	NUMBER CWT	NUMBER ADULTS	SAR (%)
Hagerman	DWOR B	1990	Hazard Creek	58,521	86	0.15
Hagerman	PAH A	1991	Sawtooth Weir (Acclimated)	55,632	47	0.08
Hagerman	PAH A	1991	Sawtooth Weir (Nonacclimated) (Regular Size Smolts)	45,646	38	0.08
Hagerman	PAH A	1991	Sawtooth Weir (Large Size Smolts)	53,463	313	0.59
Magic	E.F. B	1990	E.F. Salmon R.	66,383	105	0.16
Magic	DWOR B	1990	E.F. Salmon R.	61,827	345	0.56
Magic	OX A	1991	Warm Springs	21,091	16	0.08
Magic	OX A	1991	Hazard Creek	43,827	122	0.28

Table 8. Total number[a] of steelhead recovered with coded-wire tags designating them as either large size[b] or regular size[c]. Recovered fish were released as smolts at the Sawtooth Fish Hatchery weir in 1991 (brood year 1990) and 1992 (brood year 1991).

Size Group	Brood Year	Number CWT	Return Composition 1-Ocean Male	1-Ocean Female	2-Ocean Male	2-Ocean Female	Total Return
Large	1990	53,245	66	36	12	15	129
Regular	1990	61,431	41	36	5	11	93
Large	1991	53,463	5	5	5	11	26
Regular	1991	45,646	4	2	5	4	15

[a] Includes all Idaho fishery harvest returns, Idaho hatchery returns, and tributary stray recoveries
[b] Large size steelhead averaged 241 mm (3.0 fish per pound) at time of release
[c] Regular size steelhead averaged 221 mm (4.5 fish per pound) at time of release

Table 9. Total number[a] of steelhead recovered with CWTs designating them as either acclimated (ACC) or nonacclimated (NON-ACC). Recovered fish were released as smolts at the Sawtooth Fish Hatchery weir in 1992 (brood year 1991) and 1993 (brood year 1992). ND indicates "No Data" (i.e., data were not available).

Exp. Group	Brood Year	Number CWT	Return Composition				Total Return
			1-Ocean		2-Ocean		
			Male	Female	Male	Female	
ACC	1991	55,632	8	0	0	5	13
NON-ACC	1991	45,646	4	2	5	4	15
ACC	1992	65,865	32	15	ND	ND	47[2]
NON-ACC	1992	59,846	23	9	ND	ND	32[2]

[a] Includes all Idaho fishery harvest returns, Idaho hatchery returns, and tributary stray recoveries
[b] Includes 1-ocean (brood year 1992) returns only

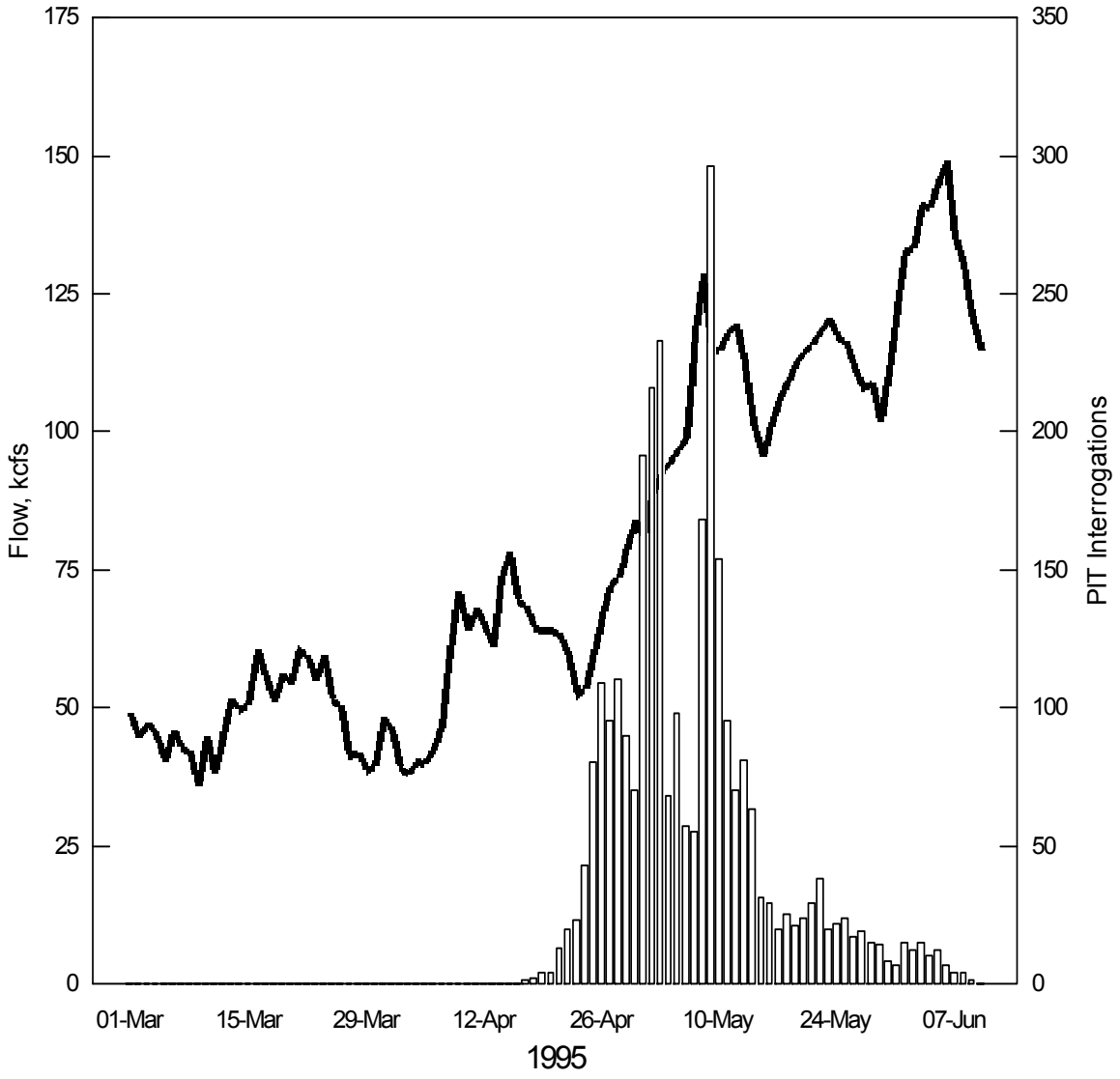

Figure 1. Number of unique PIT tag interrogations of LSRCP juvenile steelhead at Lower Granite Dam, Washington, plotted with the average daily in-flow of the Snake River at Lower Granite Dam in 1995. A total of 5,953 PIT-tagged steelhead smolts were released from Hagerman National, Magic Valley, and Clearwater fish hatcheries between April 8 and April 26, 1995. Fifty percent (2,988) of the PIT-tagged fish were interrogated at Lower Granite Dam. Data for 36 fish fall outside of this date range and are not shown.

APPENDICES

Appendix A. Table 1. Release and return data for Clearwater Fish Hatchery summer steelhead, brood year 1994. An asterisk (*) indicates that the fish were counted in the NON-CWT category for the specified release site. A number enclosed in parentheses indicates that the fish were counted in an above category. Return data were tabulated (if available) for each CWT code and NON-CWT group by release site. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Clearwater Fish Hatchery **Brood Year: 1994**

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Clear Creek 4/18/95	10A	59,929	DWOR B	CWT/LV/AD CWT/LV/AD/PIT *LV/AD	102025	56,573 (299) 3,356	9.2	Fin Eros. Study CH. RW	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
Clear Creek 4/18/96	6W	63,037	DWOR B	CWT/LV/AD CWT/LV/AD/PIT *LV/AD *AD/PIT	102026	62,835 (288) 190 12	7.2	Fin Eros. Study SH. RW	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
Clear Creek 4/18/95	6E	60,746	DWOR B	CWT/LV/AD CWT/LV/AD/PIT *LV/AD *AD/PIT	102027	58,316 (298) 2,428 2	6.5	Fin Eros. Study SH. RW W/BAF	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
Clear Creek 4/18/95			DWOR B	NON-CWT (Includes all *)		5,988		Production	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
			TOTAL CWT RELEASE			177,724							
			TOTAL NON-CWT RELEASE			5,988							
			TOTAL SITE RELEASE			183,712		**TOTAL RETURN:**		ND	ND	ND	ND
Red River 10/27/94	V1	44,991	DWOR B	CWT/No Mark *No Mark	104505	22,056 682	52	Supplementation Alan Byrne Prjct.	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
Red River 10/27/94	V1	44,991	DWOR B	CWT/No Mark *No Mark	104506	21,585 668	52	Supplementation Alan Byrne Prjct.	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND

Appendix A. Table 1. (Continued.)

Release Site/Date	RW NO.	RW Total	Identifying Marks: Stock ID	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Red River 10/27/94	V2	4,790	DWOR B	*PIT/No Mark		4,790	52	Production Alan Byrne Prjct.	1 2	ND ND	ND ND	ND ND	ND
Red River 10/27/94			DWOR B	NON-CWT (Includes all *)		6,140		Production	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
			TOTAL CWT RELEASE			43,641							
			TOTAL NON-CWT RELEASE			6,140							
			TOTAL SITE RELEASE			49,781		**TOTAL RETURN:**		ND	ND	ND	ND
SF Clearwater R. Red House Hole 4/19-20/95	5E	59,858	DWOR B	CWT/LV/AD CWT/LV/AD/PIT *LV/AD	104621	42,595 (95) 17,263	6	Contribution	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
SF Clearwater R. Red House Hole 4/19-20/95	7E 7W	119,698	DWOR B	*AD AD/PIT		119,698 (190)							
SF Clearwater R. Cottonwood Creek 4/20/95	3E	45,919	DWOR B	CWT/LV/AD CWT/LV/AD/PIT *LV/AD	104727	21,242 (145) 24,677	7.2	Contribution	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
SF Clearwater R. Cottonwood Creek 4/20/95	4E	59,483	DWOR B	*AD AD/PIT		59,483 (145)	6.3						
SF Clearwater R. Milept. 18 above Stites 4/19/95	5W	59,870	DWOR B	CWT/LV/AD CWT/LV/AD/PIT *LV/AD	104728	21,350 (145) 38,483	7.7	Contribution	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
SF Clearwater R. Milept. 18 above Stites 4/19/95	4W	59,459	DWOR B	*AD AD/PIT		59,459 (145)	6.3						

Appendix A. Table 1. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
SF Clearwater R.			DWOR B	NON-CWT		319,063		Production	1	ND	ND	ND	ND
Includes all release dates that				(Includes all *)					2	ND	ND	ND	
have Mark Type indicated by *									3	ND	ND	ND	
			TOTAL CWT RELEASE			85,187							
			TOTAL NON-CWT RELEASE			319,063							
			TOTAL SITE RELEASE			404,250							
TOTAL DWOR B-STOCK CWT RELEASE						306,552							
TOTAL DWOR B-STOCK NON-CWT RELEASE						331,191							
TOTAL DWOR B-STOCK RELEASE						637,743							
TOTAL CWT RELEASE FOR CLEARWATER FISH HATCHERY						306,552							
TOTAL NON-CWT RELEASE FOR CLEARWATER FISH HATCHERY						331,191							
TOTAL CLEARWATER FISH HATCHERY RELEASE						637,743							
NUMBER OF PIT TAGS RELEASED						6,554							
NUMBER OF SMOLTS RELEASED						587,962							

Appendix A. Table 2. Release and return data for Hagerman National Fish Hatchery summer steelhead, brood year 1994. An asterisk (*) indicates that the fish were counted in the NON-CWT category for the specified release site. A number enclosed in parentheses indicates that the fish were counted in an above category. Return data were tabulated (if available) for each CWT code and NON-CWT group by release site. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Hagerman National Fish Hatchery **Brood Year: 1994**

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Sawtooth Rack 4/17/95	48	25,482	SAW A	CWT/AD CWT/AD/PIT *AD	104507	19,923 (100) 5,559	4.6	Contribution Direct Release (Acc. Control)	1 2	ND ND	ND ND	ND ND	ND
Sawtooth Rack 4/17/95	49	25,420	SAW A	CWT/AD CWT/AD/PIT *AD	104508	19,689 (100) 5,731	4.8	Contribution Direct Release (Acc. Control)	1 2	ND ND	ND ND	ND ND	ND
Sawtooth Rack 4/17/95	50	25,733	SAW A	CWT/AD CWT/AD/PIT *AD	104509	19,900 (100) 5,833	4.9	Contribution Direct Release (Acc. Control)	1 2	ND ND	ND ND	ND ND	ND
Sawtooth Rack 4/17/95	48-59		SAW A	**NON-CWT (Includes all *)		17,123							
Sawtooth Rack 4/21/95	51	26,154	SAW A	CWT/AD CWT/AD/PIT *AD	104510	20,321 (100) 78,658	5.6	Contribution Acclimated 2 wks. (Acc. Exp.)	1 2	ND ND	ND ND	ND ND	ND
Sawtooth Rack 4/21/95	52	99,031	SAW A	CWT/AD CWT/AD/PIT *AD	104511	20,331 (100) 78,700	5.3	Contribution Acclimated 2 wks. (Acc. Exp.)	1 2	ND ND	ND ND	ND ND	ND
Sawtooth Rack 4/21/95	53	100,379	SAW A	CWT/AD CWT/AD/PIT *AD	104512	20,591 (100) 79,788	5.8	Contribution Acclimated 2 wks. (Acc. Exp.)	1 2	ND ND	ND ND	ND ND	ND

Appendix A. Table 2. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Sawtooth Rack 4/21/95	37-53		SAW A	**NON-CWT (Includes all *)		237,146							
Sawtooth Rack 4/17-21/95	66-7	114,741	PAH A	CWT/AD CWT/AD/PIT *AD	104518	23,576 (75) 91,165	6.0	Contribution Acclimated 2 wks. (Acc. Exp.)	1 2	ND ND	ND ND	ND ND	ND
Sawtooth Rack 4/17-21/95	67-9	107,047	PAH A	CWT/AD CWT/AD/PIT *AD	104519	21,995 (150) 85,052	6.0	Contribution Acclimated 2 wks. (Acc. Exp.)	1 2	ND ND	ND ND	ND ND	ND
Sawtooth Rack 4/17-21/95	68-9	88,194	PAH A	CWT/AD CWT/AD/PIT *AD	104520	18,109 (75) 70,085	5.8	Contribution Acclimated 2 wks. (Acc. Exp.)	1 2	ND ND	ND ND	ND ND	ND
Sawtooth Rack 4/17-21/95	45-80		PAH A	**NON-CWT (Includes all *)		246,302							
Sawtooth Rack			SAW A PAH A	NON-CWT (Includes all **)		500,571		Production	1 2	ND ND	ND ND	ND ND	ND
			TOTAL CWT RELEASE			184,435							
			TOTAL NON-CWT RELEASE			500,571							
			TOTAL SITE RELEASE			685,006		**TOTAL RETURN:**		ND	ND	ND	ND
Salmon River Torrey's Hole 4/19/95	54	21,229	SAW A	CWT/AD CWT/AD/PIT *AD	104513	20,287 (100) 942	6.2	Contribution Acclimated	1 2	ND ND	ND ND	ND ND	ND
Salmon River Torrey's Hole 4/19/95	55	22,973	SAW A	CWT/AD CWT/AD/PIT *AD	104514	21,887 (100) 1,086	6.2	Contribution Acclimated	1 2	ND ND	ND ND	ND ND	ND
Salmon River Torrey's Hole 4/19/95	56	19,965	SAW A	CWT/AD CWT/AD/PIT *AD	104515	19,085 (100) 880	5.7	Contribution Acclimated	1 2	ND ND	ND ND	ND ND	ND

Appendix A. Table 2. (Continued)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Salmon River Torrey's Hole 4/19/95	41-58		SAW A	NON-CWT (Includes all *)		2,908		Production	1 2	ND ND	ND ND	ND ND	ND
			TOTAL CWT RELEASE			61,259							
			TOTAL NON-CWT RELEASE			2,908							
			TOTAL SITE RELEASE			64,167		**TOTAL RETURN:**		ND	ND	ND	ND
Warm Springs Bridge Little Salmon River 4/10/95	63-4	43,805	PAH A	CWT/AD CWT/AD/PIT *AD	104516	21,481 (200) 22,324	5.2	Contribution Trucked Direct	1 2	ND ND	ND ND	ND ND	ND
Warm Springs Bridge Little Salmon River 4/12/95	64-5	42,517	PAH A	CWT/AD CWT/AD/PIT *AD	104517	20,853 (100) 21,664	5.4	Contribution Trucked Direct	1 2	ND ND	ND ND	ND ND	ND
Warm Springs Bridge Little Salmon River 4/10-12/95	63-81		PAH A	**NON-CWT (Includes all *)		43,988							
Warm Springs Bridge Little Salmon River 4/18/95	100-1	170,919	OXBOW A	CWT/AD CWT/AD/PIT *AD	104521	22,923 (197) 147,996	4.0	Contribution Trucked Direct	1 2	ND ND	ND ND	ND ND	ND
Warm Springs Bridge Little Salmon River 4/18/95	100-1	143,263	OXBOW A	CWT/AD CWT/AD/PIT *AD	104522	19,236 (106) 124,027	3.9	Contribution Trucked Direct	1 2	ND ND	ND ND	ND ND	ND
Warm Springs Bridge Little Salmon River 4/10-12/95	7-102		OXBOW A	**NON-CWT (Includes all *)		272,023							
Warm Springs Bridge Little Salmon River				NON-CWT (Includes all **)		316,011		Production	1 2	ND ND	ND ND	ND ND	ND
			TOTAL CWT RELEASE			84,493							
			TOTAL NON-CWT RELEASE			316,011							
			TOTAL SITE RELEASE			400,504		**TOTAL RETURN:**		ND	ND	ND	ND

Appendix A. Table 2. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
TOTAL SAW A-STOCK CWT RELEASE						182,014							
TOTAL SAW A-STOCK NON-CWT RELEASE						257,177							
TOTAL SAW A-STOCK RELEASE						439,191							
TOTAL PAH A-STOCK CWT RELEASE						106,014							
TOTAL PAH A-STOCK NON-CWT RELEASE						290,290							
TOTAL PAH A-TOCK RELEASE						396,304							
TOTAL OXBOW A-STOCK CWT RELEASE						42,159							
TOTAL OXBOW A-STOCK NON-CWT RELEASE						272,023							
TOTAL OXBOW A-STOCK RELEASE						314,182							
TOTAL CWT RELEASE HAGERMAN NATIONAL FISH HATCHERY						330,187							
TOTAL NON-CWT RELEASE FOR HAGERMAN NATIONAL FISH HATCHERY						819,490							
TOTAL HAGERMAN NATIONAL FISH HATCHERY						1,149,677							
NUMBER OF PIT TAGS RELEASED						1,803							

Appendix A. Table 3. Release and return data for Magic Valley Fish Hatchery summer steelhead, brood year 1994. An asterisk (*) indicates that the fish were counted in the NON-CWT category for the specified release site. A number enclosed in parentheses indicates that the fish were counted in an above category. Return data were tabulated (if available) for each CWT code and NON-CWT group by release site. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Magic Valley Fish Hatchery Brood Year: 1994

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Slate Creek U. Salmon R. 4/20-22/95	1E	51,250	DWOR B	CWT/AD CWT/AD/PIT *AD AD/PIT	102001	20,328 (46) 30,922 (53)	4.1	Contribution	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
Slate Creek U. Salmon R. 4/19-20/95	2E	52,675	DWOR B	CWT/AD CWT/AD/PIT *AD AD/PIT	102002	20,983 (42) 31,692 (58)	4.3	Contribution	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
Slate Creek U. Salmon R. 4/12-14/95	7E	56,120	DWOR B	CWT/AD CWT/AD/PIT *AD AD/PIT	102005	20,391 (40) 35,729 (59)	4.6	Contribution	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
Slate Creek U. Salmon R. 4/14-17/95	8E	55,890	DWOR B	*AD		55,890	4.6						
Slate Creek U. Salmon R. 4/12-22/95			DWOR B	NON-CWT (Includes all *)		154,233		Production	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
			TOTAL CWT RELEASE			61,702							
			TOTAL NON-CWT RELEASE			154,233							
			TOTAL SITE RELEASE			215,935		**TOTAL RETURN:**		ND	ND	ND	ND

Appendix A. Table 3. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
E.Fk. Salmon River 4/22/95	3E	48,750	DWOR B	CWT/AD	102003	21,337	3.9	Contribution	1	ND	ND	ND	ND
				CWT/AD/PIT		(38)			2	ND	ND	ND	
				*AD		27,413			3	ND	ND	ND	
				AD/PIT		(62)							
E.Fk. Salmon River 4/21/95	4E	55,575	DWOR B	CWT/AD	102004	19,328	4.5	Contribution	1	ND	ND	ND	ND
				CWT/AD/PIT		(26)			2	ND	ND	ND	
				*AD		36,247			3	ND	ND	ND	
				AD/PIT		(74)							
E.Fk. Salmon River 4/22-24/95	1W	49,815	DWOR B	CWT/AD	102012	20,414	4.1	Contribution	1	ND	ND	ND	ND
				CWT/AD/PIT		(44)			2	ND	ND	ND	
				*AD		29,401			3	ND	ND	ND	
				AD/PIT		(56)							
E.Fk. Salmon River 4/25-26/95	10W	65,000	E. FK. B	CWT/AD	102024	61,767	5	Contribution	1	ND	ND	ND	ND
				CWT/AD/PIT		(289)			2	ND	ND	ND	
				**AD		3,233			3	ND	ND	ND	
				AD/PIT		(12)							
E.Fk. Salmon River 4/25-26/95			E. FK. B	NON-CWT (Includes all **)		3,233	5	Production	1	ND	ND	ND	ND
									2	ND	ND	ND	
									3	ND	ND	ND	
E.Fk. Salmon River 4/22-24/95	5-6E 2-8W		DWOR B	*AD		269,565							
E.Fk. Salmon River 4/19-25/95			DWOR B	NON-CWT (Includes all *)		362,626		Production	1	ND	ND	ND	ND
									2	ND	ND	ND	
									3	ND	ND	ND	
			TOTAL CWT RELEASE			122,846							
			TOTAL NON-CWT RELEASE			365,859							
			TOTAL SITE RELEASE			488,705		**TOTAL RETURN:**		ND	ND	ND	ND
Hazard Creek Little Salmon River 4/29-5/1/95	9E	57,200	DWOR B	CWT/AD	102006	19,430	4.4	Contribution	1	ND	ND	ND	ND
				CWT/AD/PIT		(37)			2	ND	ND	ND	
				*AD		37,770			3	ND	ND	ND	
				AD/PIT		(63)							

Appendix A. Table 3. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Hazard Creek Little Salmon River 4/26/95	4W	55,350	DWOR B	CWT/AD CWT/AD/PIT *AD AD/PIT	102013	19,546 (26) 35,804 (74)	4.5	Contribution	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
Hazard Creek Little Salmon River 4/26-27/95	5W	58,880	DWOR B	CWT/AD CWT/AD/PIT *AD AD/PIT	102014	19,998 (34) 38,882 (66)	4.6	Contribution	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
Hazard Creek Little Salmon River 4/27-29/95	6W 7W 9W	171,250	DWOR B	*AD		171,250							
Hazard Creek Little Salmon River 4/26-5/1/95			DWOR B	NON-CWT (Includes all *)		283,706		Production	1 2 3	ND ND ND	ND ND ND	ND ND ND	ND
			TOTAL CWT RELEASE			58,974							
			TOTAL NON-CWT RELEASE			283,706							
			TOTAL SITE RELEASE			342,680		**TOTAL RETURN:**		ND	ND	ND	ND
Lemhi River 4/14-15/95	12E	49,530	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	102007	20,537 (34) 28,993 (65)	3.9	Contribution	1 2	ND ND	ND ND	ND ND	ND
Lemhi River 4/15-17/96	13E	47,940	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	102008	19,340 (40) 28,600 (58)	4.7	Contribution	1 2	ND ND	ND ND	ND ND	ND
Lemhi River 4/8/95	11W	51,620	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	102015	20,488 (48) 31,172 (52)	4.1	Contribution	1 2	ND ND	ND ND	ND ND	ND
Lemhi River 4/8-10/95	12W	49,140	PAH A	*AD		49,140	3.9						

Appendix A. Table 3. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Lemhi River 4/8-17/95			PAH A	NON-CWT (Includes all *)		137,905		Production	1 2	ND ND	ND ND	ND ND	ND
			TOTAL CWT RELEASE			60,365							
			TOTAL NON-CWT RELEASE			137,905							
			TOTAL SITE RELEASE			198,270		**TOTAL RETURN:**		ND	ND	ND	ND
Salmon River At Bruno Br. 4/17-18/95	14E	53,410	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	102009	17,501 (35) 35,909 (60)	4.9	Contribution	1 2	ND ND	ND ND	ND ND	ND
Salmon River At Bruno Br. 4/18/95	15E	54,000	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	102010	17,947 (46) 36,053 (50)	5	Contribution	1 2	ND ND	ND ND	ND ND	ND
Salmon River At Bruno Br. 4/18-19/95	16E	55,460	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	102011	19,159 (36) 36,301 (61)	4.7	Contribution	1 2	ND ND	ND ND	ND ND	ND
Salmon River At Bruno Br. 4/17-19/95			PAH A	NON-CWT (Includes all *)		108,263		Production	1 2	ND ND	ND ND	ND ND	ND
			TOTAL CWT RELEASE			54,607							
			TOTAL NON-CWT RELEASE			108,263							
			TOTAL SITE RELEASE			162,870		**TOTAL RETURN:**		ND	ND	ND	ND
McNabb Pt. Salmon River 4/10/95	13W	49,280	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	102016	20,625 (52) 28,655 (48)	4.4	Contribution	1 2	ND ND	ND ND	ND ND	ND
McNabb Pt. Salmon River 4/11-12/95	14W	53,095	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	102017	20,776 (39) 32,319 (60)	4.1	Contribution	1 2	ND ND	ND ND	ND ND	ND

Appendix A. Table 3. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
McNabb Pt. Salmon River 4/10-11/95	15W	52,670	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	102018	21,144 (52) 31,526 (48)	4.6	Contribution	1 2	ND ND	ND ND	ND ND	ND
McNabb Pt. Salmon River 4/12/95	16W	52,800	PAH A	*AD		52,800	4.4						
McNabb Pt. Salmon River 4/10-12/95			PAH A	NON-CWT (Includes all *)		145,300		Production	1 2	ND ND	ND ND	ND ND	ND
			TOTAL CWT RELEASE			62,545							
			TOTAL NON-CWT RELEASE			145,300							
			TOTAL SITE RELEASE			207,845		**TOTAL RETURN:**					
N.Fk. Salmon River 4/13/95	10E	63,940	PAH A	CWT/AD CWT/AD/PIT CWT/No Mark/PIT *AD AD/PIT	104660	31,186 (52) (3) 32,754 (95)	4.6	Contribution	1 2	ND ND	ND ND	ND ND	ND
N.Fk. Salmon River 4/13-14/95	11E	51,110	PAH A	CWT/AD CWT/AD/PIT *AD AD/PIT	104661	30,811 (112) 20,299 (41)	3.8	Contribution	1 2	ND ND	ND ND	ND ND	ND
N.Fk. Salmon River 4/13-14/95			PAH A	NON-CWT (Includes all *)		53,053		Production	1 2	ND ND	ND ND	ND ND	ND
			TOTAL CWT RELEASE			61,997							
			TOTAL NON-CWT RELEASE			53,053							
			TOTAL SITE RELEASE			115,050		**TOTAL RETURN:**		ND	ND	ND	ND
TOTAL DWOR B-STOCK CWT RELEASE						181,755							
TOTAL DWOR B-STOCK NON-CWT RELEASE						800,565							
TOTAL DWOR B-STOCK RELEASE						982,320							

Appendix A. Table 3. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
TOTAL E. FK. B-STOCK CWT RELEASE						61,767							
TOTAL E. FK. B-STOCK NON-CWT RELEASE						3,233							
TOTAL E. FK. B-STOCK RELEASE						65,000							
TOTAL PAH A-STOCK CWT RELEASE						239,514							
TOTAL PAH A-STOCK NON-CWT RELEASE						444,521							
TOTAL PAH A-STOCK RELEASE						684,035							
TOTAL CWT RELEASE FOR MAGIC VALLEY FISH HATCHERY						483,036							
TOTAL NON-CWT RELEASE FOR MAGIC VALLEY FISH HATCHERY						1,248,319							
TOTAL MAGIC VALLEY FISH HATCHERY RELEASE						1,731,355							
NUMBER OF PIT TAGS RELEASED						2,386							

Appendix B. Table 1. Release and return data for Clearwater Fish Hatchery summer steelhead, brood year 1992. An asterisk (*) indicates that the fish were counted in the NON-CWT category. Return data were tabulated (if available) for each CWT code and NON-CWT group by release site. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Clearwater Fish Hatchery **Brood Year: 1992**

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
S.F. Clearwater R. Milept. 18 above Stites 4/13/93	9	43,050	DWOR B	CWT/LV/AD *LV/AD *AD *AD/PIT	102947	25,673 155 17,122 100	10.1	Contribution Shade Struct.	1 2 3	0 ND ND	0 ND ND	0	0.00
S.F. Clearwater R. Milept. 18 above Stites 4/13-14/93	11	45,180	DWOR B	CWT/LV/AD *LV/AD *AD *AD/PIT	104937	22,003 66 23,011 100	8.9	Contribution Shade–Control	1 2 3	0 ND ND	0 ND ND	0	0.00
S.F. Clearwater R. Milept. 18 above Stites 4/13/93	10	38,350	DWOR B	CWT/LV/AD *LV/AD *AD *AD/PIT	104938	21,340 64 16,846 100	9.1	Contribution Shade Struct.	1 2 3	0 ND ND	0 ND ND	0	0.00
S.F. Clearwater R. Milept. 18 above Stites 4/12-13/93	ND	199,720	DWOR B	*AD		199,720	9.3	Production					
S.F. Clearwater R. Milept. 18 above Stites			DWOR B	NON-CWT (includes all *)		257,284	ND	Production (Includes all *)	1 2 3	0 ND ND	0 ND ND	0	0.00
			TOTAL CWT RELEASE			69,016							
			TOTAL NON-CWT RELEASE			257,284							
			TOTAL SITE RELEASE			326,300		**TOTAL RETURN:**		0	0	0	0.00

TOTAL CWT RELEASE FOR CLEARWATER FISH HATCHERY	69,016
TOTAL NON-CWT RELEASE FOR CLEARWATER FISH HATCHERY	257,284
TOTAL CLEARWATER FISH HATCHERY RELEASE	326,300
NUMBER OF PIT TAGS RELEASED	300

Appendix C. Table 1. Release and return data for Hagerman National Fish Hatchery summer steelhead, brood year 1990. An asterisk (*) indicates that the fish were counted in the NON-CWT category for the specified release site. A number enclosed in parentheses indicates that the fish were counted in an above category. Return data were tabulated (if available) for each CWT code and NON-CWT group by release site. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Hagerman National Fish Hatchery **Brood Year: 1990**

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Sawtooth Weir 4/13/91	71-74	22,652	SAW A	CWT/LV/AD	104333	21,050	2.9	Size at release	1	45	24	132	0.63
				*LV/AD		213		Large size group	2	60	3		
				*AD		1,389							
Sawtooth Weir 4/13/91	71-74	21,580	SAW A	CWT/LV/AD	104334	20,129	2.9	Size at release	1	55	27	113	0.56
				*LV/AD		122		Large size group	2	26	5		
				*AD		1,329							
Sawtooth Weir 4/15/91	74-75	12,864	SAW A	CWT/LV/AD	104335	12,066	2.6	Size at release	1	32	12	67	0.56
				*AD		798		Large size group	2	19	4		
Sawtooth Weir 4/13/91	76-78	326,644	SAW A	CWT/LV/AD	104336	21,775	4.5	Size at release	1	55	13	83	0.38
				*LV/AD		131		Regular size group	2	12	3		
				*AD		304,738							
Sawtooth Weir 4/13/91	76-78	305,400	SAW A	CWT/LV/AD	104337	20,318	4.5	Size at release	1	49	15	96	0.47
				*LV/AD		143		Regular size group	2	31	1		
				*AD		284,939							
Sawtooth Weir 4/16/91	78-80	290,660	SAW A	CWT/LV/AD	104338	19,338	4.4	Size at release	1	52	19	104	0.54
				*LV/AD		156		Regular size group	2	29	4		
				*AD		271,166							
Sawtooth Weir 4/13-16/91	71-80	985	SAW A	*AD/PIT		985	ND		1	2	1	4	0.41
						(489)		Size at release (Lg)	2	1	0		
						(496)		Size at release (Reg)					

Appendix C. Table 1. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Sawtooth Weir Includes all release dates that have Mark Type indicated by *		865,124	SAW A	NON-CWT (Includes all *)		865,124	2.9	Production (Includes all *)	1 2	2,173 1,013	682 132	4,000	0.46
Sawtooth Weir 10/5-17/90	ND	ND	SAW A	*AD		304,907	39.6	Fall release	1 2	0 0	0 0	0	0.00
			TOTAL CWT RELEASE			114,676							
			TOTAL NON-CWT RELEASE			1,170,031							
			TOTAL SITE RELEASE			1,284,707		**TOTAL RETURN:**		3,654	945	4,599	0.36
Little Salmon R. At Hazard Cr. 4/22/91	19- 21	154,937	DWOR B	CWT/LV/AD *LV/AD *AD	104332	19,831 384 134,722	4.4	Contribution	1 2 3	6 15 0	6 15 0	42	0.21
Little Salmon R. At Hazard Cr. 4/19/91	51	154,379	DWOR B	CWT/LV/AD *LV/AD *AD	104339	19,813 241 134,325	4.4	Contribution	1 2 3	4 5 0	4 5 0	18	0.09
Little Salmon R. At Hazard Cr. 4/17/91	38	147,794	DWOR B	CWT/LV/AD *LV/AD *AD	104340	18,877 554 128,363	4.5	Contribution	1 2 3	3 10 0	3 10 0	26	0.14
Little Salmon R. At Hazard Cr. 4/24/91	44 45	424	DWOR B	AD/PIT		424	4.5	Contribution	1 2 3	0 0 0	0 0 0	0	ND
Little Salmon R. At Hazard Cr.	ND		DWOR B	AD		120,323	22.5	Excess Fingerling Plant	1 2	27 ND	27 ND	54	0.04
Little Salmon R. at Hazard Cr. Includes all release dates that Have Mark Type indicated by*			DWOR B	NON-CWT (Includes all *)		398,589	4-4.5	Production (Includes all *)	1 2 3	88 204 0	88 204 0	584	0.15
			TOTAL CWT RELEASE			58,521							
			TOTAL NON-CWT RELEASE			518,912							
			TOTAL SITE RELEASE			577,433		**TOTAL RETURN:**		362	362	724	0.13

Appendix C. Table 1. (Continued.)

Release Site/Date	RW NO.	RW Total	Identifying Marks: Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
E. Fk Salmon R. (above trap) 9/5-7/90	ND		UNK. B	AD		540,733	32.8	Excess Fingerling Plant	1 2 3	29 ND ND	4 ND ND	33	0.01
			TOTAL CWT RELEASE			0							
			TOTAL NON-CWT RELEASE			540,733							
			TOTAL SITE RELEASE			540,733		**TOTAL RETURN:**		29	4	33	0.01
TOTAL SAW A-STOCK CWT RELEASE						114,676							
TOTAL SAW A-STOCK NON-CWT RELEASE						1,170,031							
TOTAL SAW A-STOCK RELEASE						1,284,707							
TOTAL DWOR B-STOCK CWT RELEASE						58,521							
TOTAL DWOR B-STOCK NON-CWT RELEASE						518,912							
TOTAL DWOR B-STOCK RELEASE						577,433		**RETURN IS COMPLETE**					
TOTAL UNK B-STOCK CWT RELEASE						0							
TOTAL UNK B-STOCK NON-CWT RELEASE						540,733							
TOTAL UNK B-STOCK RELEASE						540,733							
TOTAL CWT RELEASE FOR HAGERMAN NATIONAL FISH HATCHERY						173,197							
TOTAL NON-CWT RELEASE FOR HAGERMAN NATIONAL FISH HATCHERY						2,229,676		**RETURN**					
TOTAL HAGERMAN NATIONAL FISH HATCHERY RELEASE						2,402,873		**GRAND TOTAL:** (includes fingerling and fry releases)		4,045	1,311	5,356	0.22
NUMBER OF PIT TAGS RELEASED						1,409							
NUMBER OF SMOLTS RELEASED						1,436,910		**RETURN** (smolt releases only)		3,989	1,280	5,269	0.37

Appendix C. Table 2. Release and return data for Hagerman National Fish Hatchery summer steelhead, brood year 1991. An asterisk (*) indicates that the fish were counted in the NON-CWT category for the specified release site. A double asterisk (**) indicates that the fish were included in one of the above Mark Type categories. Return data were tabulated (if available) for each CWT code and NON-CWT group. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Hagerman National Fish Hatchery **Brood Year: 1991**

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
E. Fk. Salmon R. weir	ND	ND	DWOR B	*AD		302,335	ND	Production	1	292	14	324	0.11
4/6-9/92									2	12	6		
			TOTAL CWT RELEASE			0			3	ND	ND		
			TOTAL NON-CWT RELEASE			302,335							
			TOTAL SITE RELEASE			302,335		**TOTAL RETURN:**		304	20	324	0.11
Little Salmon R.	ND	ND	DWOR B	CWT/LV/AD	104407	18,386	ND	Contribution	1	0	0	0	0.00
At Warm Springs Bridge				*LV/AD		316			2	0	0		
4/16,20/92				*AD		81,230			3	ND	ND		
Little Salmon R.	ND	ND	DWOR B	CWT/LV/AD	104408	19,450	ND	Contribution	1	0	0	0	0.00
At Warm Springs Bridge				*LV/AD		546			2	0	0		
4/14/92				*AD		85,930			3	ND	ND		
Little Salmon R.	ND	ND	DWOR B	CWT/LV/AD	104409	17,390	ND	Contribution	1	0	0	0	0.00
At Warm Springs Bridge				*LV/AD		457			2	0	0		
4/16/92				*AD		76,829			3	ND	ND		
Little Salmon R.	ND	ND	DWOR B	NON-CWT		245,308	ND	Production	1	0	0	0	0.00
At Warm Springs Bridge				(Includes all *)					2	0	0		
4/14,16,20,22/92									3	ND	ND		
			TOTAL CWT RELEASE			55,226							
			TOTAL NON-CWT RELEASE			245,308							
			TOTAL SITE RELEASE			300,534		**TOTAL RETURN:**		0	0	0	0.00

Appendix C. Table 2. (Continued.)

Release Site/Date	RW NO.	RW Total	Identifying Marks: Stock ID	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Pahsimeroi Ponds 3/25-27/92	61-70	223,406	PAH A	*AD		223,406	ND	Production	1 2	270 169	125 76	640	0.29
			TOTAL CWT RELEASE			0							
			TOTAL NON-CWT RELEASE			223,406							
			TOTAL SITE RELEASE			223,406		**TOTAL RETURN:**		439	201	640	0.29
Sawtooth Weir 3/13-21/92	71,84		PAH A	CWT/LV/AD *LV/AD *AD	104421	17,955 152 149,183	4.8	Acclimation Experimental Group Trucked to SAWT on 3/17/92	1 2	26 2	1 0	29	0.16
Sawtooth Weir 3/13-21/92	72,85		PAH A	CWT/LV/AD *LV/AD *AD	104422	18,336 515 152,349	5	Acclimation Experimental Group trucked to SAWT on 3/18/92	1 2	0 6	2 0	8	0.04
Sawtooth Weir 3/13-21/92	81,85		PAH A	CWT/LV/AD *LV/AD *AD	104423	19,341 810 160,699	5.1	Acclimation Experimental Group trucked to SAWT on 3/19/92	1 2	4 4	2 0	10	0.05
Sawtooth Weir 4/10-13/92	78-80	47,895	PAH A	CWT/LV/AD *LV/AD *AD	104007	45,646 1,850 399	4.5	Size Exp.–Regular & Acc. Control group trucked to & released At SAWT on 4/10/92	1 2	5 25	4 4	38	0.08
Sawtooth Weir 4/10-13/92	73-77	54,645	PAH A	CWT/LV/AD *LV/AD *AD	101530	53,463 573 609	2.8	Size Exp.–Large trucked to & released At SAWT on 4/10/92	1 2	265 44	2 2	313	0.59
Sawtooth Weir 4/10-13/92			PAH A	NON-CWT (Includes all *)		467,139			1 2	162 224	91 60	537	0.11
Sawtooth Weir 4/10-21/92			PAH A	**PIT		1,479		Includes all PIT tags for acc. & size exp's. See study design for complete details.	1 2	1 ND	0 ND	1	0.07
			TOTAL CWT RELEASE			154,741							
			TOTAL NON-CWT RELEASE			467,139							
			TOTAL SITE RELEASE			621,880		**TOTAL RETURN:**		768	168	936	0.15

Appendix C. Table 2. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
TOTAL PAH A-STOCK CWT RELEASE						154,741							
TOTAL PAH A-STOCK NON-CWT RELEASE						690,545							
TOTAL PAH A-STOCK RELEASE						845,286		**RETURN IS INCOMPLETE**					
TOTAL DWOR B-STOCK CWT RELEASE						55,226							
TOTAL DWOR B-STOCK NON-CWT RELEASE						547,643							
TOTAL DWOR B-STOCK RELEASE						602,869							
TOTAL CWT RELEASE FOR HAGERMAN NATIONAL FISH HATCHERY						209,967							
TOTAL NON-CWT RELEASE FOR HAGERMAN NATIONAL FISH HATCHERY						1,238,188		**RETURN**					
TOTAL HAGERMAN NATIONAL FISH HATCHERY RELEASE						1,448,155		**GRAND TOTAL:**		1,511	389	1,900	0.13
NUMBER OF PIT TAGS RELEASED						1,479							

Appendix C. Table 3. Release and return data for Hagerman National Fish Hatchery summer steelhead, brood year 1992. An asterisk (*) indicates that the fish were counted in the NON-CWT category for the specified release site. A number enclosed in parentheses indicates that the fish were counted in an above category. Return data were tabulated (if available) for each CWT code and NON-CWT group by release site. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Hagerman National Fish Hatchery **Brood Year: 1992**

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Hammer Cr. Lower Salmon R. 4/28/93	95	67,581	SAW A	CWT/LV/AD *LV/AD *AD	104946	17,142 173 50,266	4.8	Production	1 2	0 ND	0 ND	0	0.00
Hammer Cr. Lower Salmon R. 4/28/93	96	77,389	SAW A	CWT/LV/AD *LV/AD *AD	104947	19,655 99 57,635	4.8	Production	1 2	0 ND	0 ND	0	0.00
Hammer Cr. Lower Salmon R. 4/28/93	97	66,036	SAW A	CWT/LV/AD *LV/AD *AD	104948	16,662 515 48,859	4.8	Production	1 2	0 ND	0 ND	0	0.00
Hammer Cr. Lower Salmon R. Includes all release dates that Have Mark Type indicated by *		157,547	SAW A	NON-CWT (includes all *)		157,547	ND	Production (Includes all *)	1 2	0 ND	0 ND	0	0.00
				TOTAL CWT RELEASE		53,459							
				TOTAL NON-CWT RELEASE		157,547							
				TOTAL SITE RELEASE		211,006		**TOTAL RETURN:**		0	0	0	0.00
Sawtooth weir 4/9/93	74	19,229	PAH A	CWT/LV/AD CWT/LV/AD/PIT *AD	104949 104949	19,196 (100) 33	4.9	Acclimation Control Group trucked to SAWT on 4/9/93	1 2	4 ND	5 ND	9	0.05
Sawtooth weir 4/9/93	73 74	18,251	PAH A	CWT/LV/AD CWT/LV/AD/PIT *LV/AD *AD	104950 104950	18,168 (100) 51 32	4.7	Acclimation Control Group trucked to SAWT on 4/9/93	1 2	0 ND	5 ND	5	0.03

Appendix C. Table 3. (Continued)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Sawtooth weir 4/9/93	72 73	17,899	PAH A	CWT/LV/AD CWT/LV/AD/PIT *LV/AD *AD	104951 104951	17,818 (100) 50 31	4.9	Acclimation Control Group trucked to SAWT on 4/9/93	1 2	12 ND	9 ND	21	0.12
Sawtooth weir 4/9/93	72	4,571	PAH A	CWT/LV/AD *AD	105034	4,563 8	4.9	Acclimation Control Group trucked to SAWT on 4/9/93	1 2	14 ND	3 ND	17	0.37
Sawtooth weir	69	207,592	PAH A	CWT/LV/AD *LV/AD *AD *PIT	105020	20,262 246 187,084 (100)	5.1	Acclimation Experimental Group trucked to SAWT on 3/18-24/93	1 2	23 ND	3 ND	26	0.13
Sawtooth weir 4/8/93	69 70	191,791	PAH A	CWT/LV/AD *LV/AD *AD	105021	18,726 164 172,901	4.8	Acclimation Experimental Group trucked to SAWT on 3/18-24/93	1 2	23 ND	7 ND	30	0.16
Sawtooth weir 4/8/93	70 71	186,674	PAH A	CWT/LV/AD *LV/AD *AD *PIT	105022	18,235 71 168,368 (100)	5	Acclimation Experimental Group trucked to SAWT on 3/18-24/93	1 2	40 ND	10 ND	50	0.27
Sawtooth weir 4/8/93	71	83,513	PAH A	CWT/LV/AD *AD *PIT	105010	8,161 75,352 (100)	5.1	Acclimation Experimental Group trucked to SAWT on 3/18-24/93	1 2	12 ND	2 ND	14	0.17
Sawtooth weir 4/19 & 22/93	85-91	140,626	SAW A	*AD		(140,626)	ND	Production					
Sawtooth Weir Includes all release dates that have Mark Type indicated by *			SAW A PAH A	NON-CWT (Includes all *)	140,626 463,765	604,391	ND	Production (Includes all *)	1 2	1,689 ND	402 ND	2,091	0.35
			TOTAL CWT RELEASE			125,129							
			TOTAL NON-CWT RELEASE			604,391							
			TOTAL SITE RELEASE			729,520		**TOTAL RETURN:**		1,817	446	2,263	0.31

Appendix C. Table 3. (Continued)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Hazard Cr. L. Salmon R. 4/12/93	45	219,946	SAW A	CWT/LV/AD *LV/AD *AD	105017	20,045 340 199,561	5	Production	1 2	20 ND	20 ND	40	0.20
Hazard Cr. L. Salmon R. 4/12/93	45 46	112,344	SAW A	CWT/LV/AD *LV/AD *AD	105018	10,245 103 101,996	5	Production	1 2	0 ND	0 ND	0	0.00
Hazard Cr. L. Salmon R. 4/12/93	46	215,026	SAW A	CWT/LV/AD *LV/AD *AD	105019	19,621 65 195,340	4.8	Production	1 2	0 ND	0 ND	0	0.00
Hazard Cr. L. Salmon R. Includes all release dates that have Mark Type indicated by *			SAW A	NON-CWT (Includes all *)		497,405	ND	Production (Includes all *)	1 2	195 ND	195 ND	390	0.08
			TOTAL CWT RELEASE			49,911							
			TOTAL NON-CWT RELEASE			497,405							
			TOTAL SITE RELEASE			547,316		**TOTAL RETURN:**		215	215	430	0.08
TOTAL SAW A-STOCK CWT RELEASE						103,370							
TOTAL SAW A-STOCK NON-CWT RELEASE						795,578							
TOTAL SAW A-STOCK RELEASE						898,948		**RETURN IS INCOMPLETE**					
TOTAL PAH A-STOCK CWT RELEASE						125,129							
TOTAL PAH A-STOCK NON-CWT RELEASE						463,765							
TOTAL PAH A-STOCK RELEASE						588,894							
TOTAL CWT RELEASE FOR HAGERMAN NATIONAL FISH HATCHERY						228,499							
TOTAL NON-CWT RELEASE FOR HAGERMAN NATIONAL FISH HATCHERY						1,259,343		**RETURN**					
TOTAL HAGERMAN NATIONAL FISH HATCHERY RELEASE						1,487,842		**GRAND TOTAL:**		2,032	661	2,693	0.18
NUMBER OF PIT TAGS RELEASED						600							

Appendix D. Table 1. Release and return data for Magic Valley Fish Hatchery summer steelhead, brood year 1990. An asterisk (*) indicates that the fish were counted in the NON-CWT category for the specified release site. Return data were tabulated (if available) for each CWT code and NON-CWT group. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Magic Valley Fish Hatchery **Brood Year: 1990**

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
E . F. Salmon R.	3	209,893	DWOR B	CWT/LV/AD	104314	20,498	4.1	Contribution	1	200	1	222	1.08
4/13/91				*LV/AD		2,027			2	10	0		
				*AD		187,368			3	11	0		
E . F. Salmon R.	2	214,470	DWOR B	CWT/LV/AD	104315	21,017	4.1	Contribution	1	5	1	70	0.33
4/13/91				*LV/AD		2,079			2	64	0		
				*AD		191,374			3	0	0		
E . F. Salmon R.	3	207,987	DWOR B	CWT/LV/AD	104316	20,312	4.1	Contribution	1	0	0	53	0.26
4/13/91				*LV/AD		2,008			2	53	0		
				*AD		185,667			3	0	0		
E . F. Salmon R.	15	113,570	E. FK. B.	CWT/LV/AD	104320	22,525	4.3	Contribution	1	4	3	24	0.11
4/15-16/91				*LV/AD		530			2	16	1		
				*AD		90,515			3	0	0		
E . F. Salmon R.	14	112,609	E. FK. B.	CWT/LV/AD	104321	22,483	4.3	Contribution	1	0	3	10	0.04
4/15-16/91				*LV/AD		529			2	6	1		
				*AD		89,597			3	0	0		
E . F. Salmon R.	15	107,771	E. FK. B.	CWT/LV/AD	104322	21,375	4.3	Contribution	1	0	1	71	0.33
4/15-16/91				*LV/AD		503			2	51	1		
				*AD		85,893			3	18	0		
E . F. Salmon R.	2	1,500	DWOR B	AD/PIT		1,500		Migration survival	1	0	0	0	0.00
4/13, 15-16/91	14		E. FK. B.					and timing	2	0	0		
									3	ND	ND		

Appendix D. Table 1. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
E . F. Salmon R.			DWOR B	NON-CWT	570,5232	838,090		Production	1	337	46	2,071	0.25
Includes all release dates that			E FK B	(Includes all *)	267,567			(Includes all *)	2	1,466	47		
Have Mark Type indicated by *									3	175	0		
			TOTAL CWT RELEASE			128,210							
			TOTAL NON-CWT RELEASE			839,590							
			TOTAL SITE RELEASE			967,800		**TOTAL RETURN:**		2,416	105	2,521	0.26
Hazard Cr.	8	102,541	PAH A	CWT/LV/AD	104317	21,809	3.6	Contribution	1	4	4	50	0.23
L. Salmon R.				*LV/AD		744			2	21	21		
4/26/91				*AD		79,988							
Hazard Cr.	7	105,146	PAH A	CWT/LV/AD	104318	22,704	3.6	Contribution	1	21	21	116	0.51
L. Salmon R.	8			*LV/AD		774			2	37	37		
4/26/91				*AD		81,668							
Hazard Cr.	8	101,013	PAH A	CWT/LV/AD	104319	21,484	3.6	Contribution	1	16	16	58	0.27
L. Salmon R.				*LV/AD		733			2	13	13		
4/26/91				*AD		78,796							
Hazard Cr.	7	1,600	PAH A	AD/PIT		1,600	3.6	Migration survival	1	1	1	5	0.31
L. Salmon R.	8							and timing	2	2	1		
4/26/91													
Hazard Cr.			PAH A	NON-CWT		242,703	3.6	Production	1	151	151	824	0.34
L. Salmon R.				(Includes all *)				(Includes all *)	2	261	261		
Includes all release dates that													
Have Mark Type indicated by *													
			TOTAL CWT RELEASE			65,997							
			TOTAL NON-CWT RELEASE			244,303							
			TOTAL SITE RELEASE			310,300		**TOTAL RETURN:**		527	526	1053	0.34
Sawtooth Weir	ND	ND	PAH A	*AD		364,700	3.9	Production	1	916	288	1,686	0.46
4/9-19/91									2	427	55		
			TOTAL CWT RELEASE			0							
			TOTAL NON-CWT RELEASE			364,700							
			TOTAL SITE RELEASE			364,700		**TOTAL RETURN:**		1,343	343	1,686	0.46

Appendix D. Table 1. (Continued.)

Release Site/Date	RW NO.	RW Total	Identifying Marks: Stock ID	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Pahsimeroi R. at hatchery	ND	ND	PAH A	*AD		135,100	3.8	Production	1	445	411	1,159	0.86
4/18-19/91									2	205	98		
			TOTAL CWT RELEASE			0							
			TOTAL NON-CWT RELEASE			135,100							
			TOTAL SITE RELEASE			135,100		**TOTAL RETURN:**		650	509	1,159	0.86
Salmon R. at Shoup Br.	ND	ND	PAH A	*AD		97,800	3.9	Production	1	214	6	409	0.42
4/20-21/91									2	132	57		
			TOTAL CWT RELEASE			0							
			TOTAL NON-CWT RELEASE			97,800							
			TOTAL SITE RELEASE			97,800		**TOTAL RETURN:**		346	63	409	0.42
Hammer Cr.	ND	ND	PAH A	*AD		186,300	3.9	Production	1	116	116	632	0.34
4/22-25/91									2	200	200		
			TOTAL CWT RELEASE			0							
			TOTAL NON-CWT RELEASE			186,300							
			TOTAL SITE RELEASE			186,300		**TOTAL RETURN:**		316	316	632	0.34
TOTAL PAH A-STOCK CWT RELEASE						65,997							
TOTAL PAH A-STOCK NON-CWT RELEASE						1,028,203							
TOTAL PAH A-STOCK RELEASE						1,094,200		**RETURN IS COMPLETE**					
TOTAL DWOR B-STOCK CWT RELEASE						61,827							
TOTAL DWOR B-STOCK NON-CWT RELEASE						571,273							
TOTAL DWOR B-STOCK RELEASE						633,100							
TOTAL E FK B-STOCK CWT RELEASE						66,383							
TOTAL E FK B-STOCK NON-CWT RELEASE						268,317							
TOTAL E FK B-STOCK RELEASE						334,700		**RETURN GRAND TOTAL:**		5,598	1,862	7,460	0.36
TOTAL CWT RELEASE FOR MAGIC VALLEY FISH HATCHERY						194,207							
TOTAL NON-CWT RELEASE FOR MAGIC VALLEY FISH HATCHERY						1,867,793							
TOTAL MAGIC VALLEY FISH HATCHERY RELEASE						2,062,000							
NUMBER OF PIT TAGS RELEASED						3,100							

Appendix D. Table 2. Release and return data for Magic Valley Fish Hatchery summer steelhead, brood year 1991. An asterisk (*) indicates that the fish were counted in the NON-CWT category for the specified release site. A double asterisk (**) indicates that the fish were included in one of the above Mark Type categories. A number enclosed in parentheses indicates that the fish were counted in an above category. Return data were tabulated (if available) for each CWT code and NON-CWT group. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Magic Valley Fish Hatchery Brood Year: 1991

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
E.F. Salmon R. 4/6-14/92	9	480,368	DWOR B	CWT/LV/AD	104418	21,771	4.4	Contribution	1	0	0	3	0.01
				*AD		458,597		Rep. #1	2	3	0		
									3	ND	ND		
E.F. Salmon R. 4/6-14/92	9		DWOR B	CWT/LV/AD/PIT	104418	(100)							
E.F. Salmon R. 4/6-14/92	11	476,032	DWOR B	CWT/LV/AD	104419	21,568	4.5	Contribution	1	0	0	3	0.01
				*LV/AD		143		Rep. #2	2	2	1		
				*AD		454,321			3	ND	ND		
E.F. Salmon R. 4/6-14/92	11		DWOR B	CWT/LV/AD/PIT	104419	(100)							
E.F. Salmon R. 4/6-14/92	14	84,800	E FK B	CWT/LV/AD	104420	20,821	6.1	Contribution	1	20	1	27	0.13
				*AD		63,979		Rep. #3	2	4	2		
									3	ND	ND		
E.F. Salmon R. 4/6-14/92	14		E FK B	CWT/LV/AD/PIT	104420	(100)							
E.F. Salmon R. 4/6-14/92			DWOR B E FK B	NON-CWT (Includes all *)		977,040		Production (Includes all *)	1 2 3	0 37 ND	0 18 ND	55	0.01
Includes all release dates that have Mark Type indicated by *													
			TOTAL CWT RELEASE			64,160							
			TOTAL NON-CWT RELEASE			977,040							
			TOTAL SITE RELEASE			1,041,200		**TOTAL RETURN:**		66	22	88	0.01

Appendix D. Table 2. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Hazard Cr. L. Salmon R. 4/17-25/92	4	284,715	OXBOW A	CWT/LV/AD *AD	104416	22,223 262,492	3.9	Contribution Rep. #2	1 2	5 45	5 45	100	0.45
Hazard Cr. L. Salmon R. 4/17-25/92	4		OXBOW A	CWT/LV/AD/PIT	104416	(100)							
Hazard Cr. L. Salmon R. 4/17-25/92	7	281,085	OXBOW A	CWT/LV/AD *AD	104417	21,604 259,481	4	Contribution Rep. #3	1 2	8 3	8 3	22	0.10
Hazard Cr. L. Salmon R. 4/17-25/92	7		OXBOW A	CWT/LV/AD/PIT	104417	(100)							
L. Salmon R. at Warm Springs Bridge 4/14-21/92	1	436100	OXBOW A	CWT/LV/AD *AD	104415	21,091 415,009	4.3	Contribution Rep. #1	1 2	5 3	5 3	16	0.08
L. Salmon R. at Warm Springs Bridge 4/14-21/92	1		OXBOW A	CWT/LV/AD/PIT	104415	(100)							
L. Salmon R. 4/14-25/92 Includes all release dates that have Mark Type indicated by *	1		OXBOW A	NON-CWT (Includes all *)		936,982	4.3	Production (Includes all *)	1 2	261 736	261 736	1,994	0.21
			TOTAL CWT RELEASE			64,918							
			TOTAL NON-CWT RELEASE			936,982							
			TOTAL SITE RELEASE			1,001,900		**TOTAL RETURN:**		1,066	1,066	2,132	0.21
Sawtooth Weir Salmon R. 3/23-24/92	ND	ND	PAH A	*AD		117,300	5	Production	1 2	40 55	23 16	134	0.11
			TOTAL CWT RELEASE			0							
			TOTAL NON-CWT RELEASE			117,300							
			TOTAL SITE RELEASE			117,300		**TOTAL RETURN:**		95	39	134	0.11

Appendix D. Table 2. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Identifying Marks: Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
TOTAL PAH A-STOCK CWT RELEASE						0							
TOTAL PAH A-STOCK NON-CWT RELEASE						117,300							
TOTAL PAH A-STOCK RELEASE						117,300							
TOTAL OXBOW A-STOCK CWT RELEASE						64,918							
TOTAL OXBOW A-STOCK NON-CWT RELEASE						936,982							
TOTAL OXBOW A-STOCK RELEASE						1,001,900		**RETURN IS INCOMPLETE**					
TOTAL DWOR B-STOCK CWT RELEASE						43,339							
TOTAL DWOR B-STOCK NON-CWT RELEASE						913,061							
TOTAL DWOR B-STOCK RELEASE						956,400							
TOTAL E FK B-STOCK CWT RELEASE						20,821							
TOTAL E FK B-STOCK NON-CWT RELEASE						63,979							
TOTAL E FK B-STOCK RELEASE						84,800							
TOTAL CWT RELEASE FOR MAGIC VALLEY FISH HATCHERY						129,078							
TOTAL NON-CWT RELEASE FOR MAGIC VALLEY FISH HATCHERY						2,031,322		**RETURN**					
TOTAL MAGIC VALLEY FISH HATCHERY RELEASE						2,160,400		**GRAND TOTAL:**	1,227		1,127	2,354	0.11
NUMBER OF PIT TAGS RELEASED						600							

Appendix D. Table 3. Release and return data for Magic Valley Fish Hatchery summer steelhead trout, brood year 1992. An asterisk (*) indicates that the fish were counted in the NON-CWT category for the specified release site. Return data were tabulated (if available) for each CWT code and NON-CWT group. Release information is summarized by CWT/NON-CWT and stock at bottom of table. ND indicates data were not available. The harvest component of the return composition includes only fish harvested in Idaho's sport fishery. The hatchery component of the return composition includes fish that returned to hatchery weirs and off-site escapement.

Hatchery: Magic Valley Fish Hatchery **Brood Year: 1992**

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	Identifying Marks: CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
E.F. Salmon R.	1	212,881	DWOR B	CWT/LV/AD	105007	18,924	6.6		1	4	0	4	0.02
4/7-8/93				*LV/AD		792			2	ND	ND		
				*LV/AD/PIT		100			3	ND	ND		
				*AD		193,065							
E.F. Salmon R.	5	178,119	DWOR B	CWT/LV/AD	105005	16,024	6.9	Contribution	1	0	0	0	0.00
4/7-8/93				*LV/AD		62			2	ND	ND		
				*LV/AD/PIT		100			3	ND	ND		
				*AD		161,933							
E.F. Salmon R.	9	106,400	E FK B	CWT/LV/AD	105009	19,128	6.1	Contribution1	1	0	1	1	0.01
4/7-9/93				*LV/AD		1,406			2	ND	ND		
				*LV/AD/PIT		100			3	ND	ND		
				*AD		85,766							
E.F. Salmon R.		443,324	DWOR B	NON-CWT	356,052	443,324	ND	Production	1	40	8	48	0.01
4/7-9/93			E FK B	(Includes all *)	87,272			(Includes all *)	2	ND	ND		
									3	ND	ND		
			TOTAL CWT RELEASE			54,076							
			TOTAL NON-CWT RELEASE			443,324							
			TOTAL SITE RELEASE			497,400		**TOTAL RETURN:**		44	9	53	0.01
Hazard Cr.	4	109,900	DWOR B	CWT/LV/AD	105004	19,358	4.7	Contribution	1	0	0	0	0.00
L. Salmon R.				*LV/AD		1,583			2	ND	ND		
4/19-20/93				*LV/AD/PIT		100			3	ND	ND		
				*AD		88,859							

Appendix D. Table 3. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Hazard Cr. L. Salmon R. 4/16/93	6	126,500	DWOR B	CWT/LV/AD *LV/AD *LV/AD/PIT *AD	105006	19,932 1,016 100 105,452	6.9	Contribution	1 2 3	11 ND ND	11 ND ND	22	0.11
Hazard Cr. L. Salmon R. 4/16-19/93	8	88,900	DWOR B	CWT/LV/AD *LV/AD *LV/AD/PIT *AD	105008	19,909 1,081 100 67,810	6.6	Contribution	1 2 3	0 ND ND	0 ND ND	0	0.00
Hazard Cr. L. Salmon R. 4/16-20/93		266,101	DWOR B	NON-CWT (Includes all *)		266,101	ND	Production (Includes all *)	1 2 3	49 ND ND	49 ND ND	98	0.04
			TOTAL CWT RELEASE			59,199							
			TOTAL NON-CWT RELEASE			266,101							
			TOTAL SITE RELEASE			325,300		**TOTAL RETURN:**		60	60	120	0.04
Lemhi R. 4/14/93	13	66,700	PAH A	CWT/LV/AD *LV/AD *LV/AD/PIT *AD	105013	19,692 1,046 100 45,862	5.7	Contribution	1 2	31 ND	21 ND	52	0.26
Lemhi R. 4/14-16/93	15	131,800	PAH A	CWT/LV/AD CWT/LV/AD *LV/AD *LV/AD/PIT *AD	105015 105012	21,390 22,106 118 100 88,086	5.9	Contribution	1 2	29 ND	19 ND	48	0.11
Lemhi R. 4/14-16/93		135,312	PAH A	NON-CWT (Includes all *)		135,312	ND	Production (Includes all *)	1 2	128 ND	86 ND	214	0.16
			TOTAL CWT RELEASE			63,188							
			TOTAL NON-CWT RELEASE			135,312							
			TOTAL SITE RELEASE			198,500		**TOTAL RETURN:**		188	126	314	0.16
N.F. Salmon R. 4/16-22/93	10	190,500	PAH A	CWT/LV/AD *LV/AD *LV/AD/PIT *AD	104924	65,637 935 200 123,728	5.4	Contribution	1 2	74 ND	49 ND	123	0.19

Appendix D. Table 3. (Continued.)

Release Site/Date	RW NO.	RW Total	Stock ID	Identifying Marks: Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
N.F. Salmon R. 4/16-22/93		124,863	PAH A	NON-CWT (Includes all *)		124,863	ND	Production (Includes all *)	1 2	140 ND	94 ND	234	0.19
			TOTAL CWT RELEASE			65,637							
			TOTAL NON-CWT RELEASE			124,863							
			TOTAL SITE RELEASE			190,500		**TOTAL RETURN:**		214	143	357	0.19
Upper Salmon R. Ellis Bridge 4/12-13/93	16	122,300	PAH A	CWT/LV/AD *LV/AD *LV/AD/PIT *AD	105016	20,361 210 100 101,629	5.5	Contribution	1 2	22 ND	18 ND	40	0.20
Upper Salmon R. Ellis Bridge 4/12/93	14	144,000	PAH A	CWT/LV/AD *LV/AD *LV/AD/PIT *AD	105014	19,778 1,051 100 123,071	5.5	Contribution	1 2	10 ND	8 ND	18	0.09
Upper Salmon R. Ellis Bridge 4/12/93		226,161	PAH A	NON-CWT (Includes all *)		226,161	ND	Production (Includes all *)	1 2	180 ND	147 ND	327	0.14
			TOTAL CWT RELEASE			40,139							
			TOTAL NON-CWT RELEASE			226,161							
			TOTAL SITE RELEASE			266,300		**TOTAL RETURN:**		212	173	385	0.14
Salmon R. at Challis 4/13/93	11	260,600	PAH A	CWT/LV/AD *LV/AD *LV/AD/PIT *AD	105011	19,924 883 100 239,693	5.9	Contribution	1 2	18 ND	12 ND	30	0.15
Salmon R. at Challis 4/13/93		240,676	PAH A	NON-CWT Includes all *		240,676	ND	Production (Includes all *)	1 2	217 ND	145 ND	362	0.15
			TOTAL CWT RELEASE			19,924							
			TOTAL NON-CWT RELEASE			240,676							
			TOTAL SITE RELEASE			260,600		**TOTAL RETURN:**		235	157	392	0.15

Appendix D. Table 3. (Continued.)

Release Site/Date	RW NO.	RW Total	Identifying Marks: Stock ID	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose	Age Ocean	Return Composition: Harvest	Return Composition: Hatchery	Total Returns	SAR (%)
Slate Cr.	2	187,100	DWOR B	*AD		187,100	6.1	Production	1	14	0	14	0.01
Upper Salmon R.	3								2	ND	ND		
4/15/93									3	ND	ND		
			TOTAL CWT RELEASE			0							
			TOTAL NON-CWT RELEASE			187,100							
			TOTAL SITE RELEASE			187,100		**TOTAL RETURN:**		14	0	14	0.01
TOTAL DWOR B STOCK CWT RELEASE						94,147							
TOTAL DWOR B STOCK NON-CWT RELEASE						809,253							
TOTAL DWOR B STOCK RELEASE						903,400							
TOTAL PAH A STOCK CWT RELEASE						188,888							
TOTAL PAH A STOCK NON-CWT RELEASE						727,012							
TOTAL PAH A STOCK RELEASE						915,900		**RETURN IS INCOMPLETE**					
TOTAL E FK B STOCK CWT RELEASE						19,128							
TOTAL E FK B STOCK NON-CWT RELEASE						87,272							
TOTAL E FK B STOCK RELEASE						106,400							
TOTAL CWT RELEASE FOR MAGIC VALLEY FISH HATCHERY						302,163							
TOTAL NON-CWT RELEASE FOR MAGIC VALLEY FISH HATCHERY						1,623,537		**RETURN**					
TOTAL MAGIC VALLEY FH RELEASE						1,925,700		**GRAND TOTAL:**		1,179	841	2,020	0.10
NUMBER OF PIT TAGS RELEASED						1,300							

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