FISHERY RESEARCH

STEELHEAD FISH HATCHERY EVALUATIONS—IDAHO

Project Progress Report

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LSRCP Hatchery Evaluation Studies in Idaho
Part 1: Steelhead Trout

1997 Annual Report

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TABLE OF CONTENTS

Page

Table of Contents, Continued

LIST OF TABLES

List of Tables, Continued

LIST OF FIGURES

LIST OF APPENDICES

List of Appendices, Continued

List of Appendices, Continued

List of Appendices, Continued

Page

ABSTRACT

This annual report summarizes activities associated with Idaho-Lower Snake River Compensation Plan (LSRCP) hatcheries' activities from October 1, 1996 through September 30, 1997. Included in this report are all fall 1996 and spring 1997 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 minimum of 12,481 adult LSRCP steelhead returned to Idaho in the fall of 1996 and spring of 1997. This return total consisted of 6,103 adults estimated to have returned from Hagerman National Fish Hatchery releases, 5,880 adults estimated to have returned from Magic Valley Fish Hatchery releases, and 510 adults from Clearwater Fish Hatchery releases. Though well below the LSRCP goal of 39,260 adult steelhead, this was the largest return year in several years.

In April and May 1997, the Idaho-LSRCP hatcheries released 3,481,136 steelhead smolts. Clearwater Fish Hatchery released 681,272 smolts, of which 75,894 were brood year 1995 Selway stock; the remainder were brood year 1996 Dworshak B-stock. Hagerman National Fish Hatchery released 1,156,663 smolts, all of which were brood year 1996 A-stock. Magic Valley Fish Hatchery released 1,643,201 smolts, of which 877,915 were B-stock while the remaining 765,286 were A-stock.

The out-migration conditions in 1997 were excellent. Total flow and spill at Lower Granite Dam during the peak migration period were at their highest levels observed in the last 20 years. Survival of the 1997 out-migrants under these conditions is expected to be better than average.

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INTRODUCTION

The completion of the four hydroelectric dams on the lower section of the Snake River in Washington reduced the returns of anadromous salmonids to the Snake River drainage. The Water Resources Development Act of 1976 authorized the Lower Snake River Compensation Plan (LSRCP) to mitigate for the loss of fisheries and wild runs to the Upper Snake River basin in Idaho, Washington, and Oregon. Mitigation for anadromous fishery losses included improvements in smolt passage at the dams, as well as the construction and operation of fish hatcheries for stock augmentation in the affected region. The United States Fish and Wildlife Service (USFWS) was authorized to administer the operation and maintenance of 12 hatcheries and 11 satellite facilities in the region.

The LSRCP includes a Hatchery Evaluation Studies (HES) component to monitor and determine the best practices for the operation of LSRCP hatcheries in each state. In Idaho, the Idaho Department of Fish and Game (IDFG) operates McCall Fish Hatchery and the Sawtooth Fish Hatchery for producing chinook salmon *Oncorhynchus tshawytscha*, the Magic Valley Fish Hatchery for producing steelhead *O. mykiss*, and the Clearwater Fish Hatchery for producing both chinook and steelhead. In addition, the USFWS operates the Hagerman National Fish Hatchery for producing steelhead trout and Dworshak National Fish Hatchery for producing chinook salmon as part of the LSRCP mitigation program. The purpose of this report is to summarize the HES activities and hatchery accomplishments for the LSRCP steelhead facilities in Idaho from October 1, 1996 through September 30, 1997.

Hatchery evaluation consists of two major components as laid out in Cooperative Work Agreement established annually between the United States Fish and Wildlife Service (USFWS) and the IDFG. The first of these components is the documentation of the accomplishments of the IDFG-LSRCP program towards meeting specific smolt production and adult return goals. The second component is to identify factors limiting hatchery success at meeting return goals, and to recommend possible improvements as they become apparent. Much of this latter task consists of performing specific experiments related to hatchery success. Results of experiments such as out-migration timing and recoveries of tagged groups are presented in this report.

METHODS

IDFG LSRCP Program Success Documentation

The success of the LSRCP mitigation goals was measured by comparing the estimated adult steelhead returns over Lower Granite dam to the LSRCP goal of 39,260 adults. In addition to this, the individual contributions of Magic Valley, Clearwater, and Hagerman National fish hatcheries towards the overall mitigation goal was estimated using coded-wire tag (CWT) recovery data supplied by the Harvest Monitoring Project (HMP). Results for the mitigation objective are reported under *Results, Adult Returns*.

Hatchery Operations Documentation

Hatchery operations between October 1, 1996 and September 30, 1997 are documented in this report. Any information relevant to the quality of the brood year 1996 smolts released in

1997, or relevant to the early rearing success of brood year 1997, is discussed. Information concerning size at release, health problems, and dietary considerations was obtained through the Hatchery Brood Year and Run reports from each hatchery. Further information on final numbers and mark information was obtained through the release database maintained by the IDFG coded-wire tag recovery laboratory.

Migration Conditions

One of the most important factors that has been found to influence survival to adult of Idaho anadromous salmonids is the condition of the river corridor during the out-migration. Of primary importance for this consideration is the level of flow in the lower reaches of the Snake River, which directly impacts the amount of spill at the four lower Snake River dams. This reporting period covers the adults that return as three, four, or five-year-olds during the fall of 1996 and the spring of 1997. These adults were from the out-migrations in the springs of 1993, 1994, or 1995. Therefore, the flow conditions during the emigration period for these three years, as well as the flow conditions during the emigration period of 1997, are reported. Water flow data for these periods was obtained through the Columbia River Data Access in Real Time (DART) website.

Petrosky (1991) defined two time periods that accounted for most of the chinook migration past Lower Granite Dam. The Peak period of emigration for chinook smolts is from April 15 to May 5, and is the time period when approximately 50% of the yearling chinook salmon reach Lower Granite Dam. The Extended period is from April 20 to May 30, and encompasses the time when most of the wild and natural yearling chinook salmon reach the dam. Hatchery raised steelhead in Idaho are generally released beginning in early to mid April, and all releases are finished by early May. Steelhead emigration generally mimics chinook in timing, so flows during the Peak and Extended period are reported.

Juvenile Migration Timing and Survival

Juvenile out-migration timing and survival was estimated using Passive Integrated Transponder (PIT) tags. Tagging of hatchery steelhead was performed by IDFG fish marking personnel about one month prior to release in order to give the fish a chance to recover and to allow any tagging-induced mortality to manifest itself. Size and mark information was collected at the time of marking and was submitted to (PTAGIS), a computerized database managed by Pacific States Marine Fisheries Commission (PSMFC). Release information for each tag group was obtained from each hatchery and was submitted to PTAGIS.

PIT tags were interrogated at five of the dams on the Snake and Columbia rivers. Arrival timing and tag number were collected for each interrogation site and linked to the release information found in the PTAGIS database. From this information, a minimum smolt survival index and migration timing information was obtained. The survival index is a minimum value for several reasons: 1) A variable number of smolts pass over the spillway at the dams rather than going through the bypass system; 2) mortality occurs after leaving the hatchery but prior to arrival at an interrogation site; 3) mechanical errors allow fish to pass through the interrogation system undetected; 4) a small number of PIT tags fail for mechanical reasons (approximately 2%, R. Kiefer, IDFG, personal communication); 5) a small number of smolts may shed the tag, which often goes undetected, and 6) a small but unknown number of smolts may die prior to

release and not be recovered, although all mortalities recovered by hatcheries are scanned for PIT tags.

Median travel time to Lower Granite Dam was calculated for each of the PIT tag groups released in 1997. Interrogation rates were calculated for each PIT tag group 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.

Adult Returns

The HMP estimated the total number of LSRCP steelhead that returned to Idaho in the 1996-1997 return year (Ball and White 2001). This estimate includes steelhead caught in the sport harvest or at hatchery racks, as well as LSRCP steelhead that escaped to spawn naturally. Ball and White's (2001) estimate should be considered a minimum estimate, since it does not include prespawning mortality or tributary strays. The number of smolts released versus the number of estimated adult returns was used to determine an estimated smolt-to-adult returns (SAR) for each group. These values are compared to LSRCP hatchery targets as a measure of success.

Fisheries Contribution

All steelhead released from the three LSRCP hatcheries had a fin removed prior to release to indicate their hatchery origin. Representative samples destined for most release sites received coded-wire tags according to the marking plan developed by fishery managers and research biologists. All production B-stock steelhead that received a coded-wire tag had the left ventral fin removed to indicate the presence of a tag. Coded-wire tagged A-stock steelhead did not receive an externally visible tag indicator mark. Snouts from tagged steelhead recovered by creel clerks in the fishery were sent to the Idaho Coded-Wire Tag Recovery Lab in Lewiston, Idaho for processing. The HMP derived a harvest estimate by river section for the fishery through a phone survey of angler success (Ball and White 2001). A sample rate was then calculated by river section by month for creel recoveries by dividing the number of harvested fish checked by the estimated harvest in that section. Contribution to the fishery for each LSRCP group was calculated by dividing the number of tags of each code recovered by the sample rate for the river section and month where the tag was recovered.

Hatchery Weirs

Hatchery personnel documented the numbers of steelhead that returned to the East Fork Salmon River, Sawtooth Fish Hatchery, Crooked River and Red River weirs. Clearwater Fish Hatchery operates the latter two weirs. No sub-sampling of recovered adults took place at any of these weirs during the spring of 1997, so no expansion needed to be done on the tag group contribution. Snouts from steelhead containing a coded-wire tag were removed and sent to the Idaho Coded-Wire Tag Recovery Lab in Lewiston, Idaho for processing. The HMP used these data to estimate the total number of LSRCP-reared steelhead that returned to hatchery racks or escaped above the weir to spawn naturally.

Experimentation

Clearwater Fish Hatchery

Cover Experiment This experiment was initiated in 1992 using Dworshak B-stock steelhead from the 1992 brood. The purpose of the experiment was to test the effects of shade structures on juvenile out-migration as well as on adult returns. All adult returns were completed by 1997 and are reported here. See Rhine et al. (1999) for details on the study design as well as the juvenile out-migration results.

Hagerman National Fish Hatchery

Acclimation Experiment This is a continuation of a study initiated in 1992 that compared migration and survival for steelhead that were acclimated at Sawtooth Fish Hatchery for two to three weeks prior to release with steelhead that were released directly at the Sawtooth Fish Hatchery weir. All fish used in the experiment were Sawtooth A-stock steelhead raised at Hagerman National Fish Hatchery. This report documents out-migration survival and timing for the brood year 1996 fish released in the spring of 1997, as well as adult recovery information for the brood year 1993 (2-ocean Sawtooth A-stock) and brood year 1994 (1-ocean Sawtooth A-stock) that returned in the fall of 1996 and the spring of 1997. The total number of adults that return from each group will be tested using chi-square analysis ($\alpha = 0.05$). PIT 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 ($\alpha = 0.05$) will be used to test for differences in interrogation rates between groups. Travel times for the two groups will be tested for using the Mann-Whitney test ($\alpha = 0.05$).

RESULTS

Hatchery Operations Documentation

Clearwater Fish Hatchery

Brood Year 1995 This was the final year of the National Biological Survey project to use Selway River steelhead to form a South Fork Clearwater River adult return group. A total of 95,309 eyed steelhead eggs of Selway B-stock from fish spawned at Dworshak National Fish Hatchery were transferred to the Clearwater Fish Hatchery for final rearing (McGehee and Patterson 1998). These steelhead were raised for two years in the hatchery rather than the normal one year cycle before being released at the Crooked River Satellite facility. Survival from egg to release was fairly low at 59.5%, but that may be attributed to the extra year of rearing, since no significant health issues were reported by the hatchery.

All of the Selway stock steelhead had their right ventral fin excised to indicate their origin. These fish did not have the adipose fin excised, because they were considered to be of natural or hatchery/natural origin and were not available for harvest. A representative sample of 2,400 smolts received PIT tags just prior to release to measure out-migration survival and timing.

Out-migration survival was relatively low for this group, with a total unique detection rate of only 33% (Table 1). While this figure is considerably lower than the detection rates for most of the other PIT tag groups released from Clearwater Fish Hatchery in 1997, it is only slightly lower than the detection rates for the other PIT tag group released into the upper South Fork of the Clearwater River. It is possible that release locations in the upper South Fork Clearwater River are not as suitable for steelhead smolts as release sites in the lower South Fork Clearwater River.

Further information on release numbers and mark groups on fish can be found in Appendix A. Table 1.

Brood Year 1996 A total of 788,611 Dworshak B-stock eyed steelhead eggs were received from Dworshak National Fish Hatchery (McGehee and Patterson 1998). These eggs were all from the middle or later egg takes and did not represent the entire run. This is common practice for Clearwater Fish Hatchery steelhead, since the fish are released off-site and will not be part of a broodstock program.

Survival from eyed-egg to adult was reported to be 83.5% (McGehee and Patterson 1998), which is a little lower than normal. A chronic *Aeromonas sp.* infection may have depressed survival, but mortality due to this infection was not reported separately.

The brood year 1996 Dworshak B-stock steelhead were divided into two groups during marking in the summer of 1996 (McGehee and Patterson 1998). The first group was the production group. All steelhead in this group had their adipose fin excised to designate them as harvestable in the fishery. Furthermore, a representative selection from each release received PIT tags to measure out-migration survival and timing. The second group was a stock supplementation group released in the Red River, a tributary to the upper South Fork of the Clearwater River. A total of 48,730 presmolts were released at Soda Creek on the Red River in September 1996. Of these, 4,992 had PIT tags for measuring out-migration survival and timing, and the remainder received coded-wire tags to assess adult returns. Information regarding performance of this group will be reported by the IDFG Steelhead Supplementation Studies project. A further 4,991 steelhead from this group were released in April 1997 at Soda Creek. These fish received only PIT tags. None of the supplementation fish received any externally visible mark. Further information on release sites and exact numbers of each mark type can be found in Appendix A. Table 1.

Survival to the dams was quite good for the groups released in the lower South Fork Clearwater River, as well as in Clear Creek (Table 1). However, survival for the group released in the upper South Fork Clearwater River was only about half the survival of fish released in lower sections of the river. Furthermore, the travel time for the upper river release groups was 17.3 days as opposed to an average of only three days for the lower release groups, despite the fact that the releases were only one or two days apart.

Brood Year 1997 During the month of April, Clearwater Fish Hatchery received 828,458 eyed Dworshak B-stock steelhead eggs from the middle and later takes at Dworshak National Fish Hatchery (McGehee and George 1998). No health problems were reported during early rearing of this group.

Magic Valley Fish Hatchery

Brood Year 1996 During the latter part of April, all of May, and the first part of June, Magic Valley Fish Hatchery received four stocks of eyed steelhead eggs consisting of 940,391 Dworshak B, 139,400 East Fork B, 852,000 Pahsimeroi A, and 95,796 Sawtooth A-stock eggs (Moore et al. 1998). Survival to release for the East Fork B, Pahsimeroi A, and Sawtooth A-stocks was 94.1%, 89.8%, and 88.4% respectively. Survival to release for the Dworshak B-stock fish was only 70.3%. Considerably lower survival is consistent for Dworshak B-stock compared to any other stock of steelhead raised at Magic Valley. For this brood year, the higher mortality for the Dworshak B-stock fish occurred early in development. Fingerling to smolt survival for the Dworshak B-stock fish was consistent with the other stocks.

During September and October of 1996, all of the steelhead had their adipose fins excised to indicate their hatchery origin, and 397,053 received coded-wire tags. Representative groups from most of the releases were coded-wire-tagged to determine fishery contribution. All coded-wire tagged B-stock steelhead had the left ventral fin excised as an externally visible indicator of the presence of the tag. Coded-wire-tagged A-stock steelhead did not receive any externally visible indicator marks.

In February, about two months prior to release, 2,400 PIT tags were inserted into representative groups of fish to track migration timing and survival. Whenever possible, coded-wire-tagged fish were PIT tagged. Rejection and short-term mortality due to PIT tagging was very low, with only one PIT-tagged mortality recorded prior to release. Further information on release sites, mark numbers, and size at release can be found in Appendix A. Table 3.

Magic Valley Fish Hatchery reported the presence of an unusually high number of precocial males in one of their raceways for brood year 1995 and 1996 steelhead (Moore et al. 1998). An incidence of precocity as high as 25% of the total was reported for raceway 16W. This was probably due to the presence of night time security lighting, which was removed for brood year 1997. The effect of this increased precocity is unclear. Mullan et al. (1992) suggest that there may be higher overwinter mortality in precocial chinook salmon, though the evidence for this is mixed. Precocial steelhead would probably suffer from the same negative survival factors. Regardless of survival, the residualization of non-migrating steelhead smolts in the upper Salmon River basin is not desirable.

Magic Valley Fish Hatchery reported no other health problems for brood year 1996 steelhead (Moore et al. 1998).

Survival to the dams of the PIT tagged fish was comparatively good, with a total survival of 62.6% for Dworshak B-stock fish, and 69.1% for Pahsimeroi A-stock fish (Table 1). The reduced survival of Dworshak B-stock fish compared to the A-stock fish is not a consistent trend, though early survival of Dworshak B-stock fish in the Hagerman Valley appears to be lower than A-stock survival.

Migration timing of the PIT-tagged fish varied from 10.0 days to 19.9 days (Table 1), though this variability is probably due to differences in stocking date more than anything else. It may be advantageous to release fish over a narrower range of dates, but the large number of fish to be released and the limited number of trucks largely determines release dates.

Brood Year 1997 From April to June of 1997, Magic Valley Fish Hatchery received a total of 2,615,240 eyed steelhead eggs comprised of four stocks: 1,403,900 Dworshak B, 356,340 East Fork B, 325,000 Pahsimeroi A, and 530,000 Sawtooth A (Moore et al. 1999). The Dworshak B-stock steelhead had a survival to fry stage of only 89%, whereas the other three stocks had a survival of about 98%. The consistently lower survival of the Dworshak B-stock has been noted for several years.

Hagerman National Fish Hatchery

Brood Year 1996 A total of 1,403,878 eyed steelhead eggs were received from Sawtooth Fish Hatchery (Hagerman National Fish Hatchery 1997) to comprise the total releases in 1997. These eggs consisted of two stocks: 898,587 Sawtooth A-stock, and 505,291 Pahsimeroi A-stock (Rhine and Osborne 2000). Survival from egg to release was 87% for the Pahsimeroi A-stock and 92% for the Sawtooth A-stock. No pathogens or disease incidents were reported, and no explanation is provided for the difference in survival.

The adipose fin was excised from all fish used in steelhead production releases during the end of September and the first half of October. During early November, representative groups of steelhead from most of the releases received coded-wire tags to evaluate return success and contribution to the fishery. Prior to release, 3,000 of the coded-wire-tagged fish received PIT tags to measure run timing and juvenile out-migration success.

Survival of the PIT tagged fish to the dams was comparatively low, with detection rates ranging from a low of 59.1% to a high of 79.7% (Table 1). The best performance came from a group released in the Little Salmon River at Stinky Springs, which had a much shorter migration than the other releases, which were all in the upper Salmon River drainage.

Complete information on release timing and marks on production steelhead can be found in Appendix A. Table 2. This table does not include 109,500 Pahsimeroi A-stock steelhead that were surplus to smolt production needs and were stocked into regional reservoirs to augment local fisheries. These fish are not included in the total hatchery release as they are not expected to migrate and do not contribute to the LSRCP mitigation goal.

Brood Year 1997 During late May and early June of 1997, a total of 1,235,100 eyed steelhead eggs were received from Sawtooth Fish Hatchery (Hagerman National Fish Hatchery, 1997). These eggs consisted of 398,000 Pahsimeroi A-stock, and 836,000 Sawtooth A-stock. Hatching success for the two stocks were 97% and 98% respectively, though no data was reported regarding early rearing survival.

Migration Conditions

During the critical migration periods defined by Petrosky (1991), 1997 was characterized by the highest flow and spill levels recorded in the last 20 years (Table 2). Flows were more than 20 greater than they had been in the next largest flow year during that period. Spill may represent an improved migration path through dams relative to either turbines or existing smolt bypass systems.

The three migration years that contributed to the 1997 adult return were 1993, 1994, and 1995. All three of these years had flows during the peak migration period that were considerably

below the average of 80.8 kcfs observed since 1977. However, only 1994 had a flow that was below average during the extended migration period. This indicates that flows increased during the extended periods of both 1993 and 1995 and were probably not above average during the first half of the extended period.

Migration year 1993 provided the best combination of flow and spill for out-migrant survival. Migration year 1994, with consistently below average flow and spill, provided the worst migration conditions for those three years. This would be expected to cause a drop in 2-ocean returns to Idaho. In fact, Rhine et al. (1999) report a juvenile detection rate for PIT-tagged steelhead of only 48.4% overall.

Migration Timing and Juvenile Survival

A total of 13,288 steelhead smolts were released with PIT tags in 1997. These included a mix of production and supplementation fish. Overall, 52% (7,355) of the PIT tags were interrogated at the dams (Table 1). However, this percentage was considerably reduced by the inclusion of two groups released in the upper South Fork Clearwater River that contained nearly 50% of the PIT tags but had a detection rate below 40%. If these two releases from the upper South Fork of the Clearwater are removed from the data set, the detection rate jumps to 64%, which is probably a more accurate representation of overall performance for migration year 1997.

Table 1 does not include 4,992 PIT tags released as pre-smolts into the Red River at Soda Creek during September of 1996. These fish were not included in the table because they are not thought to be indicative of migration performance for the 1996 brood year steelhead from Clearwater Fish Hatchery. These fish were released early due to a history of disease, can be seen as being discarded with little expectation of survival. None of the PIT tags from this group were detected at any of the dams. The release information for these fish can be found in Appendix A. Table 1.

In addition, the juvenile detection points at the dams detected small numbers of fish from other files. Detections from the 1996 migration year may be either steelhead that did not migrate their first year, or adults that passed back through the juvenile detection system. In either case, these detections were rare, accounting for only two detections from Clearwater Fish Hatchery releases, and five detections from Magic Valley Fish Hatchery releases.

Adult Returns

The HMP (Ball and White 2001) estimated that Hagerman National Fish Hatchery, Magic Valley Fish Hatchery, and Clearwater Fish Hatchery returned a minimum of 12,481 adult steelhead to Idaho waters in the fall of 1996 and spring of 1997 (Table 3). This estimate does not include in-stream prespawning mortalities or tributary strays. Ball and White (2001) estimated that anglers harvested 8,355 steelhead, while 4,126 either returned to hatchery racks or escaped to spawn naturally.

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. Figure 1 shows adult returns from steelhead released by each of the three LSRCP steelhead hatcheries as a percentage of their return goals for the last four years. The 1996-

1997 return year was clearly the best year of the last four, though only Magic Valley Fish Hatchery achieved 50% of their goal. This figure may be somewhat misleading in the case of Clearwater Fish Hatchery. None of the steelhead released from Clearwater Fish Hatchery return to weirs, so return estimates are based exclusively on creel survey data and occasional strays recovered at the Dworshak National Fish Hatchery weir.

Fisheries Contribution

Ball and White (2001) estimated that anglers harvested 26,034 hatchery steelhead during the 1996-1997 season. Of these, 8,355 were produced by the three Idaho facilities, while the remainder was from Dworshak National Fish Hatchery, Niagara Springs Fish Hatchery, and hatcheries in Oregon and Washington.

Weir Operation

Sawtooth Fish Hatchery Weir A total of 1,243 adult A-stock steelhead were trapped at the Sawtooth Fish Hatchery weir between March 20 and May 12, 1997. This total consisted of 767 males (61.7%) and 476 females (38.3%) (Table 5). Of the 767 males, 761 were of hatchery origin with 722 (94.9%) of those being 1-ocean fish. Of the 476 females, 468 were of hatchery origin with 385 (82.3%) of those being 1-ocean fish. All fish larger than the size limit for 1-ocean were assumed to be 2-ocean.

All wild/natural fish, along with 11 hatchery-origin males and 9 hatchery-origin females, were released directly above the weir for natural spawning (Snider and Schilling 1999). Another 60 hatchery males were released into Kids Creek Pond in Salmon, Idaho to increase angling opportunity. Sixteen hatchery males and 12 hatchery females were released into a weired-off section of Beaver Creek, and an additional 15 hatchery males and 12 hatchery females were released into a weired-off section of Frenchman Creek. These last two releases are associated with the IDFG Steelhead Supplementation Studies program. Results from these releases will be reported separately.

A total of 429 pairs of hatchery origin steelhead were spawned at the Sawtooth Fish Hatchery weir in 1997, yielding 1,994,076 green eggs (Table 5) (Snider and Schilling 1999). Survival to the eyed stage of development for these eggs was 90.0%, which left 1,795,300 for distribution to Magic Valley and Hagerman National Fish Hatcheries.

East Fork Salmon River Weir A total of 149 B-stock steelhead were recovered at the East Fork trap that operated between March 28 and May 25, 1997 (Snider and Schilling 1999). These fish were primarily returns from East Fork progeny that had been raised at Magic Valley or Hagerman National fish hatcheries. Of the 149 total fish recovered, 61 (40.9%) were male, while 88 (59.1%) were female. Only six of the males and six of the females were of natural origin, while the rest were all hatchery-origin. Ten of the males, and five of the females were short enough to be considered 1-ocean fish. However, all the remaining fish were considered to be 2-ocean, with no distinction being made between 2- and 3-ocean fish. All of the natural-origin steelhead, along with seven hatchery-origin males and one hatchery-origin female, were released above the weir to spawn naturally.

Slate Creek Weir A total of 13 adult steelhead were recovered at the temporary Slate Creek trap, which was installed on March 26 and operated through April 24, 1997 (Snider

and Schilling 1999). Adult steelhead recovered at the Slate Creek weir were divided into A-stock or B-stock based on the length criteria listed at the bottom of Table 7 (B. Snider, IDFG, personal communication). The eight fish that were not long enough to be considered 2-ocean B-stock steelhead were considered to be A-stock strays. Since the origin of these eight fish was unknown, they were spawned separately for the Shoshone Bannock Tribes egg box program (Snider and Schilling 1999). The five fish that met the criteria for 2-ocean B-stock steelhead were pooled with the steelhead trapped at the East Fork Weir for spawning.

Crooked River Weir Trapping at the Crooked River weir commenced on March 24, 1997 and concluded in June (Patterson 1997). During that time, only five steelhead were trapped. These five were all wild/natural-origin steelhead and were released above the weir. This was a disappointing return considering that this would have been the four-year-old return of a fairly large release of B-stock fish.

Red River Weir The Red River trap began operation on March 31 and continued through chinook season (Patterson 1997). No adult steelhead were trapped during this time, though Patterson (1997) does report that high runoff and debris caused the trap to be inoperable for part of the trapping season.

Smolt-to-Adult Return Rates

Clearwater Fish Hatchery

In 1993, Clearwater Fish Hatchery released a total of 326,300 brood year 1992, Dworshak B-stock smolts (Appendix D. Table 1.). Only two adult steelhead were estimated to have been recovered from this out-migration. This poor performance can largely be attributed to two factors: First, Clearwater Fish Hatchery does not operate any adult trapping facilities on the rivers where these releases took place. Therefore, no steelhead would be expected to return to hatchery racks. Without any rack return, the only returning adults that would be detected would be those caught in the in-state fishery, which were subsequently examined during a roving creel survey. Therefore, adult detections become largely dependent on both fishing and creel surveying efforts in the absence of rack recoveries.

The second factor influencing this poor return was that production was well below the target of 1,750,000 (Table 4). Production at the Clearwater facility was curtailed to allow for enhanced production in the Salmon River (Rhine and Osborne 2000). As long as the production remains at or below a quarter of the design goals for the facility, returns cannot be expected to approach the original target of 14,000 adult steelhead returning.

The 2-ocean returns for brood year 1993 releases showed considerable improvement over brood year 1992 performance. However, only 199 adults were recovered from a release of 722,990 (Appendix C. Table 1). It must be noted that nearly one tenth of this total release (71,556) consisted of non-adipose clipped supplementation fish released in Crooked River. As has been noted previously, out-migration survival of steelhead smolts released into the upper South Fork Clearwater River is very poor. Furthermore, since these fish did not have their adipose fin removed, they were inaccessible to the fishery, which likely reduced adult return detections considerably.

Hagerman National Fish Hatchery

The 1996-1997 adult steelhead return included fish from two release years. All of the fish released from Hagerman National Fish Hatchery in 1993-1995 were A-stock fish, which seldom return as 3-ocean fish. Indeed, no 3-ocean fish were recovered for the brood year 1992 fish released in 1993 (Appendix D. Table 2). The HMP estimated that 4,463 adult steelhead were recovered from a total brood year 1993 release of 1,525,948 (Appendix C. Table 2.). Of these, anglers accounted for 3,314, while the rest either returned to the hatchery rack, or escaped to spawn naturally.

Total smolt-to-adult recovery rates (SAR) for brood year 1993 steelhead were generally poor, with the Little Salmon River release performing worse than most of the upper Salmon River releases. However, maximum SARs for any group did not reach 0.4%. The SARs for the Little Salmon River releases may appear a little below the actual return numbers, since there is no rack to recover adults. All results for the Little Salmon River are based on creel survey data, along with exploitation rate estimates by Ball (1999) and Ball and White (2001).

The first year of returns for brood year 1994 fish look promising. A total of 4,811 adult steelhead have been recovered from a release of 1,150,060 (Appendix B. Table 2). Of these, anglers accounted for 3,090, while the rest either returned to the hatchery rack, or escaped to spawn naturally. Overall, SAR after the first year was 0.42%. While this is not as high as might be hoped, a fair number of A-stock fish will return as 2-ocean adults, so this number can be expected to rise as the second year returns come in.

Magic Valley Fish Hatchery

Adult returns from Magic Valley Fish Hatchery releases consisted of fish from three different brood years (1992, 1993, and 1994). However, there was almost no contribution from brood year 1992, since only a single adult B-stock steelhead returned as a 3-ocean fish (Appendix D. Table 3). These are fairly disappointing results, but understandable, since SARs for the brood year 1992 Dworshak B-stock releases from Magic Valley Fish Hatchery were much lower than they were for the other releases that year.

Total returns for brood year 1993 were effectively complete this year. Few if any steelhead from these releases will return as 3-ocean fish. With the exception of the releases from Pahsimeroi Fish Hatchery, the brood year 1993 adults performed quite poorly (Appendix C. Table 3). Ball (1999) and Ball and White (2001) estimated a total of 4,343 adult steelhead returned from a total release of 2,025,249 smolts. This yields an overall SAR of 0.21%, but this number is considerably inflated by the higher recoveries from the Pahsimeroi Ponds releases. With the exception of the Pahsimeroi Ponds releases, this lower SAR is consistent with the SARs observed for brood year 1993 steelhead released in the same general area from Hagerman National Fish Hatchery. This suggests that the brood year 1993 cohort encountered poor conditions during out-migration and their first year in the ocean.

The first year of adult recoveries for brood year 1994 steelhead was promising. Though only 1,731,353 smolts were released, 3,620 (0.21%) returned as 1-ocean adults (Appendix B. Table 1.). This return is considerably reduced by the fact that over half of the release consisted

of B-stock fish that typically return as 2-ocean adults. Once all of the returns are in for this brood year, the SARs should rise considerably.

Experimentation

Clearwater Fish Hatchery

Cover Experiment All adult returns were completed by 1997. Unfortunately, the results were disappointing. Insufficient tags were recovered to allow for meaningful analysis. Only three tags were recovered in Idaho from the experimental group. All three of those were collected at the Dworshak National Fish Hatchery return rack. None of the control group was recovered in Idaho. Few recoveries were made downstream, either. Two of the control group were caught by anglers in the John Day Arm, and one was recovered by a gillnet fishery in the Bonneville Pool. A single tag from each of the two experimental groups was recovered in the gillnet fishery, while two tags from one of the experimental groups were recovered from the John Day Arm creel census. Therefore, only seven tags from the experimental group, out of a release of 47,013, and three tags from the control group, out of a release of 22,003, were recovered. Clearly, with returns as low as they have been for the last few decades, a study cannot be expected to return an experimentally adequate number of fish unless the number tagged is greatly increased or the fish are released so that they will return to a hatchery rack.

Hagerman National Fish Hatchery

Acclimation Experiment Complete information regarding the brood year 1996 out-migration along with the returns through 1997 have already been thoroughly reported by Osborne and Rhine (1999). Only a summary of the data as it pertains to this report period is covered here.

For brood year 1996, juvenile out-migrants from the nonacclimated group were interrogated at a significantly higher rate ($\chi^2 = 9.40$, $P = 0.002$) than out-migrants from the acclimated group (Osborne and Rhine 1999). However, this may be due to the fact that the nonacclimated group had a significantly ($P < 0.001$) shorter travel time to Lower Granite Dam and would thereby pass through the detection corridor under different conditions.

Complete returns were available only for the 1991 and 1992 brood years. The results were mixed for those two years. In 1992, acclimated steelhead returned at a significantly higher rate than the nonacclimated fish ($\chi^2 = 5.79$, $P = 0.031$), whereas there was no significant difference for brood year 1991 ($\chi^2 = 0.51$. $P = 0.475$) (Osborne and Rhine 1999).

Table 1. Number of unique interrogations of PIT-tagged steelhead smolts, by release site / PIT tag file(s) at Lower Granite Dam (GRJ), Little Goose Dam (GOJ), Lower Monumental Dam (LMJ), and McNary Dam (MCJ) for the 1997 migration period. A total of 14,273 PIT-tagged steelhead were released from Hagerman National, Magic Valley, and Clearwater fish hatcheries during April and May of 1997. Median travel time is to Lower Granite Dam.

Coordinator	Release Site	Rel. Date	No. Rel.	Number/ Percent Interrogated										Median Travel Time (Days)
				GRJ		GOJ		LMJ		MCJ		Total		
				No.	%	No.	%	No.	%	No.	%	No.	%	
Clearwater Fish Hatchery														
Selway B-Stock:														
SPR	Crooked R.	4/22/97	2,385	448	18.7	204	8.5	129	5.4	9	0.4	790	33.0	16.9
Dworshak B-Stock:														
AAB	Red River	4/28/97	4,991	1,127	22.6	507	10.2	301	6.0	24	0.5	1,959	39.3	17.3
TDR	Clear Creek	4/28/97	600	248	41.3	126	21.0	87	14.5	9	1.5	470	78.3	2.9
TDR	South Fork Clearwater R.	4/29/97	600	242	40.3	134	22.3	65	10.8	8	1.3	449	74.8	2.4
TDR	South Fork Clearwater R.	4/30/97	300	130	43.3	76	25.3	30	10.0	3	1.0	239	79.7	3.2
	Total		6,491									3,117	48.0	
Clearwater Fish Hatchery Grand Total			**8,876**									**3,907**	**44.0**	
Hagerman National Fish Hatchery														
Sawtooth A-Stock:														
TDR	Sawtooth Fish Hatchery													
	Acclimated Release													
	TDR97057.H11	4/25/97	300	100	33.4	46	15.4	26	8.7	2	0.2	174	58.2	15.5
	TDR97057.H21	4/25/97	300	109	37.5	44	15.1	31	10.7	0	0.0	184	63.2	18.1
	TDR97057.H22	4/25/97	300	102	34.1	44	14.7	22	7.4	2	0.7	170	56.9	17.1
	Direct Release													
	TDR97057.H12	4/25/97	299	140	46.8	44	14.7	23	7.7	1	0.3	208	69.6	12.1
	Fast Feed Group													
	TDR97056.H11	4/25/97	299	102	34.1	45	15.1	21	7.0	1	0.1	169	56.5	21.2
	TDR97057.H23	4/25/97	300	98	32.7	52	17.3	26	8.7	3	1.0	179	59.7	16.3
	TDR97057.H24	4/25/97	300	108	36.0	37	12.3	29	9.7	1	0.3	175	58.3	17.4
TDR	Salmon R @ McNabb Point	4/25/97	300	115	38.3	35	11.7	27	9.0	3	1.0	180	60.0	
Pahsimeroi A-Stock:														
TDR	Lt. Salmon @ Stinky Springs	4/30/97	300	162	54.0	56	18.7	19	6.3	2	0.7	239	79.7	6.6
Hagerman National Grand Total			**2,998**									**1,869**	**62.3**	

Table 1, continued

Coordinator	Release Site	Rel. Date	No. Rel.	Number/ Percent Interrogated										Median Travel Time (Days)
				GRJ		GOJ		LMJ		MCJ		Total		
				No.	%	No.	%	No.	%	No.	%	No.	%	
Magic Valley Fish Hatchery														
Dworshak B-Stock														
TDR	Lt. Salmon @ Stinky Springs	4/9/97	300	110	36.7	58	19.3	25	8.3	3	1.0	196	65.3	19.9
TDR	E. Fk. Salmon @ Dumpster	4/24/97	300	109	36.3	58	19.3	29	9.7	2	0.7	198	66.0	10.0
TDR	Slate Creek	4/29/97	300	105	35.0	40	13.3	23	7.7	1	0.3	169	56.3	12.2
	Total		900									563	62.6	
Pahsimeroi A-Stock														
TDR	North Fork Salmon R.	4/21/97	300	132	44.0	46	15.3	24	8.0	4	1.3	206	68.7	18.5
TDR	Salmon R @ Bruno Bridge	4/16/97	300	124	41.3	52	17.3	34	11.3	1	0.3	211	70.3	12.3
TDR	Lemhi River	4/18/97	299	134	44.8	46	15.4	31	10.4	2	0.7	213	71.2	15.3
TDR	Salmon R @ McNabb Pt.	4/14/97	300	112	37.3	56	18.7	29	9.6	2	0.7	199	66.3	14.0
	Total		1,199									829	69.1	
East Fork B-Stock														
TDR	E. Fork Salmon R @ Weir	4/23/97	300	104	34.7	57	19.0	25	8.3	1	0.3	187	62.3	15.9
Magic Valley Fish Hatchery Grand Total			**2,399**									**1,579**	**65.8**	

Table 2. Snake River mean daily outflow and spill (thousand cubic feet per second) for the Lower Granite Dam fore bay in Washington from 1977-1997 during the peak and extended chinook salmon smolt migration periods as defined by Petrosky (1991).

Year	Peak (4/15 – 5/5)	Extended (4/20 – 5/30)	Peak Spill (4/15 - 5/5)	Extended Spill (4/20 - 5/30)
1977	39.1	40.2	0	0
1978	85.4	95.8	10.3	7.7
1979	64.9	90.0	0	3.4
1980	89.9	103.1	0	0
1981	76.2	86.7	9.4	7.1
1982	116.7	131.6	24.2	32.4
1983	85.6	111.3	22.1	19.3
1984	122.8	146.1	36.2	42.9
1985	86.9	87.2	0.7	1.5
1986	93.4	105.7	0.1	4.6
1987	57.7	62.3	0	0
1988	55.0	64.1	0	0
1989	94.1	87.2	0	0
1990	63.8	66.4	0	0
1991	44.0	70.8	0	0.3
1992	54.8	57.3	0	0
1993	69.8	114.0	0	19.7
1994	64.1	75.9	0	12.0
1995	72.1	97.2	2.6	14.0
1996	111.9	124.4	37.1	44.4
1997	149.1	169.9	43.6	57.0

Table 3. Estimated number of LSRCP hatchery steelhead that returned to Idaho in 1996-1997. The adult returns in 1996-1997 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 Harvest Monitoring Project and only include steelhead harvested in Idaho's sport fisheries, steelhead that returned to hatchery racks, and fish that escaped to spawn naturally. These are minimum estimates and do not include all tributary and mainstem strays or in-river prespawning mortalities.

Hatchery	Brood Year	3-Ocean	2-Ocean	1-Ocean
Hagerman	1992	0	—	—
Hagerman	1993	—	1,292	—
Hagerman	1994	—	—	4,811
Estimated Fish Returned in 1996-1997			6,103	
Magic Valley	1992	1	—	—
Magic Valley	1993	—	2,258	—
Magic Valley	1994	—	—	3,621
Estimated Fish Returned in 1996-1997			5,880	
Clearwater	1992	0	—	—
Clearwater	1993	—	273	—
Clearwater	1994	—	—	237
Estimated Fish Returned in 1996-1997			510	
Grand Total			**12,493**	

Table 4. Steelhead smolts released from Magic Valley, Hagerman National, and Clearwater fish hatcheries that contributed to the 1996-1997 steelhead return. The number of steelhead smolts released and the estimated number of adults that returned were compared to the production targets and projected adult return goals for each facility.

Releases Contributing to the 1996-1997 Adult Returns					
Brood Year	**Fish Hatchery**	**Number Released**	**Design Target**	**Percent of Target**	**1996-97 Adult Returns**
1992	Magic Valley	1,925,701	2,000,000	96.3%	1
1992	Hagerman National	1,496,737	2,400,000	62.4%	0
1992	Clearwater	326,300	1,750,000	18.6%	0
	Total	**3,748,738**	**6,150,000**	**61.0%**	**1**
1993	Magic Valley	1,919,250	2,000,000	96.0%	2,258
1993	Hagerman National	1,525,948	2,400,000	63.6%	1,292
1993	Clearwater	722,990	1,750,000	41.3%	273
	Total	**4,168,188**	**6,150,000**	**67.8%**	**3823**
1994	Magic Valley	1,731,353	2,000,000	86.6%	3,621
1994	Hagerman National	1,159,060	2,400,000	48.3%	4,811
1994	Clearwater	637,752	1,750,000	36.4%	237
	Total	**3,528,165**	**6,150,000**	**57.4%**	**8669**
		Mean annual release as percent of target:		62.1%	
			Total adult return:[a]		12,493
			Adult return goal:		39,260
			Percent of goal achieved:		31.8%

[a] These are minimum estimates that include only steelhead harvested in Idaho's sport fisheries, steelhead that returned to hatchery racks, and off-site escapement. Tributary strays and in-river prespawning mortalities are not included.

Table 5. Summary of the 1997 A-stock 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 that the data were not available.

HATCHERY ORIGIN n = 1,230										
	Males n = 761					Females n = 468				
Age[b]	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	722	ND	ND	0	ND	385	31	ND	0	ND
2-ocean	39	ND	ND	0	ND	83	1	ND	0	ND
Total	761	255[c]	429	0	77[d]	468	32[c]	429	0	7[d]

NATURAL ORIGIN n = 14										
	Males n = 6					Females n = 8				
Age[b]	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	5	5	0	0		8	8	0	0	
2-ocean	1	1	0	0		0	0	0	0	
Total	6	6[e]	0	0		8	8[e]	0	0	

Total Number Trapped	1,243	Green Egg Number	1,994,076
Trapping Period	3/20 – 5/12/97	Eyed Egg Number	1,795,300[f] (90.0% 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 brood year 1994, released in 1995. Hatchery fish classified as 2-ocean were brood year 1993, released in 1994.

[c] Of these fish, 28 (16 male, 12 female) were released in Beaver Creek, and 26 (15 male, 11 female) were released in Frenchman Creek for natural spawning as part of a supplementation study. A further 26 (17 male, 9 female) were released above the weir. Of the remaining males, 60 were released into Kids Creek Pond, and the rest were released above the weir as surplus after spawning.

[d] Fish were killed but not used for spawning.

[e] Fish were released above the weir.

[f] Eyed-eggs were shipped to other hatcheries for rearing.

Table 6. Summary of the 1997 B-stock 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 that the data were not available.

HATCHERY ORIGIN n = 137

	Males n = 55					Females n = 82				
Age[b]	**Trapped**	**Released**	**Spawned**	**Morts**	**Other**	**Trapped**	**Released**	**Spawned**	**Morts**	**Other**
1-ocean	5	2	ND	0	0	3	0	ND	0	0
2-ocean	50	5	ND	0	0	79	1	ND	0	0
Total	55	7[c]	48	0	0	82	1[c]	78	0	3[d]

NATURAL ORIGIN n = 12

	Males n = 6					Females n = 6				
Age[b]	**Trapped**	**Released**	**Spawned**	**Morts**	**Other**	**Trapped**	**Released**	**Spawned**	**Morts**	**Other**
1-ocean	5	5	0	0	0	2	2	0	0	0
2-ocean	1	1	0	0	0	4	4	0	0	0
Total	6	6[c]	0	0	0	6	6[c]	0	0	0

Total Number Trapped	149	Green Egg Number	424,938[e]
Trapping Period	3/28 – 5/25/97	Eyed Egg Number	356,340[f] (83.9% 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	≤ 68 cm	1-Ocean
B	Female	> 68 cm	2- or 3-Ocean

[b] Hatchery fish classified as 1-ocean were brood year 1994, released in 1995. Hatchery fish classified as 2-ocean were brood year 1995, released in 1996.

[c] Fish were released above the weir.

[d] Fish were killed but not used for spawning.

[e] Adults that returned to the East Fork and Slate Creek weirs were pooled to produce these eggs.

[f] Eyed-eggs were shipped to other hatcheries for rearing.

Table 7. Summary of the 1997 B-stock steelhead return to the Slate Creek 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 that the data were not available.

HATCHERY ORIGIN n = 5										
	Males n = 2					Females n = 3				
Age[b]	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	0	0	0	0	0	0	0	0	0	0
2-ocean	2	0	2	0	0	3	0	3	0	0
Total	2	0	2[c]	0	0	3	0	3[c]	0	0

NATURAL ORIGIN n = 0										
	Males n = 0					Females n = 0				
Age[b]	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	0	0	0	0	0	0	0	0	0	0
2-ocean	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0

Total Number Trapped	5	Green Egg Number	424,938[d]
Trapping Period	3/28 – 5/25/97	Eyed Egg Number	356,340[e] (83.9% 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	≤ 68 cm	1-Ocean
B	Female	> 68 cm	2- or 3-Ocean

[b] Hatchery fish classified as 1-ocean were brood year 1994, released in 1995. Hatchery fish classified as 2-ocean were brood year 1995, released in 1996.

[c] Fish were spawned with East Fork B fish at the East Fork weir.

[d] Adults that returned to the East Fork and Slate Creek weirs were pooled to produce these eggs.

[e] Eyed-eggs were shipped to other hatcheries for rearing.

Table 8. Summary of the 1997 B-stock steelhead return to the Crooked River weir. No fish of hatchery origin were trapped in 1997. Hatchery aging criteria, based on length, were used to determine age[a].

HATCHERY ORIGIN n = 0

	Males n = 0					Females n = 0				
Age[b]	**Trapped**	**Released**	**Spawned**	**Morts**	**Other**	**Trapped**	**Released**	**Spawned**	**Morts**	**Other**
1-ocean	0	0	0	0	0	0	0	0	0	0
2-ocean	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0

NATURAL ORIGIN n = 5

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

Total Number Trapped	5	Green Egg Number	424,938
Trapping Period	3/28 – 5/25/97	Eyed Egg Number	356,340 (83.9% 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	≤ 68 cm	1-Ocean
B	Female	> 68 cm	2- or 3-Ocean

[b] Hatchery fish classified as 1-ocean were brood year 1994, released in 1995. Hatchery fish classified as 2-ocean were brood year 1995, released in 1996.

[c] Fish were released above the weir.

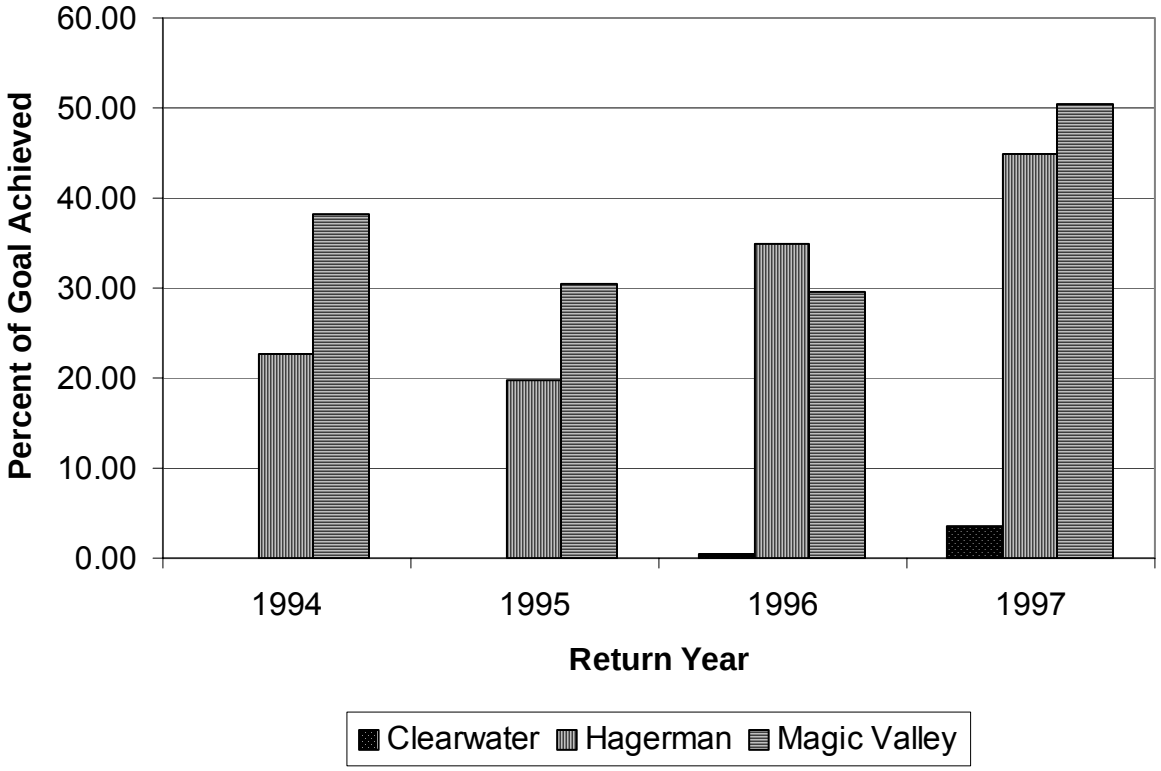

Figure 1. Percent of the adult steelhead return goal achieved by Clearwater, Hagerman National, and Magic Valley fish hatcheries between 1994 and 1997. The annual adult return goal for Clearwater, Hagerman National, and Magic Valley fish hatcheries was 14,000, 13,600, and 11,660 respectively.

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APPENDICES

Appendix A. Table 1. Release data for all steelhead released from Clearwater Fish Hatchery during 1997. Releases are arranged by coded-wire tag (CWT) group and raceway. The CWT group includes one or more unique tag codes, along with all untagged fish represented by those tags. If PIT tags were put into fish in a raceway that had more than one tag code, the PIT tags are assumed to be put into the various tag codes proportionally.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Clear Ck: Clwtr R 4/28/1997	1996	DWOR B	R11E	60,041	AD		60,041	6.4	Coded-wire tag Length experiment
Clear Ck: Clwtr R 4/28/1997	1996	DWOR B	R12E	59,530	CWT,AD,LV CWT,AD,LV,PIT AD AD,LV	104663 104663	32,275 300 25,948 1,007	6.4	Coded-wire tag Length experiment
Clear Ck: Clwtr R 4/28/1997	1996	DWOR B	R12W	59,642	CWT,AD,LV CWT,AD,LV,PIT AD AD,LV	105145 105145	31,372 300 26,990 980	6.4	Coded-wire tag Length experiment
					Total CWT Release:		64,247		
					Total non-CWT Release:		114,966		
					Total Group Release:		179,213		
Crooked R: S Fk Clwtr 4/23/1997	1995	Selway	R01E	10,744	RV		10,744	5.64	Selway Program, RV only.
		(This group included 2,394 PIT tags scattered throughout the raceways.)							
Crooked R: S Fk Clwtr 4/23/1997	1995	Selway	R01W	9,235	RV		9,235	5.64	Selway Program, RV only.
Crooked R: S Fk Clwtr 4/23/1997	1995	Selway	R02E	9,385	RV		9,385	5.64	Selway Program, RV only.
Crooked R: S Fk Clwtr 4/23/1997	1995	Selway	R02W	10,591	RV		10,591	5.64	Selway Program, RV only.
Crooked R: S Fk Clwtr 4/23/1997	1995	Selway	R03E	9,426	RV		9,426	5.64	Selway Program, RV only.
Crooked R: S Fk Clwtr 4/23/1997	1995	Selway	R03W	9,290	RV		9,290	5.64	Selway Program, RV only.
Crooked R: S Fk Clwtr 4/23/1997	1995	Selway	R04E	7,427	RV		7,427	5.64	Selway Program, RV only.

Appendix A. Table 1. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Crooked R: S Fk Clwtr 4/23/1997	1995	Selway	R04W	9,796	RV		9,796	5.64	Selway Program, RV only.
					Total CWT Release:		0		
					Total non-CWT Release:		75,894		
					Total Group Release:		75,894		
S Fk Clwtr @ Red House Hole 4/28/97-4/30/97	1996	DWOR B	R07E	59,840	AD		59,840	5.6	Contribution
S Fk Clwtr @ Red House Hole 4/28/97-4/30/97	1996	DWOR B	R08E	58,592	AD		58,592	5.6	Contribution
S Fk Clwtr @ Red House Hole 4/28/97-4/30/97	1996	DWOR B	R08W	59,366	AD		59,366	5.6	Contribution
S Fk Clwtr @ Red House Hole 4/28/97-4/30/97	1996	DWOR B	R09W	59,258	CWT,AD,LV CWT,PIT,AD,LV AD AD,LV	102130 102130	20,863 300 37,440 655	5.6	Contribution
S Fk Clwtr @ Red House Hole 4/28/97-4/30/97	1996	DWOR B	R10E	59,181	CWT,AD,LV CWT,PIT,AD,LV AD AD,LV	102129 102129	20,992 300 37,231 658	5.6	Contribution
S Fk Clwtr @ Red House Hole 4/28/97-4/30/97	1996	DWOR B	R10W	59,908	CWT,AD,LV CWT,PIT,AD,LV AD AD,LV	104610 104610	21,153 300 37,794 663	5.6	Contribution
S Fk Clwtr @ Red House Hole 4/28/97-4/30/97	1996	DWOR B	R11W	65,028	AD		65,028	5.6	Contribution
					Total CWT Release:		63,906		
					Total non-CWT Release:		357,267		
					Total Group Release:		421,173		
S Fk Red River 9/5/1996	1996	DWOR B	V29	26,232	CWT	105120	26,232	55	Supplementation
S Fk Red River 9/5/1996	1996	DWOR B	V30	16,194	CWT	105120	16,194	55	Supplementation

Appendix A. Table 1. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
S Fk Red River 9/5/1996	1996	DWOR B	V02	4,992	PIT		4,992	55	Supplementation
					Total CWT Release:		42,426		
					Total non-CWT Release:		6,304		
					Total Group Release:		48,730		
Red River @ Soda Ck Bridge 4/28/1997	1996	DWOR B	R10A	4,991	PIT		4,991	9	Supplementation
					Total CWT Release:		0		
					Total non-CWT Release:		4,991		
					Total Group Release:		4,991		
					Total DWOR B-Stock CWT Release			170,579	
					Total DWOR B-Stock non-CWT Release			483,528	
					Total DWOR B-Stock Release			654,107	
					Total Selway-Stock Cwt Release			0	
					Total Selway-Stock Non-CWT Release			75,894	
					Total Selway-Stock Release			75,894	
					Total CWT Release for Clearwater			170,579	
					Total non-CWT Release for Clearwater			559,422	
					Total PIT Tag Release for Clearwater Hatchery			13,877	
					Total Clearwater Hatchery Release			730,001	

Appendix A. Table 2. Release data for all steelhead released from Hagerman National Fish Hatchery during 1997. Releases are arranged by coded-wire tag (CWT) group and raceway. The CWT group includes one or more unique tag codes, along with all untagged fish represented by those tags. If PIT tags were put into fish in a raceway that had more than one tag code, the PIT tags are assumed to be put into the various tag codes proportionally.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R46	21,396	AD,CWT	105154	20,683	4.63	Direct Release
					AD,CWT,PIT	105154	299		
					AD		414		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R47	20,972	AD,CWT	105155	19,480	4.45	Direct Release
					AD		1,492		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R48	21,006	AD,CWT	105156	20,464	4.69	Direct Release
					AD		542		
					Total CWT Release:		60,926		
					Total non-CWT Release:		2,448		
					Total Group Release:		63,374		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R09	10,705	AD		10,705	4.54	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R10	9,249	AD		9,249	3.87	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R11	11,202	AD		11,202	4.18	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R12	11,872	AD		11,872	4.54	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R49	20,708	AD,CWT	105157	20,409	4.28	Contribution
					AD,CWT,PIT	105157	299		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R50	19,855	AD,CWT	105158	19,555	4.75	Contribution
					AD,CWT,PIT	105158	300		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R51	19,749	AD,CWT	105159	19,619	4.96	Contribution
					AD		130		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R52	14,880	AD		14,880	4.96	Contribution

Appendix A. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R53	13,132	AD		13,132	4.9	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R54	13,479	AD		13,479	4.84	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R55	13,282	AD		13,282	4.71	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R56	15,142	AD		15,142	4.52	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R57	15,108	AD		15,108	4.85	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R58	20,050	AD		20,050	5	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R59	17,279	AD		17,279	4.84	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R60	16,726	AD		16,726	5.05	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R61	16,206	AD		16,206	4.93	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R62	17,007	AD		17,007	4.74	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R63	17,397	AD		17,397	4.89	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R64	17,056	AD		17,056	4.71	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R65	17,239	AD		17,239	4.64	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R66	16,464	AD		16,464	4.83	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R67	16,435	AD		16,435	4.57	Contribution

Appendix A. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R68	18,605	AD		18,605	5.22	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R69	17,337	AD		17,337	4.94	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R70	17,286	AD		17,286	4.67	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R71	13,688	AD		13,688	4.38	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R72	13,800	AD		13,800	4.8	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R73	14,099	AD		14,099	4.82	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R74	14,823	AD		14,823	4.9	Contribution
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R75	8,269	AD		8,269	4.86	Contribution
					Total CWT Release:		60,182		
					Total non-CWT Release:		417,947		
					Total Group Release:		478,129		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R43	20,823	AD,CWT	105151	20,523	5.23	Acclimated Group
					AD,CWT,PIT	105151	300		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R44	20,335	AD,CWT	105152	20,035	4.86	Acclimated Group
					AD,CWT,PIT	105152	300		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R45	20,372	AD,CWT	105153	20,072	4.86	Acclimated Group
					AD,CWT,PIT	105153	300		
					Total CWT Release:		61,530		
					Total non-CWT Release:		0		
					Total Group Release:		61,530		
Salmon R @ Torrey's Hole 4/25/1997	1996	Sawtooth A	R40	19,936	AD,CWT	105146	19,636	4.99	Acclimated Torrey's
					AD,CWT,PIT	105146	300		
Salmon R @ Torrey's Hole 4/25/1997	1996	Sawtooth A	R41	22,645	AD,CWT	105146	18,933	4.6	Acclimated Torrey's
					AD		3,712		

Appendix A. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Salmon R @ Torrey's Hole 4/25/1997	1996	Sawtooth A	R42	22,837	AD,CWT	105146	19,789	4.82	Acclimated Torrey's
					AD		3,048		
					Total CWT Release:		58,658		
					Total non-CWT Release:		6,760		
					Total Group Release:		65,418		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R37	20,402	AD,CWT,PIT	105147	20,402	4.9	Double Length Wire
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R38	21,135	CWT,AD	105148	8,115	4.44	Double Length Wire
					AD,CWT	105147	12,821		
					AD		199		
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	R39	20,153	AD,CWT	105148	19,683	4.77	Double Length Wire
					AD		470		
					Total CWT Release:		61,021		
					Total non-CWT Release:		669		
					Total Group Release:		61,690		
Salmon R @ McNabb Point 4/9/97-4/24/97	1996	Sawtooth A	R75	5,103	AD		5,103	4.86	Contribution
Salmon R @ McNabb Point 4/9/97-4/24/97	1996	Sawtooth A	R76	13,835	AD		13,835	4.31	Contribution
Salmon R @ McNabb Point 4/9/97-4/24/97	1996	Sawtooth A	R77	14,884	AD		14,884	4.88	Contribution
Salmon R @ McNabb Point 4/9/97-4/24/97	1996	Sawtooth A	R78	14,938	AD		14,938	4.78	Contribution
Salmon R @ McNabb Point 4/9/97-4/24/97	1996	Sawtooth A	R79	12,804	AD		12,804	3.97	Contribution
Salmon R @ McNabb Point 4/9/97-4/24/97	1996	Sawtooth A	R80	14,382	AD		14,382	4.23	Contribution
					Total CWT Release:		0		
					Total non-CWT Release:		75,946		
					Total Group Release:		75,946		

Appendix A. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R81	14,521	AD		14,521	4.73	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R82	15,357	AD		15,357	4.86	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R96	16,798	AD		16,798	5.41	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R83	13,864	AD		13,864	4.24	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R85	15,838	AD		15,838	5.21	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R86	17,396	AD		17,396	4.67	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R87	15,656	AD		15,656	4.22	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R98	16,072	AD		16,072	4.93	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R88	15,594	AD		15,594	4.27	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R89	16,049	AD		16,049	4.34	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R99	14,964	AD		14,964	4.35	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R100	15,777	AD		15,777	4.57	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R90	17,640	AD		17,640	4.9	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R91	16,687	AD		16,687	4.51	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R101	12,258	AD		12,258	4.49	Contribution

Appendix A. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R92	16,445 (300 PIT Tags)	AD,CWT AD,CWT AD	105205 105105	7,857 8,429 159	4.55	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R93	15,732	AD,CWT CWT,AD AD	105205 105105	13,000 2,629 103	4.98	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R102	13,299	AD		13,299	4.47	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R94	14,372	AD		14,372	4.29	Contribution
Lt Salmon R @ Stinky Springs 4/14/97-5/2/97	1996	PAH A	R95	16,785	AD		16,785	4.83	Contribution
					Total CWT Release:		31,915		
					Total non-CWT Release:		279,189		
					Total Group Release:		311,104		
Lt Salmon R @ Stinky Springs 4/16/1997	1996	Sawtooth A	R84	15,844	AD		15,844	4.66	Contribution
Lt Salmon R @ Stinky Springs 4/16/1997	1996	Sawtooth A	R97	15,296	AD		15,296	4.78	Contribution
					Total CWT Release:		0		
					Total non-CWT Release:		31,140		
					Total Group Release:		31,140		

Total Sawtooth A-Stock Cwt Release	**302,317**
Total Sawtooth A-Stock non-CWT Release	**534,910**
Total Sawtooth A-Stock Release	**837,227**
Total PAH A-Stock CWT Release	**31,915**
Total PAH A-Stock non-CWT Release	**279,189**
Total PAH A-Stock Release	**311,104**
Total CWT Release for Hagerman NFH	**334,232**
Total non-CWT Release for Hagerman NFH	**814,099**
Total PIT Tag Release for Hagerman NFH Hatchery	**2,998**
Total Hagerman NFH Hatchery Release	**1,148,331**

Appendix A. Table 3. Release data for all steelhead released from Magic Valley Fish Hatchery during 1997. Releases are arranged by coded-wire tag (CWT) group and raceway. The CWT group includes one or more unique tag codes, along with all untagged fish represented by those tags. If PIT tags were put into fish in a raceway that had more than one tag code, the PIT tags are assumed to be put into the various tag codes proportionally.

Release Site Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Sawtooth Hatchery 4/11/1997	1996	PAH A	R15W	42,640	AD		42,640	5.2	Late eggs from Sawtooth acclimated group. Trucked to SFH two weeks before release
Sawtooth Hatchery 4/11/1997	1996	PAH A	R16W	42,075	AD		42,075	4.5	Late eggs from Sawtooth Acclimated group. Trucked to SFH two weeks before release
				Total CWT Release:			**0**		
				Total non-CWT Release:			**84,715**		
				Total Group Release:			**84,715**		
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	R01E	4,400	AD		4,400	4.4	Contribution
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	R02E	3,655	AD		3,655	4.3	Contribution
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	R06E	20,880	AD		20,880	4.1	Contribution
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	R08E	38,540	AD		38,540	4.1	Contribution
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	R09E	37,600	AD		37,600	4	Contribution
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	R10E	19,600	AD		19,600	3.5	Contribution
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	R11E	58,379	CWT,AD,LV	105224	12,957	4.2	Contribution
					CWT,AD,LV,PIT	105224	75		
					CWT,AD,LV	105223	19,683		
					CWT,AD,LV,PIT	105223	114		
					CWT,AD,LV	105222	19,236		
					CWT,AD,LV,PIT	105222	111		
					AD,LV		6,203		

Appendix A Table 3, continued

Release Site Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	R12E	39,690	AD		39,690	4.2	Contribution
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	R13E	32,800	AD		32,800	4	Contribution
E Fk Salmon R @ Dumpster	1996	DWOR B	R14E	37,410	AD		37,410	4.3	Contribution
				Total CWT Release:			**52,176**		
				Total non-CWT Release:			**240,778**		
				Total Group Release:			**292,954**		
N Fk Salmon Release 4/21/1997	1996	PAH A	R09W	25,520	AD		25,520	4.4	Contribution
N Fk Salmon Release 4/21/1997	1996	PAH A	R11W	44,346	AD		44,346	4.4	Contribution
N Fk Salmon Release 4/21/1997	1996	PAH A	R14W	64,444	CWT,AD	105218	17,541	4.8	Contribution
					CWT,AD,PIT	105218	92		
					CWT,AD	105217	19,875		
					CWT,AD,PIT	105217	104		
					CWT,AD	105216	19,922		
					CWT,AD,PIT	105216	104		
					AD		6,806		
				Total CWT Release:			**57,638**		
				Total non-CWT Release:			**76,672**		
				Total Group Release:			**134,310**		
Lt Salmon R @ Stinky Springs 4/9/97-4/10/97	1996	DWOR B	R06E	20,000	AD		20,000	4.1	Contribution
Lt Salmon R @ Stinky Springs 4/9/97-4/10/97	1996	DWOR B	R12W	41,760	AD		41,760	4.8	Contribution
Lt Salmon R @ Stinky Springs 4/9/97-4/10/97	1996	DWOR B	R13W	43,000	AD		43,000	5	Contribution
Lt Salmon R @ Stinky Springs 4/9/97-4/10/97	1996	DWOR B	R03E	55,720	CWT,AD,LV	105206	19,206	5.6	Contribution
					CWT,AD,LV,PIT	105206	201		
					CWT,AD,LV	105106	9,406		
					CWT,AD,LV,PIT	105106	99		
					AD		24,982		
					AD,LV		1,826		

Appendix A Table 3, continued

Release Site Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Lt Salmon R @ Stinky Springs 4/9/97-4/10/97	1996	DWOR B	R04E	39,250	AD		39,250	5	Contribution
Lt Salmon R @ Stinky Springs 4/9/97-4/10/97	1996	DWOR B	R05E	40,800	AD		40,800	5.1	Contribution
				Total CWT Release:			**28,912**		
				Total non-CWT Release:			**211,618**		
				Total Group Release:			**240,530**		
Salmon R @ McNabb Point 4/14/97-4/15/97	1996	PAH A	R01W	60,270	AD		60,270	4.9	Contribution
Salmon R @ McNabb Point 4/14/97-4/15/97	1996	PAH A	R02W	62,001	CWT,AD	105212	14,605	5	Contribution
					CWT,AD,PIT	105212	89		
					CWT,AD	105211	17,468		
					CWT,AD,PIT	105211	106		
					CWT,AD	105210	17,296		
					CWT,AD,PIT	105210	105		
					AD		12,332		
Salmon R @ McNabb Point 4/14/97-4/15/97	1996	PAH A	R03W	32,200	AD		32,200	4.6	Contribution
				Total CWT Release:			**49,669**		
				Total non-CWT Release:			**104,802**		
				Total Group Release:			**154,471**		
Slate Ck: U Salmon R 4/25/97-5/1/97	1996	DWOR B	R01E	43,340	AD		43,340	4.4	Contribution
Slate Ck: U Salmon R 4/25/97-5/1/97	1996	DWOR B	R02E	43,215	AD		43,215	4.3	Contribution
Slate Ck: U Salmon R 4/25/97-5/1/97	1996	DWOR B	R06E	720	AD		720	4.1	Contribution
Slate Ck: U Salmon R 4/25/97-5/1/97	1996	DWOR B	R07E	61,201	CWT,AD,LV	105162	15,398	4.5	Contribution
					CWT,AD,LV,PIT	105162	82		
					CWT,AD,LV	105161	21,336		
					CWT,AD,LV,PIT	105161	112		
					CWT,AD,LV	105160	20,167		
					CWT,AD,LV,PIT	105160	106		
					AD,LV		4,000		

Appendix A Table 3, continued

Release Site Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Slate Ck: U Salmon R 4/25/97-5/1/97	1996	DWOR B	R08E	1,640	AD		1,640	4.1	Contribution
Slate Ck: U Salmon R 4/25/97-5/1/97	1996	DWOR B	R09E	4,600	AD		4,600	4	Contribution
Slate Ck: U Salmon R 4/25/97-5/1/97	1996	DWOR B	R10E	20,650	AD		20,650	3.5	Contribution
Slate Ck: U Salmon R 4/25/97-5/1/97	1996	DWOR B	R13E	20,000	AD		20,000	4	Contribution
Slate Ck: U Salmon R 4/25/97-5/1/97	1996	DWOR B	R14E	17,845	AD		17,845	4.3	Contribution
				Total CWT Release:			**57,201**		
				Total non-CWT Release:			**156,010**		
				Total Group Release:			**213,211**		
E Fk Salmon R Trap 4/22/97-4/23/97	1996	EAST FK B	R15E	60,720	CWT,AD,LV	105221	14,927	4.8	Contribution
					CWT,AD,LV,PIT	105221	81		
					CWT,AD,LV	105220	20,554		
					CWT,AD,LV,PIT	105220	113		
					CWT,AD,LV	105219	19,269		
					CWT,AD,LV,PIT	105219	106		
					AD,LV		5,670		
E Fk Salmon R Trap 4/22/97-4/23/97	1996	EAST FK B	R16E	70,500	AD		70,500	4.7	Contribution
				Total CWT Release:			**55,050**		
				Total non-CWT Release:			**76,170**		
				Total Group Release:			**131,220**		
Lemhi R: Salmon R 4/16/97-4/18/97	1996	PAH A	R06W	59,400	AD		59,400	4.5	Contribution
Lemhi R: Salmon R 4/16/97-4/18/97	1996	PAH A	R07W	51,120	AD		51,120	4.8	Contribution
Lemhi R: Salmon R 4/16/97-4/18/97	1996	PAH A	R08W	44,800	AD		44,800	4	Contribution
Lemhi R: Salmon R 4/16/97-4/18/97	1996	PAH A	R09W	26,620	AD		26,620	4.4	Contribution

Appendix A Table 3, continued

Release Site Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Lemhi R: Salmon R 4/16/97-4/18/97	1996	PAH A	R10W	59,570	CWT,AD	105215	15,145	4.6	Contribution
					CWT,AD,PIT	105215	81		
					CWT,AD	105214	20,519		
					CWT,AD,PIT	105214	109		
					CWT,AD	105213	20,451		
					CWT,AD,PIT	105213	109		
					AD		3,156		
				Total CWT Release:			**56,414**		
				Total non-CWT Release:			**185,096**		
				Total Group Release:			**241,510**		
Salmon R @ Bruno Bridge 4/15/97-4/16/97	1996	PAH A	R03W	26,680	AD		26,680	4.6	Contribution
Salmon R @ Bruno Bridge 4/15/97-4/16/97	1996	PAH A	R04W	59,220	AD		59,220	4.2	Contribution
Salmon R @ Bruno Bridge 4/15/1997	1996	PAH A	R05W	64,380	AD		64,080	4.7	Contribution
					AD,PIT		300		
				Total CWT Release:			**0**		
				Total non-CWT Release:			**150,280**		
				Total Group Release:			**150,280**		
				Total PAH A-Stock CWT Release				**163,721**	
				Total PAH A-Stock non-CWT Release				**601,565**	
				Total PAH A-Stock Release				**765,286**	
				Total DWOR B-Stock CWT Release				**138,289**	
				Total DWOR B-Stock non-CWT Release				**608,406**	
				Total DWOR B-Stock Release				**746,695**	
				Total EAST FK B-Stock CWT Release				**55,050**	
				Total EAST FK B-Stock non-CWT Release				**76,170**	
				Total EAST FK B-Stock Release				**131,220**	
				Total CWT Release for Magic Valley				**357,060**	
				Total non-CWT Release for Magic Valley				**1,286,141**	
				Total PIT tag Release for Magic Valley				**2,399**	
				Total Magic Valley Hatchery Release				**1,643,201**	

Appendix B. Table 1. Release and recovery data for brood year 1994 steelhead released from Clearwater Fish Hatchery. Only 1-ocean recoveries are available at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns, along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Ball and White (2001).

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
S Fk Clwtr@ Red House Hole 4/19/95-4/20/95	1994	DWOR B	104621	42,581	AD,LV	Contribution	1 2 3	0 ND ND	0 ND ND	0 ND ND	
S Fk Clwtr@ Red House Hole 4/19/95-4/20/95	1994	DWOR B	Untagged	136,975	AD	Contribution	1 2 3	18 ND ND	18 ND ND	36 ND ND	0.03
			Totals:	**179,556**				**18**	**18**	**36**	**0.02**
Cottonwood Ck: S Fk Clrwtr R 4/20/1995	1994	DWOR B	104727	21,252	AD,LV	Contribution	1 2 3	0 ND ND	0 ND ND	0 ND ND	
Cottonwood Ck: S Fk Clrwtr R 4/20/1995	1994	DWOR B	Untagged	84,150	AD	Contribution	1 2 3	8 ND ND	8 ND ND	16 ND ND	0.02
			Totals:	**105,402**				**8**	**8**	**16**	**0.02**
S Fk Red River 10/27/1994	1994	DWOR B	104506	21,590	NONE	Supplementation	1 2 3	0 ND ND	0 ND ND	0 ND ND	0
S Fk Red River 10/27/1994	1994	DWOR B	104505	22,060	NONE	Supplementation	1 2 3	0 ND ND	0 ND ND	0 ND ND	0
S Fk Red River 10/27/1994	1994	DWOR B	Untagged	6,140	NONE	Supplementation	1 2 3	0 ND ND	0 ND ND	0 ND ND	0
			Totals:	**49,790**				**0**	**0**	**0**	**0**
Clear Ck: Clwtr R 4/18/1995	1994	DWOR B	102025	56,533	AD,LV	Fin Erosion Study	1 2 3	143 ND ND	2 ND ND	145 ND ND	0.26

Appendix B Table 1, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Clear Ck: Clwtr R 4/18/1995	1994	DWOR B	102026	62,834	AD,LV	Fin Erosion Study	1	0	1	1	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Clear Ck: Clwtr R 4/18/1995	1994	DWOR B	102027	58,301	AD,LV	Fin Erosion Study	1	0	2	2	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Clear Ck: Clwtr R 4/18/1995	1994	DWOR B	Untagged	6,044	AD	Fin Erosion Study	1	5	0	5	0.08
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**183,712**				**6**	**29**	**35**	**0.08**
S Fk Clwtr R@ Mp18 4/19/1995	1994	DWOR B	104728	20,710	AD,LV	Contribution	1	10	0	10	0.05
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Clwtr R@ Mp18 4/19/1995	1994	DWOR B	Untagged	98,582	AD	Contribution	1	11	0	11	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**119,292**				**21**	**0**	**21**	**0.02**

Total 1-Ocean:	**226**
Total 2-Ocean:	**ND**
Total 3-Ocean:	**ND**
Total Harvest Recoveries:	**195**
Total Hatchery Recoveries:	**31**
Total Releases:	**637,752**
Total Recoveries:	**226**

Appendix B. Table 2. Release and recovery data for brood year 1994 steelhead released from Hagerman National Fish Hatchery. Only 1-ocean recoveries are available at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns, along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Ball and White (2001).

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Lt Salmon R @ Warm Springs Br 4/10/95-4/28/95	1994	OXBOW A	104521	21,810	AD	Contribution	1	17	17	34	0.16
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/10/95-4/28/95	1994	OXBOW A	104522	17,654	AD	Contribution	1	28	28	56	0.32
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/10/95-4/28/95	1994	OXBOW A	Untagged	274,718	AD	Contribution	1	291	290	581	0.21
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**314,182**				**336**	**335**	**671**	**0.21**
Sawtooth Hatchery 4/4/95-4/17/95	1994	SAWTOOTH A	104509	19,667	AD	Direct release	1	63	29	92	0.47
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/4/95-4/17/95	1994	SAWTOOTH A	104507	18,912	AD	Direct release	1	20	23	43	0.23
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/4/95-4/17/95	1994	SAWTOOTH A	104508	19,185	AD	Direct release	1	75	22	97	0.51
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/4/95-4/17/95	1994	SAWTOOTH A	Untagged	119,680	AD	Direct release	1	447	210	657	0.55
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**177,444**				**605**	**284**	**889**	**0.5**
Sawtooth Hatchery 3/28/95-3/31/95	1994	SAWTOOTH A	104515	17,069	AD	Contribution @ Indian riffles	1	91	39	130	0.76
							2	ND	ND	ND	
							3	ND	ND	ND	

Appendix B Table 2, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Sawtooth Hatchery 3/28/95-3/31/95	1994	SAWTOOTH A	104514	20,818	AD	Contribution @ Indian riffles	1	54	23	77	0.37
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/28/95-3/31/95	1994	SAWTOOTH A	Untagged	1,172	AD	Contribution @ Indian riffles	1	10	4	14	1.2
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**39,059**				**155**	**66**	**221**	**0.57**
Sawtooth Hatchery 4/4/95-4/7/95	1994	PAH A	Untagged	193,466	AD	PAH A direct release	1	722	340	1,062	0.55
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**193,466**				**722**	**340**	**1,062**	**0.55**
Sawtooth Hatchery 3/28/95-3/31/95	1994	SAWTOOTH A	104511	17,941	AD	Saw A acclimated release	1	53	24	77	0.43
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/28/95-3/31/95	1994	SAWTOOTH A	104512	18,996	AD	Saw A acclimated release	1	20	35	55	0.29
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/28/95-3/31/95	1994	SAWTOOTH A	104513	19,889	AD	Saw A acclimated release	1	71	30	101	0.51
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/28/95-3/31/95	1994	SAWTOOTH A	104510	19,883	AD	Saw A acclimated release	1	46	16	62	0.31
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/28/95-3/31/95	1994	SAWTOOTH A	Untagged	194,292	AD	Saw A acclimated release	1	725	341	1,066	0.55
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**271,001**				**915**	**446**	**1,361**	**0.5**
Lt Salmon R @ Warm Springs Br 4/10/95-4/28/95	1994	PAH A	104516	20,701	AD	Contribution	1	30	30	60	0.29
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/10/95-4/28/95	1994	PAH A	104517	20,357	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	

Appendix B Table 2, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Lt Salmon R @ Warm Springs Br 4/10/95-4/28/95	1994	PAH A	Untagged	45,264	AD	Contribution	1	177	177	354	0.78
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**86,322**				**207**	**207**	**414**	**0.48**
Sawtooth Hatchery 3/28/95-3/31/95	1994	PAH A	104518	23,561	AD	PAH Acclimated release	1	40	16	56	0.24
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/28/95-3/31/95	1994	PAH A	104519	21,327	AD	PAH Acclimated release	1	38	10	48	0.23
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/28/95-3/31/95	1994	PAH A	104520	17,553	AD	PAH Acclimated release	1	53	8	61	0.35
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/28/95-3/31/95	1994	PAH A	Untagged	6,145	AD	PAH Acclimated release	1	19	9	28	0.46
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**68,586**				**150**	**43**	**193**	**0.28**

Total 1-Ocean:	**4,811**
Total 2-Ocean:	**ND**
Total 3-Ocean:	**ND**
Total Harvest Recoveries:	**3,090**
Total Hatchery Recoveries:	**1,721**
Total Releases:	**1,150,060**
Total Recoveries:	**4,811**

Appendix B. Table 3. Release and recovery data for brood year 1994 steelhead released from Magic Valley Fish Hatchery. Only 1-ocean recoveries are available at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns, along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Ball and White (2001).

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
E Fk Salmon R Trap 4/19/95-4/25/95	1994	EAST FK B	102024	62,484	AD	Contribution	1	8	11	19	0.03
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/19/95-4/25/95	1994	EAST FK B	Untagged	2,516	AD	Contribution	1	1	0	1	0.03
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**65,000**				**9**	**11**	**20**	**0.03**
E Fk Salmon R Trap 4/19/95-4/25/95	1994	DWOR B	102012	21,143	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/19/95-4/25/95	1994	DWOR B	102003	21,698	AD	Contribution	1	1	0	1	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/19/95-4/25/95	1994	DWOR B	102004	20,949	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/19/95-4/25/95	1994	DWOR B	Untagged	359,915	AD	Contribution	1	9	13	22	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**423,705**				**9**	**13**	**22**	**0**
N Fk Salmon Release 4/13/94-4/14/94	1994	PAH A	104661	31,090	AD	Contribution	1	117	81	198	0.64
							2	ND	ND	ND	
							3	ND	ND	ND	
N Fk Salmon Release 4/13/94-4/14/94	1994	PAH A	104660	31,639	AD	Contribution	1	38	26	64	0.2
							2	ND	ND	ND	
							3	ND	ND	ND	

Appendix B Table 3, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
N Fk Salmon Release 4/13/94-4/14/94	1994	PAH A	Untagged	52,321	AD	Contribution	1	133	92	225	0.43
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**115,050**				**288**	**199**	**487**	**0.42**
Salmon R @ McNabb Point 4/10/94-4/12/94	1994	PAH A	102018	21,328	AD	Contribution	1	67	21	88	0.41
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/10/94-4/12/94	1994	PAH A	102016	20,862	AD	Contribution	1	63	20	83	0.4
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/10/94-4/12/94	1994	PAH A	102017	21,078	AD	Contribution	1	105	33	138	0.65
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/10/94-4/12/94	1994	PAH A	Untagged	144,577	AD	Contribution	1	546	172	718	0.5
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**207,845**				**781**	**246**	**1,027**	**0.5**
Lemhi R: Salmon R 4/14/94-4/17/94	1994	PAH A	102015	20,783	AD	Contribution	1	53	37	90	0.43
							2	ND	ND	ND	
							3	ND	ND	ND	
Lemhi R: Salmon R 4/14/94-4/17/94	1994	PAH A	102007	20,810	AD	Contribution	1	31	22	53	0.25
							2	ND	ND	ND	
							3	ND	ND	ND	
Lemhi R: Salmon R 4/14/94-4/17/94	1994	PAH A	102008	20,672	AD	Contribution	1	109	76	185	0.89
							2	ND	ND	ND	
							3	ND	ND	ND	
Lemhi R: Salmon R 4/14/94-4/17/94	1994	PAH A	Untagged	136,005	AD	Contribution	1	441	306	747	0.55
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**198,270**				**634**	**441**	**1,075**	**0.54**
Hazard Ck: Lt Salmon R 4/26/94-5/1/94	1994	DWOR B	102014	21,036	AD	Contribution	1	10	10	20	0.1
							2	ND	ND	ND	
							3	ND	ND	ND	

Appendix B Table 3, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Hazard Ck: Lt Salmon R 4/26/94-5/1/94	1994	DWOR B	102006	20,471	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Hazard Ck: Lt Salmon R 4/26/94-5/1/94	1994	DWOR B	102013	21,137	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Hazard Ck: Lt Salmon R 4/26/94-5/1/94	1994	DWOR B	Untagged	280,035	AD	Contribution	1	49	49	98	0.03
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**342,679**				**59**	**59**	**118**	**0.03**
Salmon R @ Bruno Bridge 4/17/94-4/19/94	1994	PAH A	102011	21,135	AD	Contribution	1	85	27	112	0.53
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Bruno Bridge 4/17/94-4/19/94	1994	PAH A	102009	20,456	AD	Contribution	1	47	15	62	0.3
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Bruno Bridge 4/17/94-4/19/94	1994	PAH A	102010	20,460	AD	Contribution	1	85	28	113	0.55
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Bruno Bridge 4/17/94-4/19/94	1994	PAH A	Untagged	100,819	AD	Contribution	1	430	136	566	0.56
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**162,870**				**647**	**206**	**853**	**0.52**
Slate Ck: U Salmon R 4/12/95-4/22/95	1994	DWOR B	102005	21,224	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Slate Ck: U Salmon R 4/12/95-4/22/95	1994	DWOR B	102001	21,065	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Slate Ck: U Salmon R 4/12/95-4/22/95	1994	DWOR B	102002	21,355	AD	Contribution	1	5	0	5	0.02
							2	ND	ND	ND	
							3	ND	ND	ND	

Appendix B Table 3, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Slate Ck: U Salmon R 4/12/95-4/22/95	1994	DWOR B	Untagged	152,290	AD	Contribution	1	13	0	13	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	**215,934**				**18**	**0**	**18**	**0.01**
						Total 1-Ocean:		**3,620**			
						Total 2-Ocean:		**ND**			
						Total 3-Ocean:		**ND**			
						Total Harvest Recoveries:		**2,445**			
						Total Hatchery Recoveries:		**1,175**			
						Total Releases:		**1,731,353**			
						Total Recoveries:		**3,620**			

Appendix C. Table 1. Release and recovery data for brood year 1993 steelhead released from Clearwater Fish Hatchery. Only the first two recovery years are available at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns, along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Ball (1998) and Ball and White (2001).

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Crooked R Ponds 4/29/94-5/3/94	1993	DWOR B	104737	20,889	AD,LV	Contribution	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
Crooked R Ponds 4/29/94-5/3/94	1993	DWOR B	104732	21,768	AD,LV	Contribution	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
Crooked R Ponds 4/29/94-5/3/94	1993	DWOR B	Untagged	61,793	AD	Contribution	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
			Totals:	**104,450**				**0**	**0**	**0**	**0**
S Fk Clwtr@ Red House Hole 4/25/1994	1993	DWOR B	104736	21,466	AD,LV	Production	1	0	0	0	0.04
							2	9	0	9	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/25/1994	1993	DWOR B	104731	20,428	AD,LV	Production	1	0	0	0	0.1
							2	10	11	21	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/25/1994	1993	DWOR B	Untagged	38,986	AD	Production	1	0	0	0	0.07
							2	13	13	26	
							3	ND	ND	ND	
			Totals:	**80,880**				**32**	**24**	**56**	**0.07**
S Fk Clwtr R@ Mp18 4/25/94-4/26/94	1993	DWOR B	104735	22,137	AD,LV	Production	1	0	0	0	0.09
							2	10	10	20	
							3	ND	ND	ND	

Appendix C Table 1, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
S Fk Clwtr R@ Mp18 4/25/94-4/26/94	1993	DWOR B	Untagged	29,966	AD	Production	1 2 3	0 10 ND	0 11 ND	0 21 ND	0.07
			Totals:	**52,103**				**20**	**21**	**41**	**0.08**
Cottonwood Ck: S Fk Clrwtr R 4/25/1994	1993	DWOR B	104734	21,081	AD,LV	Production	1 2 3	0 0 ND	0 1 ND	0 1 ND	0
Cottonwood Ck: S Fk Clrwtr R 4/25/1994	1993	DWOR B	Untagged	30,967	AD	Production	1 2 3	0 10 ND	0 11 ND	0 21 ND	0.07
			Totals:	**52,048**				**10**	**12**	**22**	**0.04**
Clear Ck: Clwtr R 5/3/1994	1993	DWOR B	104733	20,841	AD,LV	Contribution	1 2 3	0 0 ND	0 0 ND	0 0 ND	0
Clear Ck: Clwtr R 5/3/1994	1993	DWOR B	104729	21,499	AD,LV	Contribution	1 2 3	0 0 ND	0 2 ND	0 2 ND	0.01
Clear Ck: Clwtr R 5/3/1994	1993	DWOR B	104730	21,566	AD,LV	Contribution	1 2 3	0 0 ND	0 1 ND	0 1 ND	0.01
Clear Ck: Clwtr R 5/3/1994	1993	DWOR B	Untagged	89,959	AD	Contribution	1 2 3	0 0 ND	0 4 ND	0 4 ND	1
			Totals:	**153,865**				**0**	**7**	**7**	**0**
S Fk Clwtr@ Red House Hole 4/25/1994	1993	DWOR B	Untagged	104,231	AD	Production	1 2 3	0 35 ND	0 38 ND	0 73 ND	0.07
			Totals:	**104,231**				**35**	**38**	**73**	**0.07**
S Fk Clwtr R@ Mp18 4/25/94-4/26/94	1993	DWOR B	Untagged	52,199	AD	Production	1 2 3	0 18 ND	0 19 ND	0 37 ND	0.07
			Totals:	**52,199**				**0**	**0**	**0**	**0.07**

Appendix C Table 1, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Cottonwood Ck: S Fk Clrwtr R 4/25/1994	1993	DWOR B	Untagged	51,648	AD	Production	1	0	0	0	0.07
							2	18	19	37	
							3	ND	ND	ND	
			Totals:	**51,648**				**0**	**0**	**0**	**0.07**
Crooked R Ponds 4/29/94-5/3/94	1993	DWOR B	Untagged	71,566	RV	Supplementation	1	0	0	0	0
							2	0	0	0	
		(No. PIT Tags: 300)					3	ND	ND	ND	
			Totals:	**71,566**				**0**	**0**	**0**	**0**
						Total 1-Ocean:	**0**				
						Total 2-Ocean:	**199**				
						Total 3-Ocean:	**ND**				
						Total Harvest Recoveries:	**97**				
						Total Hatchery Recoveries:	**102**				
						Total Releases:	**722,990**				
						Total Recoveries:	**199**				

Appendix C. Table 2. Release and recovery data for brood year 1993 steelhead released from Hagerman National Fish Hatchery. Only the first two recovery years are available at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns, along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Ball (1998) and Ball and White (2001).

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Sawtooth Hatchery 4/13/94-4/21/94	1993	SAWTOOTH A	Untagged	650,389	AD	Saw Stock Acclimation Release	1 2 3	1,576 365 ND	334 117 ND	1,910 482 ND	0.37
			Totals:	**650,389**				**1,941**	**451**	**2,392**	**0.37**
Lt Salmon R @ Warm Springs Br 4/22/94-5/2/94	1993	PAH A	104601	20,046	AD,LV	Contribution	1 2 3	3 4 ND	3 4 ND	6 8 ND	0.07
Lt Salmon R @ Warm Springs Br 4/22/94-5/2/94	1993	PAH A	104602	20,039	AD,LV	Contribution	1 2 3	2 0 ND	2 0 ND	4 0 ND	0.02
Lt Salmon R @ Warm Springs Br 4/22/94-5/2/94	1993	PAH A	Untagged	294,858	AD	Contribution	1 2 3	189 28 ND	189 28 ND	378 56 ND	0.15
			Totals:	**334,943**				**226**	**226**	**452**	**0.13**
Lemhi R: Salmon R 4/4/94-4/8/94	1993	PAH A	104603	20,661	AD,LV	Contribution	1 2 3	30 28 ND	15 8 ND	45 36 ND	0.39
Lemhi R: Salmon R 4/4/94-4/8/94	1993	PAH A	Untagged	215,127	AD	Contribution	1 2 3	304 284 ND	153 80 ND	457 364 ND	0.38
			Totals:	**235,788**				**646**	**256**	**902**	**0.38**
Salmon R @ Bruno Bridge 4/11/94-4/12/94	1993	SAWTOOTH A	104926	60,717	AD,LV	Contribution	1 2 3	92 49 ND	7 55 ND	99 104 ND	0.33

Appendix C Table 2, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Salmon R @ Bruno Bridge 4/11/94-4/12/94	1993	SAWTOOTH A	Untagged	121,366	AD	Contribution	1 2 3	179 95 ND	14 107 ND	193 202 ND	0.33
			Totals:	**182,083**				**415**	**183**	**598**	**0.33**
Sawtooth Hatchery 4/29/1994	1993	SAWTOOTH A	104628	59,481	AD,LV	Direct Release	1 2 3	3 12 ND	12 2 ND	15 14 ND	0.05
Sawtooth Hatchery 4/29/1994	1993	SAWTOOTH A	Untagged	1,840	AD	Direct Release	1 2 3	4 1 ND	1 0 ND	5 1 ND	0.33
			Totals:	**61,321**				**20**	**15**	**35**	**0.06**
Sawtooth Hatchery 4/13/94-4/21/94	1993	PAH A	104629	59,581	AD,LV	Acclimated release	1 2 3	45 16 ND	9 7 ND	54 23 ND	0.13
Sawtooth Hatchery 4/13/94-4/21/94	1993	PAH A	Untagged	1,843	AD	Acclimated release	1 2 3	4 1 ND	1 1 ND	5 2 ND	0.38
			Totals:	**61,424**				**66**	**18**	**84**	**0.14**

Total 1-Ocean:	**3,171**
Total 2-Ocean:	**1,292**
Total 3-Ocean:	**ND**
Total Harvest Recoveries:	**3,314**
Total Hatchery Recoveries:	**1,149**
Total Releases:	**1,525,948**
Total Recoveries:	**4,463**

Appendix C. Table 3. Release and recovery data for brood year 1993 steelhead released from Magic Valley Fish Hatchery. Only the first two recovery years are available at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns, along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Ball (1998) and Ball and White (2001).

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Lt Salmon R @ Warm Springs Br 4/23/94-4/27/94	1993	PAH A	104724	21,531	AD,LV	Contribution	1	8	8	16	0.07
							2	0	0	0	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/23/94-4/27/94	1993	PAH A	104723	20,959	AD,LV	Contribution	1	0	0	0	0.04
							2	4	4	8	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/23/94-4/27/94	1993	PAH A	Untagged	72,240	AD	Contribution	1	14	14	28	0.06
							2	7	7	14	
							3	ND	ND	ND	
			Totals:	**114,730**				**33**	**33**	**66**	**0.06**
Pahsimeroi Ponds 4/16/94-4/22/94	1993	PAH A	104726	21,663	AD,LV	Contribution	1	36	28	64	
							2	31	13	44	
							3	ND	ND	ND	
Pahsimeroi Ponds 4/16/94-4/22/94	1993	PAH A	104725	21,293	AD,LV	Contribution	1	30	28	58	0.46
							2	22	18	40	
							3	ND	ND	ND	
Pahsimeroi Ponds 4/16/94-4/22/94	1993	PAH A	Untagged	78,544	AD	Contribution	1	154	131	285	0.66
							2	174	63	237	
							3	ND	ND	ND	
			Totals:	**121,500**				**447**	**281**	**728**	**0.51**
E Fk Salmon R Trap 4/11/94-4/16/94	1993	EAST FK B	104712	21,378	AD,LV	Contribution	1	8	4	12	0.16
							2	12	11	23	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/11/94-4/16/94	1993	EAST FK B	104711	20,647	AD,LV	Contribution	1	8	4	12	0.33
							2	44	12	56	
							3	ND	ND	ND	

Appendix C Table 3, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
E Fk Salmon R Trap 4/11/94-4/16/94	1993	EAST FK B	104713	21,369	AD,LV	Contribution	1 2 3	2 25 ND	4 12 ND	6 37 ND	0.2
E Fk Salmon R Trap 4/11/94-4/16/94	1993	EAST FK B	Untagged	96,987	AD	Contribution	1 2 3	86 90 ND	21 39 ND	107 129 ND	0.24
			Totals:	**160,040**				**275**	**107**	**382**	**0.24**
Hazard Ck: Lt Salmon R 4/22/94-4/28/94	1993	DWOR B	104716	21,582	AD,LV	Contribution	1 2 3	0 6 ND	0 6 ND	0 12 ND	0.06
Hazard Ck: Lt Salmon R 4/22/94-4/28/94	1993	DWOR B	104714	20,881	AD,LV	Contribution	1 2 3	0 9 ND	0 9 ND	0 18 ND	0.09
Hazard Ck: Lt Salmon R 4/22/94-4/28/94	1993	DWOR B	104715	21,243	AD,LV	Contribution	1 2 3	0 11 ND	0 11 ND	0 22 ND	0.1
Hazard Ck: Lt Salmon R 4/22/94-4/28/94	1993	DWOR B	Untagged	125,294	AD	Contribution	1 2 3	0 51 ND	0 51 ND	0 102 ND	0.08
			Totals:	**189,000**				**77**	**77**	**154**	**0.08**
Slate Ck: U Salmon R 4/12/94-4/20/94	1993	DWOR B	104925	62,510	AD,LV	Contribution	1 2 3	11 28 ND	ND 1 ND	11 29 ND	0.06
Slate Ck: U Salmon R 4/12/94-4/20/94	1993	DWOR B	Untagged	57,705	AD	Contribution	1 2 3	10 51 ND	ND 2 ND	10 53 ND	0.11
			Totals:	**120,215**				**100**	**3**	**103**	**0.09**
E Fk Salmon R Trap 4/11/94-4/16/94	1993	DWOR B	104710	21,296	AD,LV	Contribution	1 2 3	0 7 ND	0 0 ND	0 7 ND	0.03
E Fk Salmon R Trap 4/11/94-4/16/94	1993	DWOR B	104721	20,437	AD,LV	Contribution	1 2 3	0 0 ND	0 0 ND	0 0 ND	0

Appendix C Table 3, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
E Fk Salmon R Trap 4/11/94-4/16/94	1993	DWOR B	104722	20,973	AD,LV	Contribution	1	0	0	0	0.04
							2	8	0	8	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/11/94-4/16/94	1993	DWOR B	Untagged	129,694	AD	Contribution	1	0	0	0	0.08
							2	73	31	104	
							3	ND	ND	ND	
			Totals:	**192,400**				**88**	**31**	**119**	**0.06**
Pahsimeroi Ponds 4/16/94-4/22/94	1993	PAH A	Untagged	362,940	AD	Contribution	1	701	597	1,298	0.66
							2	807	300	1,107	
							3	ND	ND	ND	
			Totals:	**362,940**				**1,508**	**897**	**2,405**	**0.66**
Lt Salmon R @ Warm Springs Br 4/23/94-4/27/94	1993	PAH A	Untagged	352,820	AD	Contribution	1	66	66	132	0.06
							2	33	33	66	
							3	ND	ND	ND	
			Totals:	**352,820**				**99**	**99**	**198**	**0.06**
Hazard Ck: Lt Salmon R 4/22/94-4/28/94	1993	DWOR B	Untagged	49,725	AD	Contribution	1	0	0	0	0.08
							2	21	20	41	
							3	ND	ND	ND	
			Totals:	**49,725**				**21**	**20**	**41**	**0.08**
Slate Ck: U Salmon R 4/12/94-4/20/94	1993	DWOR B	Untagged	91,140	AD	Contribution	1	16	ND	16	0.11
							2	82	2	84	
							3	ND	ND	ND	
			Totals:	**91,140**				**98**	**2**	**100**	**0.11**
E Fk Salmon R Trap 4/11/94-4/16/94	1993	DWOR B	Untagged	164,740	AD	Contribution	1	0	0	0	0.01
							2	12	5	17	
							3	ND	ND	ND	
			Totals:	**164,740**				**12**	**5**	**17**	**0.01**

Appendix C Table 3, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
					Total 1-Ocean:	**2,055**					
					Total 2-Ocean:	**2,258**					
					Total 3-Ocean:	**ND**					
					Total Harvest Recoveries:	**2,758**					
					Total Hatchery Recoveries:	**1,555**					
					Total Releases:	**1,919,250**					
					Total Recoveries:	**4,313**					

Appendix D. Table 1. Release and recovery data for brood year 1992 steelhead released from Clearwater Fish Hatchery. All recoveries for this brood year are complete at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns, along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Ball (1998,1999) and Ball and White (2001).

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
S Fk Clwtr R@ Mp18 4/13/1993	1992	DWOR B	104937	21,988	AD,LV	Contribution	1	0	0	0	0
							2	0	0	0	
							3	0	0	0	
S Fk Clwtr R@ Mp18 4/13/1993	1992	DWOR B	102947	25,646	AD,LV	Contribution	1	0	0	0	0.01
							2	0	1	1	
							3	0	0	0	
S Fk Clwtr R@ Mp18 4/13/1993	1992	DWOR B	104938	21,328	AD,LV	Contribution	1	0	0	0	0.01
							2	0	1	1	
							3	0	0	0	
S Fk Clwtr R@ Mp18 4/13/1993	1992	DWOR B	Untagged	57,618	AD	Contribution	1	0	0	0	0
							2	0	0	0	
							3	0	0	0	
			Totals:	**126,580**				**0**	**2**	**2**	**0**
S Fk Clwtr R@ Mp18 4/12/93-4/13/93	1992	DWOR B	Untagged	199,720	AD	Contribution	1	0	0	0	0
							2	0	0	0	
		(No. PIT Tags: 9,868)					3	0	0	0	
			Totals:	**199,720**				**0**	**0**	**0**	**0**

Total 1-Ocean:	**0**
Total 2-Ocean:	**2**
Total 3-Ocean:	**0**
Total Harvest Recoveries:	**0**
Total Hatchery Recoveries:	**2**
Total Releases:	**326,300**
Total Recoveries:	**2**

Appendix D. Table 2. Release and recovery data for brood year 1992 steelhead released from Hagerman National Fish Hatchery. All recoveries for this brood year are complete at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns, along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Ball (1998,1999) and Ball and White (2001).

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Hazard Ck: Lt Salmon R 4/12/1993	1992	SAWTOOTH A	105017	15,806	AD,LV	Contribution	1	20	20	40	0.32
							2	5	5	10	
							3	0	0	0	
Hazard Ck: Lt Salmon R 4/12/1993	1992	SAWTOOTH A	105018	7,726	AD,LV	Contribution	1	0	0	0	0
							2	0	0	0	
							3	0	0	0	
Hazard Ck: Lt Salmon R 4/12/1993	1992	SAWTOOTH A	105019	12,094	AD,LV	Contribution	1	0	0	0	0.23
							2	14	14	28	
							3	0	0	0	
Hazard Ck: Lt Salmon R 4/12/1993	1992	SAWTOOTH A	Untagged	58,468	AD	Contribution	1	23	23	46	0.15
							2	22	22	44	
							3	0	0	0	
			Totals:	**94,094**				**84**	**84**	**168**	
Salmon R @ Hammer Creek 4/26/93-4/30/93	1992	SAWTOOTH A	104946	17,646	AD,LV	Contribution	1	0	0	0	0
							2	0	0	0	
							3	0	0	0	
Salmon R @ Hammer Creek 4/26/93-4/30/93	1992	SAWTOOTH A	104947	18,082	AD,LV	Contribution	1	0	0	0	0.04
							2	4	4	8	
							3	0	0	0	
Salmon R @ Hammer Creek 4/26/93-4/30/93	1992	SAWTOOTH A	104948	17,671	AD,LV	Contribution	1	0	0	0	0.11
							2	10	10	20	
							3	0	0	0	
Salmon R @ Hammer Creek 4/26/93-4/30/93	1992	SAWTOOTH A	Untagged	175,315	AD	Contribution	1	0	0	0	0.05
							2	41	41	82	
							3	0	0	0	
			Totals:	**228,714**				**55**	**55**	**110**	**0.05**

Appendix D Table 2, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Lt Salmon R @ Warm Springs Br 4/14/93-4/23/93	1992	SAWTOOTH A	Untagged	424,768	AD	Contribution	1 2 3	164 159 0	164 159 0	328 318 0	0.15
			Totals:	**424,768**				**323**	**323**	**646**	
Lt Salmon R @ Warm Springs Br 4/14/93-4/23/93	1992	PAH A	Untagged	21,790	AD	Contribution	1 2 3	8 8 0	8 8 0	16 16 0	0.15
			Totals:	**21,790**				**16**	**16**	**32**	**0.15**
Sawtooth Hatchery 3/15/93-3/24/93	1992	PAH A	105022	17,953	AD,LV		1 2 3	40 11 0	10 7 0	50 18 0	0.38
Sawtooth Hatchery 3/15/93-3/24/93	1992	PAH A	105010	8,008	AD,LV	Acclimation Group	1 2 3	12 8 0	2 2 0	14 10 0	0.3
Sawtooth Hatchery 3/15/93-3/24/93	1992	PAH A	105020	20,203	AD,LV	Acclimation Group	1 2 3	23 36 0	3 7 0	26 43 0	0.34
Sawtooth Hatchery 3/15/93-3/24/93	1992	PAH A	105021	18,607	AD,LV	Acclimation Group	1 2 3	23 23 0	7 4 0	30 27 0	0.31
Sawtooth Hatchery 3/15/93-3/24/93	1992	PAH A	Untagged	464,465	AD	Acclimation Group	1 2 3	1,293 754 0	308 160 0	1,601 914 0	0.54
			Totals:	**529,236**				**2,223**	**510**	**2,733**	**0.52**
Sawtooth Hatchery 4/9/1993	1992	PAH A	104949	18,428	AD,LV	Control Group	1 2 3	4 12 0	5 0 0	9 12 0	0.11
Sawtooth Hatchery 4/9/1993	1992	PAH A	104950	10,323	AD,LV	Control Group	1 2 3	0 16 0	5 3 0	5 19 0	0.23
Sawtooth Hatchery 4/9/1993	1992	PAH A	104951	12,216	AD,LV	Control Group	1 2 3	12 13 0	9 3 0	21 16 0	0.3

Appendix D Table 2, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Sawtooth Hatchery 4/9/1993	1992	PAH A	105034	14,817	AD,LV	Control Group	1	14	3	17	0.14
							2	0	4	4	
							3	0	0	0	
Sawtooth Hatchery 4/9/1993	1992	PAH A	Untagged	1,725	AD	Control Group	1	5	1	6	0.58
							2	3	1	4	
							3	0	0	0	
			Totals:	**57,509**				**79**	**34**	**113**	**0.2**
Sawtooth Hatchery 3/15/93-3/24/93	1992	SAWTOOTH A	Untagged	140,626	AD	Acclimated Sawtooth A	1	391	93	484	0.54
							2	228	48	276	
							3	0	0	0	
			Totals:	**140,626**				**619**	**141**	**760**	**0.54**

Total 1-Ocean: **2,693**
Total 2-Ocean: **1,869**
Total 3-Ocean: **0**

Total Harvest Recoveries: **3,399**
Total Hatchery Recoveries: **1,163**

Total Releases: **1,496,737**
Total Recoveries: **4,562**

Appendix D. Table 3. Release and recovery data for brood year 1992 steelhead released from Magic Valley Fish Hatchery. All recoveries for this brood year are complete at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns, along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Ball (1998,1999) and Ball and White (2001).

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
E Fk Salmon R Trap 4/7/93-4/9/93	1992	DWOR B	105005	16,024	AD,LV	Contribution	1	0	0	0	0.01
							2	2	0	2	
							3	0	0	0	
E Fk Salmon R Trap 4/7/93-4/9/93	1992	DWOR B	105007	18,924	AD,LV	Contribution	1	4	0	4	0.07
							2	0	10	10	
							3	0	0	0	
E Fk Salmon R Trap 4/7/93-4/9/93	1992	DWOR B	105009	19,121	AD,LV	Contribution	1	0	1	1	0.01
							2	0	0	0	
							3	1	0	1	
E Fk Salmon R Trap 4/7/93-4/9/93	1992	DWOR B	Untagged	443,331	AD	Contribution	1	40	8	48	0.05
							2	169	15	184	
							3	0	0	0	
			Totals:	**497,400**				**216**	**34**	**250**	**0.05**
Salmon R @ Challis 4/13/1993	1992	PAH A	105011	19,931	AD,LV	Contribution	1	18	12	30	0.3
							2	19	10	29	
							3	0	0	0	
Salmon R @ Challis 4/13/1993	1992	PAH A	Untagged	240,669	AD	Contribution	1	217	145	362	0.3
							2	234	116	350	
							3	0	0	0	
			Totals:	**260,600**				**488**	**283**	**771**	**0.29**
Lemhi R: Salmon R 4/14/93-4/16/93	1992	PAH A	105015	21,390	AD,LV	Contribution	1	44	2	46	
							2	13	6	19	
							3	0	0	0	
Lemhi R: Salmon R 4/14/93-4/16/93	1992	PAH A	105012	22,106	AD,LV	Contribution	1	18	12	30	0.16
							2	4	2	6	
							3	0	0	0	

Appendix D Table 3, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Lemhi R: Salmon R 4/14/93-4/16/93	1992	PAH A	105013	19,692	AD,LV	Contribution	1	31	21	52	0.29
							2	4	2	6	
							3	0	0	0	
Lemhi R: Salmon R 4/14/93-4/16/93	1992	PAH A	Untagged	135,312	AD	Contribution	1	128	86	214	0.22
							2	46	43	89	
							3	0	0	0	
			Totals:	**198,500**				**288**	**174**	**462**	**0.23**
N Fk Salmon Release 4/16/93-4/22/93	1992	PAH A	104924	61,557	AD,LV	Contribution	1	74	49	123	0.29
							2	39	19	58	
							3	0	0	0	
N Fk Salmon Release 4/16/93-4/22/93	1992	PAH A	Untagged	128,943	AD	Contribution	1	140	94	234	0.27
							2	74	37	111	
							3	0	0	0	
			Totals:	**190,500**				**327**	**199**	**526**	**0.28**
Slate Ck: U Salmon R 4/15/1993	1992	DWOR B	Untagged	187,100	AD	Contribution	1	14	ND	14	0.1
							2	155	24	179	
							3	0	0	0	
			Totals:	**187,100**				**169**	**24**	**193**	**0.1**
Hazard Ck: Lt Salmon R 4/16/93-4/20/93	1992	DWOR B	105008	19,895	AD,LV	Contribution	1	0	0	0	0.02
							2	2	2	4	
							3	0	0	0	
Hazard Ck: Lt Salmon R 4/16/93-4/20/93	1992	DWOR B	105004	19,357	AD,LV	Contribution	1	0	0	0	0.02
							2	2	2	4	
							3	0	0	0	
Hazard Ck: Lt Salmon R 4/16/93-4/20/93	1992	DWOR B	105006	19,925	AD,LV	Contribution	1	11	11	22	0.26
							2	15	15	30	
							3	0	0	0	
Hazard Ck: Lt Salmon R 4/16/93-4/20/93	1992	DWOR B	Untagged	266,124	AD	Contribution	1	49	49	98	0.1
							2	85	85	170	
							3	0	0	0	
			Totals:	**325,301**				**164**	**164**	**328**	**0.01**

Appendix D Table 3, continued

Release Site Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Salmon R @ Ellis Bridge 4/12/93-4/13/93	1992	PAH A	105016	20,360	AD,LV	Contribution	1	22	18	40	0.23
							2	4	3	7	
							3	0	0	0	
Salmon R @ Ellis Bridge 4/12/93-4/13/93	1992	PAH A	105014	19,777	AD,LV	Contribution	1	10	8	18	0.36
							2	51	2	53	
							3	0	0	0	
Salmon R @ Ellis Bridge 4/12/93-4/13/93	1992	PAH A	Untagged	226,163	AD	Contribution	1	180	147	327	0.17
							2	45	23	68	
							3	0	0	0	
			Totals:	**266,300**				**312**	**201**	**513**	**0.19**

Total 1-Ocean:	**1,663**
Total 2-Ocean:	**1,379**
Total 3-Ocean:	**1**
Total Harvest Recoveries:	**1,964**
Total Hatchery Recoveries:	**1,079**
Total Releases:	**1,925,701**
Total Recoveries:	**3,043**

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