



**LOWER SNAKE RIVER COMPENSATION PLAN
STEELHEAD FISH HATCHERY EVALUATIONS—IDAHO**

Project Progress Report

October 1, 1998 to September 30, 1999



**Chris Harrington
Senior Fisheries Research Biologist**

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**Lower Snake River Compensation Plan
Steelhead Fish Hatchery Evaluations—Idaho**

1999 Annual Report

By

Chris Harrington

**Idaho Department of Fish and Game
600 South Walnut Street
P.O. Box 25
Boise, ID 83707**

To

**U.S. Fish and Wildlife Service
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ABSTRACT

This annual report summarizes activities associated with Idaho-Lower Snake River Compensation Plan (LSRCP) steelhead hatchery activities from October 1, 1998 through September 30, 1999. Included in this report are all fall 1998 and spring 1999 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 9,318 adult LSRCP steelhead returned to Idaho in the fall of 1998 and spring of 1999. This estimated minimum consisted of 4,045 steelhead from Hagerman National Fish Hatchery releases, 3,888 from Magic Valley Fish Hatchery releases, and 1,385 from Clearwater Fish Hatchery releases. This return was well below the LSRCP goal of 39,260 adult steelhead and a 68% decrease from the 1997-1998 return year.

In April and May 1999, the Idaho-LSRCP steelhead hatcheries released 3,671,228 steelhead smolts. Clearwater Fish Hatchery released 595,998 brood year 1998 Dworshak B-stock smolts. Hagerman National Fish Hatchery released 1,133,825 brood year 1998 A-stock smolts. Magic Valley Fish Hatchery released 1,941,405 brood year 1998 smolts, of which 1,061,673 were B-stock while the remaining 879,732 were A-stock.

The out-migration conditions in 1999 were very good. Total flow and spill at Lower Granite Dam during the peak migration period were near the highest levels seen during the last 20 years. Out-migrant survival under these conditions is expected to be better than average.

Cumulative, unique passive integrated transponder tag detections at downstream dams showed no unusual results from production releases. Clearwater Fish Hatchery releases were detected at an overall rate of 33.1%, but most of this low percentage can be attributed to the poor performance of a supplementation group released in the Red River. Hagerman National Fish Hatchery releases were detected at an overall rate of 58.4% and had relatively little variation. Magic Valley Fish Hatchery releases were detected at 63.6%.

Author:

Chris Harrington
Senior Fisheries Research Biologist

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 U.S. 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 trout *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 as part of the LSRCP mitigation program.

Hatchery evaluation consists of two major components as laid out in the Cooperative Work Agreement established annually between the 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.

This report summarizes juvenile steelhead releases from each of the three Idaho LSRCP steelhead hatcheries during the period October 1, 1998 through September 30, 1999. This report also summarizes total returns, weir operation, and contribution to the fisheries for adult steelhead returning to Idaho during the fall of 1998 and spring of 1999. The experimentation section of the report covers a summary of the findings from the ongoing Squaw Creek Pond study.

METHODS

Hatchery Operations Documentation

Hatchery operations between October 1, 1998 and September 30, 1999 are documented in this report. Any information relevant to the quality of the brood year 1998 smolts released in 1999 or relevant to the early rearing success of brood year 1999 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 (CWT) Recovery Laboratory in Lewiston, Idaho.

Fish Marking

With the exception of 4,993 fish released from Clearwater Fish Hatchery as part of a supplementation study, all brood year 1998 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 to facilitate measurement of adult return success. All production B-stock steelhead that received a CWT 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.

Small numbers of steelhead also received a passive integrated transponder (PIT) tag to monitor out-migration success and timing. Not all releases included a PIT tag group, but groups were distributed with the intention that at least one PIT tag group would be included in each basin. The PIT tags were added preferentially to coded-wire-tagged fish when possible.

Migration Conditions

One of the important factors found to influence survival to adult of Idaho anadromous salmonids is the condition of the river corridor during out-migration. Raymond (1979) discusses several of the issues pertinent to smolt survival during migration. Of primary importance for this consideration is the level of flow in the lower reaches of the Snake River, which directly affects the amount of spill at the four lower Snake River dams, and the length of time taken by smolts during the migration through the river corridor (Berggren and Filardo 1993). This reporting period covers the adults that return as three-, four-, or five-year-olds during the fall of 1998 and the spring of 1999. These adults were from the out-migrations in the springs of 1995, 1996, or 1997. Therefore, the flow conditions during the emigration period for these three years, as well as the flow conditions during the emigration period of 1999, 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 lags behind wild chinook emigration (Raymond, 1979), but falls within the periods identified for chinook by Petrosky.

Migration Timing and Juvenile Survival

Juvenile out-migration timing and survival was estimated with PIT tags. Tagging of hatchery steelhead was performed by IDFG fish marking and HES personnel about one month prior to release to give the fish a chance to recover and to allow for any tagging-induced mortality to occur. Size and mark information was collected at the time of marking and was submitted to the PIT Tag Information System (PTAGIS), a computerized database managed by Pacific States Marine Fisheries Commission (PSMFC). Release information for tag groups was obtained from hatcheries and was submitted to PTAGIS by the HES tag coordinator.

The PIT tags were interrogated at four of the dams on the Snake and Columbia Rivers: Lower Granite, Little Goose, Lower Monumental, and McNary. Arrival timing and tag number data were collected for each interrogation site and linked to the release information found in the PTAGIS database. From this information, smolt migration timing to Lower Granite Dam and a smolt survival index through the system 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%, Russell 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 the hatchery are scanned for PIT tags.

Median travel time to Lower Granite dam was calculated for each of the PIT tag groups released in 1999. 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 steelhead released, multiplied by 100.

Adult Returns

The Harvest Monitoring Project (HMP) estimated the number of LSRCP steelhead that returned to Idaho in the 1998-1999 return year (Hansen and White In Press, a). This estimate consists of steelhead caught during the sport fishery, at hatchery racks, and in-river escapement for off-site release groups. Hansen and White's (In Press, a) 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 return (SAR) rate for each group.

The success of the LSRCP mitigation goals was measured by comparing the estimated adult steelhead returns to the LSRCP goal of 39,260 adults. In addition, the individual contributions of Magic Valley, Clearwater, and Hagerman National fish hatcheries toward the overall mitigation goal was estimated using CWT recovery data supplied by the HMP. It should be noted that the adult return goal for Hagerman National Fish Hatchery remains at 13,600, even though production targets have been reduced from 2.4 million smolts down to 1.3 million smolts. Therefore, the overall adult return goal, as well as the specific goal for Hagerman National Fish Hatchery, is unrealistically high.

Fisheries Contribution

Snouts from coded-wire-tagged steelhead recovered by creel clerks in the fishery were sent to the CWT lab for processing. The HMP derived a harvest estimate by river section for the fishery through a phone survey of angler success (Hansen and White In Press, a). A sample rate was then calculated by river section per month for creel recoveries by dividing the number of harvested fish checked by the estimated harvest in that section (Hansen and White In Press, a). 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 number of steelhead that returned to the East Fork Salmon River weir, Sawtooth Fish Hatchery weir, and two weirs operated by Clearwater Fish Hatchery. The Clearwater Fish Hatchery weirs are located on Crooked River and Red River, which are tributaries to the South Fork of the Clearwater River. All adult steelhead recovered at the traps were measured for length and sex and were scanned for the presence of coded-wire tags. No subsampling of recovered adults took place at any of these weirs during the spring of 1999, so no expansion needed to be done on the tag group contribution. Snouts from steelhead containing a CWT were removed and sent to the CWT Lab 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.

Weir management at all LSRCP weirs was designed to segregate naturally produced steelhead from hatchery-produced steelhead. At the East Fork and Sawtooth weirs, hatchery steelhead were collected for egg production, while natural steelhead were released above the weir. The Crooked River and Red River weirs were operated in the same fashion with the exception that hatchery-origin steelhead were released back down river.

Experimentation

Squaw Pond

The second year of releases from Squaw Pond occurred in 1999. The Squaw Pond release is an ongoing study to determine whether volitional releases from a pond environment improves migration success and reduces residualism in juvenile steelhead. Steelhead smolts reared at Magic Valley Fish Hatchery were released into the Squaw Pond acclimation facility at the earliest practical opportunity in the spring. This allowed the smolts a minimum of two weeks to imprint on the pond and Squaw Creek. After the acclimation period, the dam boards were removed from the outlet according to a prearranged schedule. The goal of board removal was to steadily lower the water level in the pond to encourage the smolts to emigrate freely without forcing them to leave. Representative groups from the early migrants, late migrants, and nonmigrants were PIT tagged to measure out-migration survival and timing. The nonmigrant group was taken from the fish remaining in the pond after all boards had been removed.

A further group of steelhead smolts was sequestered at Sawtooth Fish Hatchery from among the fish destined for Squaw Pond. This group was called the Captive Group and was held to compare precocial development in the hatchery environment to precocial development in the acclimation pond. Precocity was determined through dissecting the fish and noting gonadal development.

Prior to trucking from Magic Valley Fish Hatchery, the population of smolts destined for Squaw Pond was sampled for size and population characteristics. At the termination of volitional migration from the pond, the same information was obtained from the Captive Group that had been held at Sawtooth Fish Hatchery. Size and population data was not collected from the pond due to the difficulty in obtaining a representative sample.

See Osborne and Rhine (2000) for additional information regarding the design and operation of the Squaw Pond study in 1999.

RESULTS AND DISCUSSION

Hatchery Operations Documentation

Clearwater Fish Hatchery

Brood Year 1998—In 1997, smolt production at Clearwater Fish Hatchery was reduced from an eventual release goal of 2,000,000 down to 800,000 to comply with the National Marine Fisheries Service hatchery production cap for the Snake River basin. Brood year 1998 was the second year under the lower goal. At the time the stocking reduction was implemented, Clearwater Fish Hatchery had not yet attained the higher goal, though smolt production had been growing every year.

A total of 699,768 brood year 1998 Dworshak B-stock eyed steelhead eggs were received from Dworshak National Fish Hatchery (McGehee and Patterson 1999). These eggs were all from the middle egg takes and did not represent the entire run. This is common practice for Clearwater Fish Hatchery steelhead, since the fish will be released off-site and will not be part of a broodstock program.

Survival from eyed-egg to smolt was reported to be 85.5% (McGehee and Patterson 1999), which is comparable to the previous year. No disease incidence was reported for the brood year 1998 steelhead.

The bulk of the brood year 1998 steelhead were marked as production fish during the summer of 1998 (McGehee and Patterson 1999). Complete information on stocks, release sites, and exact numbers of each mark type can be found in Appendix A, Table 1.

Survival to the dams was about 63% for the groups released in the lower South Fork of the Clearwater River, whereas survival to the dams for the Clear Creek release was over 70% (Table 1). However, survival for the group released in the upper South Fork of the Clearwater River was only about one third the survival of the lower groups. Furthermore, the travel time for the upper group was almost 37 days compared to 6-7 days for the lower release groups.

Releases in the upper South Fork of the Clearwater River showed greatly decreased survival when compared with other releases in the Clearwater. This trend has held consistent for several years (Harrington 2002a, Harrington 2002b, Rhine et al. 1999). Most of the PIT-tagged releases in the South Fork of the Clearwater River above Harpster were part of experimental releases. It is unclear whether the decreased survival is due to river conditions or the nature of the experimental release.

Brood Year 1999—During the month of April, Clearwater Fish Hatchery received 889,200 eyed brood year 1999 Dworshak B-stock steelhead eggs from the middle takes at Dworshak National Fish Hatchery (George and McGehee 2001). Survival was reported to be greater than 82%, and no health problems were reported.

Hagerman National Fish Hatchery

Brood Year 1998—A total of 1,355,000 eyed steelhead eggs were received from Oxbow Fish Hatchery and Sawtooth Fish Hatchery (Hagerman National Fish Hatchery 1999). These eggs consisted of two stocks: 803,000 Sawtooth A-stock and 552,000 Oxbow A-stock (Hagerman National Fish Hatchery 1998). Survival from egg to release was 94.7% for the Sawtooth A-stock and 86.4% for the Oxbow A-stock. No explanation is given for the difference in survival, though it may be due to location within the three tiers of raceways at Hagerman National Fish Hatchery.

All coded-wire tagging and fin clipping was completed during the end of September and early October 1998. PIT tagging was performed during late February of 1999. Complete information on marks, release timing, and release location can be found in Appendix A, Table 2.

Survival of the PIT-tagged fish to the dams was fairly uniform, with detection rates ranging from a low of 51.7% to a high of 64.7% (Table 1). All of the PIT tag groups were released at the Sawtooth weir, which accounts for much of the uniformity in the performance of these groups. The early and late progeny releases seemed to do somewhat better than the other release groups, but there is no obvious reason for that performance difference.

Brood Year 1999—During late May and early June of 1999, 1,453,000 eyed brood year 1999 steelhead eggs were received from Sawtooth Fish Hatchery and Oxbow Fish Hatchery (Hagerman National Fish Hatchery 1999). These eggs consisted of 899,000 Sawtooth A-stock and 554,000 Oxbow A-stock. Hatching success for the two stocks was about 97% (Hagerman National Fish Hatchery 1999).

Magic Valley Fish Hatchery

Brood Year 1998—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: 1,295,412 Dworshak B-, 7,700 East Fork B-, 887,000 Pahsimeroi A-, and 123,540 Oxbow A-stock eggs (Moore et. al. 1999). Survival to release for the Pahsimeroi A and Oxbow A stocks was 92.4% and 86.6%, respectively. Considering the small number of East Fork B-stock steelhead produced, Magic Valley Fish Hatchery combined them with the Dworshak B-stock in raceway 1E, so no survival estimate can be determined for this group. Survival to release for the Dworshak B-stock fish was 87.7%. This last estimate is atypical, since survival of Dworshak B-stock fish at Magic Valley Fish Hatchery has been considerably worse than survival for any other stock during the last several years. Most of the survival problems in this stock have been attributed to disease and other factors during the fingerling stage. These problems apparently did not arise this year, though no definitive explanation has been given for the change.

All coded-wire tagging and fin clipping occurred during September and October of 1998. All PIT tagging took place during February of 1999. Complete information on marks, release timing, and release location can be found in Appendix A, Table 3.

Detection rates of the PIT-tagged steelhead at the dams was good, with a total survival of 61.6% for Dworshak B-stock fish and 69.6% for Pahsimeroi A-stock fish (Table 1). This 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 steelhead in the Hagerman Valley is generally lower than A-stock survival.

Migration timing between point of release and Lower Granite Dam of the production PIT-tagged steelhead varied from 11.5 days to 23.3 days (Table 1). 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 the date. The various PIT-tagged groups associated with the Squaw Pond study had a much wider variability in migration time, which probably reflects the considerably different conditions they encountered during emigration.

Brood Year 1999—From April through June of 1999, Magic Valley Fish Hatchery received a total of 2,583,519 eyed steelhead eggs comprised of five stocks: 1,446,208 Dworshak B, 57,954 East Fork B, 515,375 Pahsimeroi A, 174,000 Oxbow A, and 389,982 Sawtooth A (Lowell et al. 2001). The Dworshak B-stock steelhead had a survival rate of only about 77%, whereas the other four stocks had survival rates between 90 and 95%. Unfortunately, the improved performance seen in the brood year 1998 Dworshak B-eggs was not maintained.

Migration Conditions

Flows were very good throughout the migration window in 1999 (Table 2). During both the peak and extended periods, flow values were among the highest seen since 1977. Spill at Lower Granite Dam followed the same pattern as flow, which may have increased survival for migrants throughout the migration window.

The three migration years that contributed to the 1999 adult return were 1995, 1996, and 1997. Of these three years, only the first had flows near average, whereas the last two had flows that were well above average during the migration period.

Migration Timing and Juvenile Survival

A total of 10,690 steelhead smolts were released with PIT tags in 1998. With the exception of 4,993 PIT tags released in the upper South Fork of the Clearwater, all of these fish were production smolts. Overall, 45.5% (4,869) of the PIT tags were interrogated at the dams (Table 1). However, this percentage was considerably reduced by the inclusion of the experimental group released in the upper South Fork of the Clearwater, which contained nearly 50% of the PIT tags but had a detection rate of only 26.6% (Table 1). If this release from the upper South Fork of the Clearwater was removed, the detection rate jumps to 62.1%, which is probably a more accurate representation of overall performance for migration year 1998.

In addition, the juvenile detection points at the dams detected small numbers of fish from previous years. Detections from the 1997 migration year are probably steelhead that did not migrate during their first year in the river. Detections from earlier migration years are probably adults that fell back through the detection system. In either case, these detections were exceedingly rare and were not tabulated here.

Adult Returns

The HMP (Hansen and White In Press, a) estimated that Hagerman National Fish Hatchery, Magic Valley Fish Hatchery, and Clearwater Fish Hatchery returned a minimum of 9,318 adult steelhead to Idaho waters in the fall of 1998 and spring of 1999 (Table 3). This estimate does not include in-stream prespawning mortalities or tributary strays from hatchery release groups. Hansen and White (In Press, a) estimated that anglers harvested 5,253 steelhead, while 4,065 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 five years. The 1998-1999 return year showed large declines in adult numbers for both Hagerman National and Magic Valley fish hatcheries. The returns for Clearwater Fish Hatchery showed the only increase. It must be noted that the adult return goal for Clearwater Fish Hatchery was reduced in 1999, from 14,000 to 4,000, which is reflected in the percent goal achievement.

Fisheries Contribution

Hansen and White (In Press, a) estimated that 24,100 hatchery steelhead were harvested by anglers during the 1998-99 season. Of these, 5,253 were produced by the three Idaho LSRCP facilities, while Dworshak National Fish Hatchery, Niagara Springs Fish Hatchery, and hatcheries in Oregon and Washington produced the remainder.

Weir Operation

Sawtooth Fish Hatchery Weir—Nine hundred thirty-three adult A-stock steelhead were trapped at the Sawtooth Fish Hatchery weir between March 23 and May 6, 1999 (Schilling et al. 1999). This total consisted of 529 males (56.7%) and 404 females (43.3%). Of the 529 males, 526 were of hatchery origin; 477 (90.7%) of those were 1-ocean fish. Of the 404 females, 397 were of hatchery origin; 315 (79.3%) of those were 1-ocean fish.

All wild/natural fish along with four hatchery origin males were released directly above the weir for natural spawning (Schilling et al. 1999). Another 15 hatchery males and 15 hatchery females were released into a weired-off section of Beaver Creek, and 10 hatchery males along with 10 hatchery females were released into a weired-off section of Frenchmen Creek. These last two releases were part of a supplementation study conducted by IDFG (Byrne, 2002).

Three hundred sixty-four pairs of hatchery origin steelhead were spawned at the Sawtooth weir in 1999, yielding 1,526,046 green eggs (Schilling et al. 1999). Survival to eye-up for these eggs was 87.7%, which left 1,338,178 eyed-eggs for distribution to Magic Valley and Hagerman National fish hatcheries. Complete disposition for all fish trapped can be found in Table 5.

East Fork Salmon River Weir—Fifty-six B-stock steelhead were recovered at the East Fork trap that operated between April 2 and May 3, 1999 (Schilling et al. 1999). These fish were primarily returns from East Fork progeny that had been raised at Magic Valley Fish Hatchery. Of the 56 total fish recovered, 33 (58.9%) were male and 23 (41.1%) were female. Three of the

males and seven of the females were of natural origin; the rest were hatchery origin. All of the natural origin steelhead along with eight hatchery origin males were released above the weir to spawn naturally (Schilling et al. 1999). Complete disposition for all fish trapped can be found in Table 6.

Crooked River Weir—Trapping at the Crooked River trap commenced on March 31, 1999 and concluded in June (Patterson 1999). During that time, ten steelhead were trapped. Seven of the steelhead were of hatchery-origin, while the remaining three were of wild/natural-origin. Of the seven hatchery-origin steelhead, five were marked with ventral clips, indicating their inclusion in an on-going supplementation study. The ventral clipped steelhead along with the three wild/natural-origin steelhead were released above the weir. The remaining two hatchery steelhead were released below the weir (Table 7). One of these fish is unique. Patterson (1999) reported that an 88 cm adult was trapped that had a right ventral clip. At that size, the fish is easily large enough to be a 2-ocean or even 3-ocean fish. However, the only RV clipped releases in the basin were in 1994 and again in 1997. This would mean that the fish was either a very rare 4-ocean fish or it was a mistaken clip.

Red River Weir—The Red River trap began operation on April 1 and continued through chinook season (Patterson 1999). No adult steelhead were trapped during this time, though Patterson (1999) reported that high runoff and debris caused the trap to be inoperable and even partially destroyed after May 5.

Smolt-to-Adult Return Rates

Clearwater Fish Hatchery

Adult returns in 1999 from Clearwater Fish Hatchery steelhead releases could consist of three different brood years of fish from 1994 to 1996. All of the adipose-clipped fish that were available to the fishery were Dworshak B-stock. In 1996 and 1997, there were small releases (15,215 and 75,984 respectively) of Selway B-stock steelhead that were not adipose clipped. Furthermore, releases in 1995, 1996, and 1997 each included small numbers (49,790, 22,498, and 53,721, respectively) of non-adipose-clipped steelhead that were part of other projects (Appendix B, Table 1; Appendix C, Table 1; Appendix D, Table 1). Adult returns from these non-adipose-clipped releases cannot be adequately evaluated, since they were neither caught in a fishery nor returned to a rack.

In 1995, Clearwater Fish Hatchery released 637,752 brood year 1994 Dworshak B-stock smolts (Appendix D Table 1). About 633 adults were estimated to have returned from this release. Since none of these fish were released at a trapping facility, none were expected to return to a hatchery rack. Therefore, the poor return may be more prone to sampling error.

The second factor influencing this poor return was that production was well below the target of 2,000,000 (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 goal for the facility, returns cannot be expected to approach the original target of 14,000 adult steelhead returning. The formal objectives were scaled down in 1997, but the effect of the reduction was felt earlier.

The 2-ocean returns for brood year 1995 releases showed continued improvement over the performance of brood year 1994. However, the two major factors limiting adult recoveries for Clearwater Fish Hatchery steelhead still applied, with only 1,286 2-ocean adults recovered from a release of 838,583 (Appendix C, Table 1). It must be noted that nearly 12% of this total release (99,598) consisted of fish that did not receive an adipose clip and could not be evaluated adequately.

First year returns of brood year 1996 steelhead released in 1997 were higher than first year returns for brood year 1995 releases (Appendix B Table 1). Since all of these releases consisted of B-stock releases, this may not indicate how subsequent returns will perform. B-stock steelhead tend to return as two- and 3-ocean adults. A stronger showing of 1-ocean returns does not necessarily indicate that the overall SAR for the year class will be strong as well. Brood year 1994 steelhead returned considerably more adults as 1-ocean than did brood year 1995, but brood year 1995 returned more total adults than did brood year 1994.

Hagerman National Fish Hatchery

The 1998-1999 adult steelhead return included fish from three release years. All of the brood year 1994, 1995, and 1996 steelhead released from Hagerman National Fish Hatchery in 1995-1997 were A-stock fish. Though A-stock fish seldom return as 3-ocean adults, 18 brood year 1994 steelhead were estimated to have been included in the 1999 adult returns (Appendix D, Table 2). These few steelhead returns do not appreciably affect the total SARs for those groups as reported in Harrington (2002b).

The HMP estimated that 1,635 adult 2-ocean steelhead were recovered in 1999 from a total brood year 1995 release of 1,322,418 (Appendix C, Table 2). Of these, fishermen accounted for 1,042, while the rest either returned to the Idaho hatchery racks or escaped to spawn naturally. This completes the returns for this brood year, since so few A-stock adults return as 3-ocean fish that they are very unlikely to contribute to the overall SAR.

Smolt-to-adult return rates for upper Salmon River releases were generally below 0.5%. The SARs for the Little Salmon River were slightly better, with SARs for some CWT groups making it over 0.5%. The SARs for the Little Salmon River release may be less accurate than other SARs reported for this hatchery, since there are no rack recoveries for the river. All data for the Little Salmon River are based on creel survey information along with exploitation rate estimates by Ball (1999) and Hansen and White (In Press, b). Furthermore, the relatively high SARs of 0.7% for the group released at the Pahsimeroi Fish Hatchery weir may be unnaturally elevated, since there were no CWT in this group.

The first year of returns for brood year 1996 fish was not promising. A total of 2,392 adult steelhead were recovered from a release of 1,148,330 (Appendix B Table 2). Overall, SARs after the first year were 0.21%. This number is expected to rise as the second year returns come in; however, it is still below the first year SARs for brood year 1995 steelhead. Lower release numbers coupled with lower first year SARs make it likely that overall brood year 1996 performance will be worse compared to the last few years.

Magic Valley Fish Hatchery

Adult returns from Magic Valley Fish Hatchery releases potentially consisted of fish from three different brood years. Surprisingly, the 100 3-ocean adult steelhead recovered in 1999 were all from an A-stock release in the Lemhi River (Appendix D Table 3). This is unusual, since A-stock steelhead rarely return as 3-ocean adults. Few 3-ocean returns were expected from the B-stock releases, since the SARs for the 2-ocean returns from these groups were moderate (Harrington 2002b).

The HMP estimated 1,519 adult brood year 1995 steelhead returned in 1999 from a total release of 1,731,353 (Appendix C, Table 2). Of this total, anglers harvested 1,042, while the remainder either returned to a hatchery rack or contributed to in-river escapement. Since a sizeable percentage of these steelhead were B-stock, it is possible that there will be significant 3-ocean returns in 2000, but past performance suggests that these returns will most likely not alter the overall SARs for these release groups.

The overall SARs for Magic Valley Fish Hatchery brood year 1995 steelhead was 0.29%. This estimate was influenced by the very poor return of B-stock fish to both the East Fork and Little Salmon rivers. The brood year 1995 SAR is 25% less than the SAR for brood year 1994 steelhead, which suggests that the migration conditions encountered during the 1996 out-migration were inferior to those of 1995. This suggests that the 1994 brood year encountered considerably above average conditions during out-migration and their first year in the ocean. This is contrary to expectations based on the relatively good flow and spill conditions encountered in 1996 when compared to 1995 (Table 2).

The first year of adult recoveries for brood year 1996 steelhead was considerably less than the previous year. This is a concern as there was a reduction in the proportion of B-stock fish that would not be expected to return as 1-ocean adults. The number of smolts released was decreased to 1,643,202, but the number of 1-ocean adults declined to 2,269 (Appendix B, Table 3).

Experimentation

Squaw Pond

The results of the 1999 emigration from Squaw Pond were disappointing. Osborne and Rhine (2000) reported that there was no particular evidence that the Squaw Pond acclimation facility had separated residual steelhead smolts from the general population, though they did note an increase in precocity in the pond. These results resemble the results from the 1998 emigration (Osborne and Rhine 1999) and further suggest that use of an acclimation facility in the upper Salmon River basin may not serve to reduce the number of residualized steelhead smolts in the river. Complete information about the characteristics and behavior of the 1999 migrants, as well as information about the operation of the Squaw Pond facility during the 1999 emigration period, can be found in Osborne and Rhine (2000).

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 1999 migration period. A total of 11,886 PIT-tagged steelhead were released from Clearwater, Hagerman National, and Magic Valley fish hatcheries during April and May of 1999. 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														
<i>Dworshak B-Stock:</i>														
AAB	Red River	4/20/99	4993	495	9.9	598	12.0	206	4.1	34	0.7	1,333	26.6	36.6
TDR	Clear Creek	4/20/99	599	142	23.7	197	32.9	67	11.2	7	1.2	413	68.9	7.5
TDR	South Fork Clearwater R.	4/28/99	300	69	23.0	115	38.3	18	6.0	3	1.0	205	68.3	6.5
Total			5,892									1,951	33.1	
Clearwater Hatchery Grand Total			5,892									1,951	33.1	
Hagerman National Fish Hatchery														
<i>Sawtooth A-Stock:</i>														
TDR	Sawtooth Hatchery													
	Feed/Fast Diet													
	TDR99062.50H	4/23/99	300	72	24.0	71	23.7	25	8.3	3	1.0	171	57.0	31.4
	TDR99063.52H	4/23/99	300	75	25.0	55	18.3	24	8.0	1	0.3	155	51.7	20.8
	TDR99063.54H	4/23/99	300	87	29.0	63	21.0	17	5.7	3	1.0	170	56.9	31.3
	Feed/Fast Control													
	TDR99062.49H	4/23/99	299	86	28.8	63	21.1	25	8.4	3	1.0	177	59.2	24.8
	TDR99063.51H	4/23/99	300	79	26.3	70	23.3	28	9.3	0	0.0	177	59.0	20.1
	TDR99063.53H	4/23/99	300	87	29.0	60	20.0	22	7.3	1	0.3	170	56.9	32.4
Early Egg Take Progeny														
	TDR99063.43H	4/23/99	300	84	28.0	76	25.3	25	8.3	2	0.7	187	62.3	16.8
Late Egg Take Progeny														
	TDR99063.77H	4/23/99	300	84	28.0	65	21.7	41	13.7	4	1.3	194	64.7	15.1
Hagerman National Grand Total			2,399									1,401	58.4	
Magic Valley Hatchery														
<i>Dworshak B-Stock</i>														
TDR	Lt Salmon @ Stinky Springs	4/14/99	299	114	38.1	77	25.8	4	1.3	0	0	195	65.2	17.1
TDR	EF Salmon @ Dumpster	4/30/99	300	79	26.3	66	22.0	40	13.3	4	1.3	189	63.0	23.3
TDR	Salmon R @ Tunnel Rock	4/28/99	300	76	25.3	67	22.3	29	9.7	7	2.3	179	59.7	20.3
TDR	Squaw Creek	5/10/99	600	159	26.5	99	16.5	64	10.7	6	1.0	328	54.7	15.1
											0.6			
TDR	Squaw Pond Early Migrants	5/10/99	300	66	22.0	54	18.0	32	10.7	2	0.7	154	51.3	14.3
TDR	Squaw Pond Late Migrants	5/26/99	297	80	26.9	93	31.3	20	6.7	0	0	193	64.3	8.0
TDR	Squaw Pond Non-Migrants	5/26/99	299	95	31.8	89	29.8	27	9.0	0	0	211	70.6	6.4
TDR	Squaw Pond Captive	5/10/99	300	89	29.7	78	26.0	39	13.0	5	1.7	211	70.3	15.7
Total			2,695									1,660	61.6	
<i>Pahsimeroi A-Stock</i>														
TDR	Salmon R. @ Tunnel Rock	4/21/99	300	97	32.3	82	27.3	26	8.7	4	1.3	209	69.7	11.5
TDR	Salmon R. @ Shoup Br	4/19/99	300	106	35.3	80	26.7	23	7.7	5	1.7	214	71.3	16.5
TDR	Lemhi River	4/19/99	300	87	29.0	87	29.0	22	7.3	7	2.3	203	67.7	17.1
Total			900									626	69.6	
Magic Valley Hatchery Grand Total			3,595									2,286	63.6	

Table 2. Snake River mean daily outflow and spill (thousand cubic feet per second) for the Lower Granite Dam fore bay in Washington from 1977-1999 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
1998	81.4	123.9	17.3	37.6
1999	105.8	111.8	36.8	41.1

Table 3. Estimated number of LSRCP hatchery steelhead that returned to Idaho from 1998-1999. The adult returns in 1998 and 1999 included fish from three age classes. Steelhead were reared at Clearwater, Hagerman National, and Magic Valley 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 in-river escapement. 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
Clearwater	1994	37	—	—
Clearwater	1995	—	1,286	—
Clearwater	1996	—	—	62
Estimated Fish Returned in 1998-1999			1,385	
Hagerman	1994	18	—	—
Hagerman	1995	—	1,635	—
Hagerman	1996	—	—	2,392
Estimated Fish Returned in 1998-1999			4,045	
Magic Valley	1994	100	—	—
Magic Valley	1995	—	1,519	—
Magic Valley	1996	—	—	2,269
Estimated Fish Returned in 1998-1999			3,888	
Grand Total			9,318	

Table 4. Steelhead smolts released from Magic Valley, Hagerman National, and Clearwater fish hatcheries that contributed to the 1998-1999 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 1998-1999 Adult Returns					
Brood Year	Fish Hatchery	Number Released	Design Target	Percent of Target	1998-99 Adult Returns
1994	Clearwater	637,752	2,000,000	31.9%	37
1994	Hagerman National	1,151,544	1,300,000	88.6%	18
1994	Magic Valley	1,731,353	2,000,000	86.6%	100
	Total	3,520,649	6,150,000	69.0%	155
1995	Clearwater	838,553	2,000,000	41.9%	1,286
1995	Hagerman National	1,322,849	1,300,000	101.8%	1,635
1995	Magic Valley	1,868,086	2,000,000	93.4%	1,519
	Total	4,029,488	6,150,000	79.0%	4,440
1996	Clearwater	730,001	2,000,000	36.5%	62
1996	Hagerman National	1,147,144	1,300,000	88.2%	2,392
1996	Magic Valley	1,643,202	2,000,000	82.2%	2,269
	Total	3,520,347	6,150,000	69.0%	4,723
Mean annual release as percent of target:				72.3%	
Total adult return:^a					9,318
Adult return goal:					39,260
Percent of goal achieved:					23.7%

^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 1999 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. Data is from Schilling et al. (1999).

HATCHERY ORIGIN n = 923										
Age ^b	Males n = 526					Females n = 397				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	477	26	ND	0	ND	315	23	ND	ND	ND
2-ocean	49	3	ND	0	ND	82	2	ND	ND	ND
Total	526	29 ^c	364	0	133 ^d	397	25 ^c	364	1	7 ^d

NATURAL ORIGIN n = 10										
Age ^b	Males n = 3					Females n = 7				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	1	1	0	0	0	3	3	0	0	0
2-ocean	2	2	0	0	0	4	4	0	0	0
Total	3	3 ^e	0	0	0	7	7 ^e	0	0	0

Total Number Trapped	933	Green Egg Number	1,526,046
Trapping Period	3/23 – 5/6/99	Eyed Egg Number	1,338,178^f (87.7% eye up)

^a Fish were aged using the following aging criteria:

<u>RUN</u>	<u>SEX</u>	<u>LENGTH</u>	<u>AGE</u> (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 1996, released in 1997. Hatchery fish classified as 2-ocean were brood year 1995, released in 1996.

^c Of these fish, 50 (25 male, 25 female) were released in Beaver Creek and Frenchman Creek for natural spawning as part of a supplementation study. Fifteen pair went to Beaver Creek, while the remainder went to Frenchman Creek. Another four hatchery males were released above the weir.

^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 1999 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. Data is from Schilling et al. (1999).

HATCHERY ORIGIN n = 46										
Age^b	Males n = 30					Females n = 16				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	28	7	ND	0	ND	10	0	10	0	0
2-ocean	2	1	ND	0	ND	6	0	6	0	0
Total	30	8^c	18	0	4^d	16	0	16	0	0

NATURAL ORIGIN n = 10										
Age^b	Males n = 3					Females n = 7				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	2	2	0	0	0	1	1	0	0	0
2-ocean	1	1	0	0	0	6	6	0	0	0
Total	3	3^c	0	0	0	7	7^c	0	0	0

Total Number Trapped	56	Green Egg Number	62,442
Trapping Period	4/6-4/27/99	Eyed Egg Number	57,954^e (92.8% eye up)

^a Fish were aged using the following aging criteria:

<u>RUN</u>	<u>SEX</u>	<u>LENGTH</u>	<u>AGE</u> (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 1996, released in 1997. 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 Eyed-eggs were shipped to other hatcheries for rearing.

Table 7. Summary of the 1999 B-stock steelhead return to the Crooked River weir. Hatchery aging criteria, based on length, were used to determine age^a. All data is from Patterson (1999).

HATCHERY ORIGIN n = 7										
Age ^b	Males n = 4					Females n = 3				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	1	0	0	0	0	0	0	0	0	0
2-ocean	3	0	0	0	0	3	0	0	0	0
Total	4	4 ^d	0	0	0	3	3 ^d	0	0	0

NATURAL ORIGIN n = 3										
Age ^b	Males n = 2					Females n = 1				
	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	2	0	0	0	1	1	0	0	0
Total	2	2 ^c	0	0	0	1	1 ^c	0	0	0

Total Number Trapped	10	Green Egg Number	0
Trapping Period	3/31-6/99	Eyed Egg Number	0

^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 1995, released in 1996. Hatchery fish classified as 2-ocean were brood year 1994, released in 1995.

^c Fish were released above the weir with a radio tag.

^d All fish released below the weir. Those fish with ventral clips (2 males, 3 females) received radio tags prior to release.

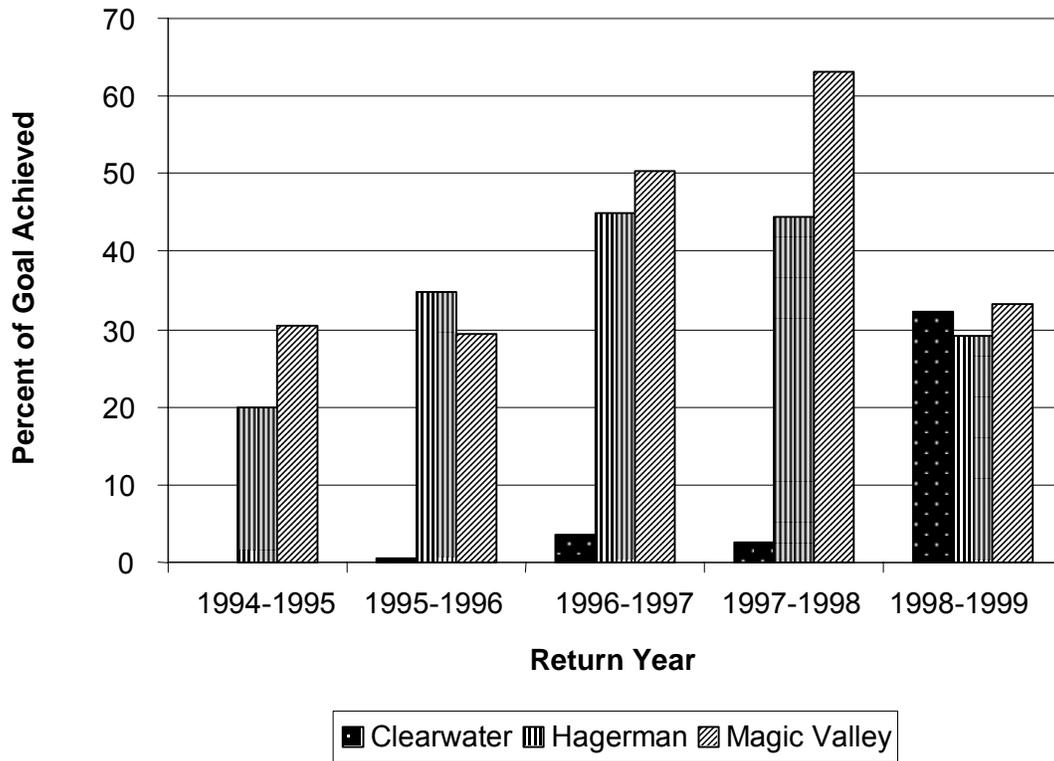


Figure 1. Percent of the adult steelhead return goal achieved by Clearwater, Hagerman National, and Magic Valley fish hatcheries between 1995 and 1999. Annual adult return goals for Clearwater, Hagerman National, and Magic Valley fish hatcheries were 14,000, 13,600, and 11,660, respectively. Note that the adult return goal for Clearwater Fish Hatchery decreased from 14,000 to 4,000 in 1999.

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APPENDICES

Appendix A. Table 1. Release data for all steelhead released from Clearwater Fish Hatchery during 1999. Releases are arranged by coded-wire tag group and raceway. The coded-wire tag 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 coded-wire tag code, the PIT tags were assumed to have been 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 4/22/99-4/23/99	1998	DWOR B	R09W	58,970	CWT,AD,LV	105234	20,025	5.07	Bio-Diet Feed (Feed Exp.)						
						105234	297								
					AD	38,020									
					AD,LV	628									
Total CWT Release:							20,322								
Total non-CWT Release:							38,648								
Total Group Release:							58,970								
Clear Ck Clwtr R 4/22/99-4/23/99	1998	DWOR B	R10W	59,377	CWT,AD,LV	105233	20,370	5.07	Moore/Clark Diet (Feed Exp.)						
						105233	298								
					AD	38,070									
					AD,LV	639									
Total CWT Release:							20,668								
Total non-CWT Release:							110,901								
Total Group Release:							131,569								
Red River@ Soda Ck Brdg 4/20/1999	1998	DWOR B	R11W	4,993	PIT		4,993	5.9	Supplementation (PIT tag Only)						
						Total CWT Release:							0		
						Total non-CWT Release:							4,993		
						Total Group Release:							4,993		
S Fk Clwtr@ Red House Hole 4/27/99-4/29/99	1998	DWOR B	R07E	69,061	AD		69,061	5.3	Contribution						
S Fk Clwtr@ Red House Hole 4/27/99-4/29/99	1998	DWOR B	R07W	69,061	AD		69,061	5.3	Contribution						
S Fk Clwtr@ Red House Hole 4/27/99-4/29/99	1998	DWOR B	R08E	71,035	AD		71,035	5.3	Contribution						
S Fk Clwtr@ Red House Hole 4/27/99-4/29/99	1998	DWOR B	R08W	73,480	CWT,AD,LV	105237	20,763	5.3	Contribution						
						105236	20,904								
					CWT,AD,LV,PIT	105236	296								
					CWT,AD,LV	105235	20,645								
					AD	8,936									
AD,LV	1,936														
S Fk Clwtr@ Red House Hole 4/27/99-4/29/99	1998	DWOR B	R09E	59,511	AD		59,511	5.3	Contribution						
S Fk Clwtr@ Red House Hole 4/27/99-4/29/99	1998	DWOR B	R10E	58,318	AD		58,318	5.3	Contribution						
Total CWT Release:							62,608								
Total non-CWT Release:							337,858								
Total Group Release:							400,466								

Appendix A. Table 2. Release data for all steelhead released from Hagerman National Fish Hatchery during 1999. Releases are arranged by coded-wire tag group and raceway. The coded-wire tag 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 coded-wire tag code, the PIT tags were assumed to have been 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 4/23/1999	1998	Sawtooth A	R50	20,069	CWT,AD	105259	18,871	4.88	Acclimated Feed/Fast
					CWT,AD,PIT AD	105259	300 898		
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R52	19,822	CWT,AD	105260	19,126	4.94	Acclimated Feed/Fast
					CWT,AD,PIT AD	105260	300 396		
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R54	20,397	CWT,AD	105263	19,378	4.99	Acclimated Feed/Fast
					CWT,AD,PIT AD	105263	300 719		
Total CWT Release:							58,275		
Total non-CWT Release:							2,013		
Total Group Release:							60,288		
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R40	15,999	AD		15,999	4.6	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R41	16,905	AD		16,905	4.9	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R42	15,248	AD		15,248	4.81	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R46	21,438	AD		21,438	5.08	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R47	19,009	AD		19,009	5.14	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R48	20,803	AD		20,803	5.26	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R49	19,431	CWT,AD	105257	18,674	4.77	Acclimated % Body Wt. Diet
					CWT,AD,PIT AD	105257	299 458		
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R51	19,310	CWT,AD	105258	18,486	5.13	Acclimated % Body Wt. Diet
					CWT,AD,PIT AD	105258	300 524		
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R53	18,393	CWT,AD	105261	17,507	4.9	Acclimated % Body Wt. Diet
					CWT,AD,PIT AD	105261	300 586		
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R55	20,475	AD		20,475	5.36	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R56	17,496	AD		17,496	4.93	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R57	20,036	AD		20,036	5.55	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R58	17,867	AD		17,867	5.3	Acclimated % Body Wt. Diet

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 4/23/1999	1998	Sawtooth A	R62	18,027	AD		18,027	5.31	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R63	17,960	AD		17,960	5.27	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R64	19,215	AD		19,215	5.39	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R65	19,394	AD		19,394	5.27	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R66	18,398	AD		18,398	4.88	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R67	18,641	AD		18,641	5.1	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R68	18,427	AD		18,427	5.22	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R69	17,893	AD		17,893	4.97	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R70	19,437	AD		19,437	5.19	Acclimated % Body Wt. Diet
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R71	18,264	AD		18,264	4.8	Acclimated % Body Wt. Diet
				Total CWT Release:			55,566		
				Total non-CWT Release:			372,500		
				Total Group Release:			428,066		
Sawtooth Hatchery 4/21—4/26/1999	1998	Sawtooth A	R72	16,960	AD		16,960	4.8	Direct Release
Sawtooth Hatchery 4/21—4/26/1999	1998	Sawtooth A	R73	16,461	AD		16,461	4.82	Direct Release
Sawtooth Hatchery 4/21—4/26/1999	1998	Sawtooth A	R74	18,043	AD		18,043	4.89	Direct Release
Sawtooth Hatchery 4/21—4/26/1999	1998	Sawtooth A	R75	17,687	AD		17,687	4.97	Direct Release
Sawtooth Hatchery 4/21—4/26/1999	1998	Sawtooth A	R76	16,091	AD		16,091	5.06	Direct Release
Sawtooth Hatchery 4/21—4/26/1999	1998	Sawtooth A	R80	18,071	AD		18,071	4.96	Direct Release
Sawtooth Hatchery 4/21—4/26/1999	1998	Sawtooth A	R77	1,208	AD		1,208	5.08	Direct Release
				Total CWT Release:			0		
				Total non-CWT Release:			104,521		
				Total Group Release:			104,521		
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R59	22,017	AD		22,017	5.32	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R60	21,921	AD		21,921	5.17	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—5/10/1999	1998	Hells Canyon A	R61	22,847	AD		22,847	5.18	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R81	16,432	AD		16,432	4.33	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R82	16,519	AD		16,519	4.37	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R95	19,029	AD		19,029	4.63	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R83	17,539	AD		17,539	4.35	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R84	15,931	AD		15,931	4.14	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R96	16,629	AD		16,629	3.86	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R97	14,966	AD		14,966	3.98	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R85	15,910	AD		15,910	3.82	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R86	16,942	AD		16,942	4.3	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R98	15,817	AD		15,817	4.04	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R87	16,581	AD		16,581	4.04	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R88	15,445	AD		15,445	3.95	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R99	14,999	AD		14,999	3.86	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R100	15,906	AD		15,906	4.11	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R89	16,575	AD		16,575	3.97	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R90	16,078	AD		16,078	4.16	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—5/10/1999	1998	Hells Canyon A	R101	16,010	AD		16,010	4.1	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R91	18,514	AD		18,514	4.06	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R92	13,175	CWT,AD CWT,AD AD	104638 104637	6,715 6,300 160	4.21	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R93	15,171	CWT,AD CWT,AD CWT,AD CWT,AD AD	104638 104637 104636 104635	3,601 3,703 4,202 3,343 322	4.42	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R94	13,170	CWT,AD CWT,AD AD	104636 104635	5,935 6,983 252	4.59	Contribution
Lt Salmon R @ Stinky Springs 4/14—5/10/1999	1998	Hells Canyon A	R102	14,913	AD		14,913	3.75	Contribution
							40,782		
							378,254		
							419,036		
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	R43	20,614	CWT,AD CWT,AD,PIT AD	105301 105301	19,833 300 481	5.31	Early Egg Progeny
Sawtooth Hatchery 4/22—4/23/1999	1998	Sawtooth A	R45	19,018	CWT,AD CWT,AD AD	105110 105109	9,309 9,495 214	4.94	Early Egg Progeny
Sawtooth Hatchery 4/22/1999	1998	Sawtooth A	R44	18,520	AD,CWT AD	105302	18,088 432	5.22	Early Egg Progeny
							57,025		
							1,127		
							58,152		
Sawtooth Hatchery 4/22—4/26/1999	1998	Sawtooth A	R77	21,637	CWT,AD CWT,AD CWT,AD,PIT AD	105107 104634	9,008 9,701 Both (300 total PIT) 2,928	5.08	Late Egg Progeny
Sawtooth Hatchery 4/22—4/26/1999	1998	Sawtooth A	R78	21,489	CWT,AD CWT,AD AD	104646 104645	9,875 9,509 2,105	5.28	Late Egg Progeny
Sawtooth Hatchery 4/22—4/26/1999	1998	Sawtooth A	R79	20,636	CWT,AD CWT,AD AD	104644 104643	9,343 9,257 2,036	4.89	Late Egg Progeny
							56,693		
							7,069		
							63,762		
							227,559		
							487,230		
							714,789		

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
							40,782		
							378,254		
							419,036		
							268,341		
							865,484		
							2,399		
							1,133,825		

Appendix A. Table 3. Release data for all steelhead released from Magic Valley Fish Hatchery during 1999. Releases are arranged by coded-wire tag group and raceway. The coded-wire tag 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 coded-wire tag code, the PIT tags were assumed to have been 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
Salmon R @ Red Rock 4/19/1999	1998	PAH A	R15W	17,569	CWT,AD AD	105406	17,407 162	3.8	Contribution
Salmon R @ Red Rock 4/16/99-4/26/99	1998	PAH A	R10W	38,805	AD		38,805	3.6	Contribution
Salmon R @ Red Rock 4/16/99-4/26/99	1998	PAH A	R12W	41,760	AD		41,760	3.6	Contribution
Salmon R @ Red Rock 4/16/99-4/26/99	1998	PAH A	R13W	12,250	AD		12,250	3.6	Contribution
Salmon R @ Red Rock 4/16/1999	1998	PAH A	R16W	61,380	CWT,AD AD	105406	42,936 18,444	3.6	Contribution
				Total CWT Release:			60,343		
				Total non-CWT Release:			111,421		
				Total Group Release:			171,764		
Salmon R @ Shoup Brdg 4/19/99-4/20/99	1998	PAH A	R04W	20,600	AD		20,600	3.6	Contribution
Salmon R @ Shoup Brdg 4/19/99-4/20/99	1998	PAH A	R13W	50,400	AD		50,400	3.6	Contribution
Salmon R @ Shoup Brdg 4/19/99-4/20/99	1998	PAH A	R14W	61,420	CWT,AD CWT,AD,PIT AD	105405 105405	60,174 279 967	3.6	Contribution
				Total CWT Release:			60,453		
				Total non-CWT Release:			71,967		
				Total Group Release:			132,420		
Salmon R @ Tunnel Rock 4/21/99-5/3/99	1998	PAH A	R10W	15,210	AD		15,210	3.96	Contribution
Salmon R @ Tunnel Rock 4/21/1999	1998	PAH A	R11W	62,832	CWT,AD AD	105404	60,661 2,171	3.96	Contribution
Salmon R @ Tunnel Rock 4/21/99-5/3/99	1998	PAH A	R12W	20,160	AD		20,160	3.96	Contribution
Salmon R @ Tunnel Rock 4/21/99-5/3/99	1998	PAH A	R02W	29,480	AD		29,480	4.3	Contribution
Salmon R @ Tunnel Rock 4/21/99-5/3/99	1998	PAH A	R03W	1,531	AD		1,531	4.3	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
							Total CWT Release:	60,661	
							Total non-CWT Release:	68,552	
							Total Group Release:	129,213	
E Fk Salmon R @ Dumpster 4/29/99-5/5/99	1998	DWOR B	R03E	60,865	AD		60,865	4.2	Contribution
E Fk Salmon R @ Dumpster 4/29/99-5/5/99	1998	DWOR B	R07E	1,440	AD		1,440	4.2	Contribution
E Fk Salmon R @ Dumpster 4/29/99-5/5/99	1998	DWOR B	R08E	1,440	AD		1,440	4.2	Contribution
E Fk Salmon R @ Dumpster 4/29/99-5/5/99	1998	DWOR B	R09E	41,800	AD		41,800	4.2	Contribution
E Fk Salmon R @ Dumpster 4/29/99-5/5/99	1998	DWOR B	R10E	40,740	AD		40,740	4.2	Contribution
E Fk Salmon R @ Dumpster 4/29/99-5/5/99	1998	DWOR B	R11E	60,270	AD		60,270	4.2	Contribution
E Fk Salmon R @ Dumpster 4/29/99-5/5/99	1998	DWOR B	R13E	62,370	CWT,AD,LV CWT,AD,LV,PIT AD AD,LV	105403 105403	58,829 300 1,412 1,829	4.2	Contribution
							Total CWT Release:	59,129	
							Total non-CWT Release:	209,796	
							Total Group Release:	268,925	
Salmon R @ Tunnel Rock 4/28/99-5/3/99	1998	DWOR B	R03W	55,844	CWT,AD,LV CWT,AD,LV,PIT AD,LV	105401 105401	53,405 275 2,164	4.3	Contribution
Salmon R @ Tunnel Rock 4/28/99-5/3/99	1998	DWOR B	R14E	21,060	AD		21,060	4.3	Contribution
Salmon R @ Tunnel Rock 4/28/99-5/3/99	1998	DWOR B	R15E	1,230	AD		1,230	4.3	Contribution
							Total CWT Release:	53,680	
							Total non-CWT Release:	24,454	
							Total Group Release:	78,134	
Squaw Ck 4/30/99-5/11/99	1998	DWOR B	R02E	7,600	AD		7,600	4.1	Contribution
Squaw Ck 4/30/99-5/11/99	1998	DWOR B	R04E	57,600	AD		57,600	4.1	Contribution
Squaw Ck 4/30/99-5/11/99	1998	DWOR B	R09E	19,000	AD		19,000	4.1	Contribution
Squaw Ck 4/30/99-5/11/99	1998	DWOR B	R10E	21,000	AD		21,000	4.1	Contribution
Squaw Ck 4/30/99-5/11/99	1998	DWOR B	R12E	477	AD		477	4.1	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
Squaw Ck 4/30/99-5/11/99	1998	DWOR B	R12E	60,324	CWT,AD,LV CWT,AD,LV,PIT AD,LV	105402 105402	58,230 284 1,810	4.1	Contribution
Squaw Ck 4/30/99-5/11/99	1998	DWOR B	R14E	38,805	AD		38,805	4.1	Contribution
				Total CWT Release:			58,514		
				Total non-CWT Release:			146,292		
				Total Group Release:			204,806		
Squaw Creek Pond Below Outlet 5/5/99-5/12/99	1998	DWOR B/ E Fk B	R01E	59,009	CWT,AD,LV CWT,AD,LV CWT,AD,LV,PIT CWT,AD,LV AD,LV	105255 105254 105254 105253	14,407 17,397 286 16,755 10,164	4.1	Contribution
Squaw Creek Pond Below Outlet 5/5/99-5/12/99	1998	DWOR B	R02E	48,000	AD		48,000	4.1	Contribution
				Total CWT Release:			48,845		
				Total non-CWT Release:			58,164		
				Total Group Release:			107,009		
Lt Salmon R @ Stinky Springs 4/12/99-4/16/99	1998	PAH A	R02W	28,820	AD		28,820	4.71	Contribution
				Total CWT Release:			0		
				Total non-CWT Release:			28,820		
				Total Group Release:			28,820		
Sawtooth Hatchery 4/23/1999	1998	PAH A	R09W	26,400	AD		26,400	3.96	Contribution
Sawtooth Hatchery 4/23/1999	1998	PAH A	R10W	13,260	AD		13,260	3.96	Contribution
				Total CWT Release:			0		
				Total non-CWT Release:			39,660		
				Total Group Release:			39,660		
Salmon R @ McNabb Point 4/23/99-4/28/99	1998	PAH A	R04W	12,600	AD		12,600	4	Contribution
Salmon R @ McNabb Point 4/23/99-4/28/99	1998	PAH A	R05W	48,400	AD		48,400	4	Contribution
Salmon R @ McNabb Point 4/23/99-4/28/99	1998	PAH A	R08W	25,010	AD		25,010	4	Contribution
Salmon R @ McNabb Point 4/23/99-4/28/99	1998	PAH A	R09W	35,200	AD		35,200	4	Contribution
				Total CWT Release:			0		
				Total non-CWT Release:			121,210		
				Total Group Release:			121,210		
Squaw Ck Ponds 4/7/99-4/12/99	1998	DWOR B	R15E	31,890	AD		31,890	4	Volitional Release Study

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
Squaw Ck Ponds 4/7/99-4/12/99	1998	DWOR B	R16E	46,354	AD		46,354	4	Volitional Release Study
				Total CWT Release:			0		
				Total non-CWT Release:			78,244		
				Total Group Release:			78,244		
Lt Salmon R @ Stinky Springs 4/12/99-4/16/99	1998	DWOR B	R01W	61,160	AD		61,160	4.71	Contribution
Lt Salmon R @ Stinky Springs 4/12/99-4/16/99	1998	DWOR B	R05E	61,495	CWT,AD,LV AD AD,LV AD,PIT	105256	16,416 41,809 2,985 285	4.71	Contribution
Lt Salmon R @ Stinky Springs 4/12/99-4/16/99	1998	DWOR B	R06E	62,220	AD		62,220	4.71	Contribution
Lt Salmon R @ Stinky Springs 4/12/99-4/16/99	1998	DWOR B	R07E	60,960	AD		60,960	4.71	Contribution
Lt Salmon R @ Stinky Springs 4/12/99-4/16/99	1998	DWOR B	R08E	59,040	AD		59,040	4.71	Contribution
Lt Salmon R @ Stinky Springs 4/12/99-4/16/99	1998	DWOR B	R15E	19,680	AD		19,680	4.71	Contribution
				Total CWT Release:			16,416		
				Total non-CWT Release:			308,139		
				Total Group Release:			324,555		
Lt Salmon R @ Stinky Springs 5/6/1999	1998	PAH A	R04W	12,800	AD		12,800	4	Contribution
				Total CWT Release:			0		
				Total non-CWT Release:			12,800		
				Total Group Release:			12,800		
Lemhi R: Salmon R 4/19/99-4/26/99	1998	PAH A	R04W	20,000	AD		20,000	3.8	Contribution
Lemhi R: Salmon R 4/19/99-4/26/99	1998	PAH A	R07W	55,670	AD		55,670	3.8	Contribution
Lemhi R: Salmon R 4/19/99-4/26/99	1998	PAH A	R08W	38,745	AD		38,745	3.8	Contribution
Lemhi R: Salmon R 4/19/1999	1998	PAH A	R15W	43,450	AD AD,PIT		43,173 277	3.8	Contribution
				Total CWT Release:			0		
				Total non-CWT Release:			157,865		
				Total Group Release:			157,865		
Salmon R @ Cottonwood Cg 4/29/99-5/5/99	1998	PAH A	R05W	16,600	AD		16,600	4.2	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
Salmon R @ Cottonwood Cg 4/29/99-5/5/99	1998	PAH A	R06W	62,920	AD		62,920	4.2	Contribution
Salmon R @ Cottonwood Cg 4/29/99-5/5/99	1998	PAH A	R07W	6,460	AD		6,460	4.2	Contribution
Total CWT Release:							0		
Total non-CWT Release:							85,980		
Total Group Release:							85,980		
Total PAH A-Stock CWT Release							181,457		
Total PAH A-Stock non-CWT Release							698,275		
Total PAH A-Stock Release							879,732		
Total DWOR B-Stock CWT Release							236,584		
Total DWOR B-Stock non-CWT Release							825,089		
Total DWOR B-Stock Release							1,061,673		
Total CWT Release for Magic Valley							418,041		
Total non-CWT Release for Magic Valley							1,523,364		
Total PIT Tag Release for Magic Valley Hatchery							7,870		
Total Magic Valley Hatchery Release							1,941,405		

Appendix B. Table 1. Release and recovery data for brood year 1996 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 Hansen and White (In Press, a).

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 4/28/1997	1996	DWOR B	105145	31,672	AD,LV	Coded wire tag length experiment.	1	0	3	3	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
Clear Ck Clwtr R 4/28/1997	1996	DWOR B	104663	32,575	AD,LV	Coded wire tag length experiment.	1	0	4	4	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
Clear Ck Clwtr R 4/28/1997	1996	DWOR B	Untagged	114,966	AD	Coded wire tag length experiment.	1	0	13	13	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				179,213			0	20	20	0.01	
Crooked R: S Fk Clwtr 4/23/1997	1995	SELWAY	Untagged	75,894	RV	Selway Program, RV only.	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				75,894			0	0	0	0	
S Fk Clwtr@ Red House Hole 4/28—4/30/1997	1996	DWOR B	104610	21,451	AD,LV	Contribution	1	0	2	2	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/28—4/30/1997	1996	DWOR B	102129	21,291	AD,LV	Contribution	1	0	2	2	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/28—4/30/1997	1996	DWOR B	102130	21,163	AD,LV	Contribution	1	0	2	2	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/28—4/30/1997	1996	DWOR B	Untagged	357,268	AD	Contribution	1	0	36	36	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				421,173			0	42	42	0.01	
S Fk Red River 9/5/1996	1996	DWOR B	105120	42,426	NONE	Supplementation	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Red River 9/5/1996	1996	DWOR B	Untagged (4,992 PIT tags)	6,304	NONE	Supplementation	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				48,730			0	0	0	0	
Red River@ Soda Ck Brdg 4/28/1997	1996	DWOR B	Untagged	4,991	All PIT	Supplementation	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				4,991			0	0	0	0	

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 (%)
						Total 1-Ocean:		62			
						Total 2-Ocean:		ND			
						Total 3-Ocean:		ND			
						Total Harvest Recoveries:		0			
						Total Hatchery Recoveries:		62			
						Total Releases:		730,001			
						Total Recoveries:		62			

Appendix B. Table 2. Release and recovery data for brood year 1996 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 Hansen and White (In Press, a).

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 @ Torrey's Hole 4/25/1997	1996	Sawtooth A	105146	57,115	AD	Acclimated Torrey's Hole Contribution	1	108	49	157	0.27
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Torrey's Hole 4/25/1997	1996	Sawtooth A	Untagged	8,305	AD	Acclimated Torrey's Hole Contribution	1	13	6	19	0.23
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				65,420			121	55	176	0.27	
Lt Salmon R @ Stinky Springs 4/14—5/2/1997	1996	PAH A	105105	10,977	AD	Contribution	1	15	15	30	0.27
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/14—5/2/1997	1996	PAH A	105205	20,939	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/14—5/2/1997	1996	PAH A	Untagged	279,225	AD	Contribution	1	131	131	262	0.09
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				311,141			146	146	292	0.09	
Lt Salmon R @ Stinky Springs 4/16/1997	1996	Sawtooth A	Untagged	31,140	AD	Contribution	1	15	15	30	0.1
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				31,140			15	15	30	0.1	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105159	19,619	AD	Contribution	1	27	11	38	0.19
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105157	20,507	AD	Contribution	1	18	11	29	0.14
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105158	19,794	AD	Contribution	1	13	14	27	0.14
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	418,204	AD	Contribution	1	596	570	1,166	0.28
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				478,124			654	606	1,260	0.26	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105156	20,464	AD	Direct Release	1	51	12	63	0.31
							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 4/25/1997	1996	Sawtooth A	105154	19,301	AD	Direct Release	1	39	33	72	0.37
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105155	19,480	AD	Direct Release	1	35	17	52	0.27
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	2,903	AD	Direct Release	1	4	4	8	0.28
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				62,148				129	66	195	0.31
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105153	20,038	AD	Acclimated Group	1	36	17	53	0.26
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105151	20,498	AD	Acclimated Group	1	35	19	54	0.26
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105152	20,268	AD	Acclimated Group	1	20	11	31	0.15
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	727	AD	Acclimated Group	1	1	1	2	0.28
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				61,531				92	48	140	0.23
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105148	27,801	AD	Double Length Wire	1	32	24	56	0.2
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105147	31,771	AD	Double Length Wire	1	40	31	71	0.22
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	2,122	AD	Double Length Wire	1	3	3	6	0.28
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				61,694				75	58	133	0.22
Salmon R @ McNabb Point 4/9/1997-4/24/1997	1996	Sawtooth A	Untagged	75,946	AD	Contribution	1	81	85	166	0.22
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				75,946				81	85	166	0.22
Total 1-Ocean:						2,392					
Total 2-Ocean:						ND					
Total 3-Ocean:						ND					
Total Harvest Recoveries:						1,313					
Total Hatchery Recoveries:						1,079					
Total Releases:						1,147,144					
Total Recoveries:						2,392					

Appendix B. Table 3. Release and recovery data for brood year 1996 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 pre-spawning mortalities. Recovery data is from Hansen and White (In Press, a).

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 4/11/1997	1996	PAH A	Untagged	84,715	AD	Late eggs. Acclimated group	1	122	72	194	0.23
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				84,715			122	72	194		
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	105224	13,032	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	105222	19,347	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	105223	19,798	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R @ Dumpster 4/23/97-4/30/97	1996	DWOR B	Untagged	240,777	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				292,954			0	0	0	0	
N Fk Salmon Release 4/21/1997	1996	PAH A	105216	20,026	AD	Contribution	1	79	22	101	0.5
							2	ND	ND	ND	
							3	ND	ND	ND	
N Fk Salmon Release 4/21/1997	1996	PAH A	105217	19,979	AD	Contribution	1	38	22	60	0.3
							2	ND	ND	ND	
							3	ND	ND	ND	
N Fk Salmon Release 4/21/1997	1996	PAH A	105218	17,633	AD	Contribution	1	22	20	42	0.24
							2	ND	ND	ND	
							3	ND	ND	ND	
N Fk Salmon Release 4/21/1997	1996	PAH A	Untagged	76,673	AD	Contribution	1	185	86	271	0.35
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				134,311			324	150	474	0.35	
Lt Salmon R @ Stinky Springs 4/9/97-4/10/97	1996	DWOR B	105206	19,407	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/9/97-4/10/97	1996	DWOR B	105106	9,505	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/9/97-4/10/97	1996	DWOR B	Untagged	211,618	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				240,530			0	0	0	0	

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 (%)
Salmon R @ McNabb Point 4/14/97-4/15/97	1996	PAH A	105212	14,694	AD	Contribution	1	19	16	35	0.24
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/14/97-4/15/97	1996	PAH A	105210	17,401	AD	Contribution	1	12	19	31	0.18
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/14/97-4/15/97	1996	PAH A	105211	17,574	AD	Contribution	1	22	20	42	0.24
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/14/97-4/15/97	1996	PAH A	Untagged	104,802	AD	Contribution	1	112	118	230	0.22
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				154,471				165	173	338	0.22
Slate Ck U Salmon R 4/25/97-5/1/97	1996	DWOR B	105162	15,480	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Slate Ck U Salmon R 4/25/97-5/1/97	1996	DWOR B	105160	20,273	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Slate Ck U Salmon R 4/25/97-5/1/97	1996	DWOR B	105161	21,448	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Slate Ck U Salmon R 4/25/97-5/1/97	1996	DWOR B	Untagged	156,010	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				213,211				0	0	0	0
E Fk Salmon R Trap 4/22/97-4/23/97	1996	East Fk B	105221	15,007	AD,LV	Contribution	1	18	5	23	0.15
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/22/97-4/23/97	1996	East Fk B	105219	19,375	AD,LV	Contribution	1	10	4	14	0.07
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/22/97-4/23/97	1996	East Fk B	105220	20,667	AD,LV	Contribution	1	17	2	19	0.09
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/22/97-4/23/97	1996	East Fk B	Untagged	76,171	AD	Contribution	1	62	27	89	0.12
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				131,220				107	38	145	0.11
Lemhi R: Salmon R 4/16/97-4/18/97	1996	PAH A	105213	20,560	AD	Contribution	1	58	23	81	0.39
							2	ND	ND	ND	
							3	ND	ND	ND	
Lemhi R: Salmon R 4/16/97-4/18/97	1996	PAH A	105214	20,628	AD	Contribution	1	36	23	59	0.29
							2	ND	ND	ND	
							3	ND	ND	ND	
Lemhi R: Salmon R 4/16/97-4/18/97	1996	PAH A	105215	15,226	AD	Contribution	1	27	17	44	0.29
							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 (%)
Lemhi R: Salmon R 4/16/97-4/18/97	1996	PAH A	Untagged	185,096	AD	Contribution	1	397	208	605	0.33
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				241,510			518	271	789	0.33	
Salmon R @ Bruno Bridge 4/15/97-4/16/97	1996	PAH A	Untagged	150,280	AD	Contribution	1	160	169	329	0.22
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				150,280			160	169	329	0.22	
Total 1-Ocean:						2,269					
Total 2-Ocean:						ND					
Total 3-Ocean:						ND					
Total Harvest Recoveries:						1,396					
Total Hatchery Recoveries:						873					
Total Releases:						1,643,202					
Total Recoveries:						2,269					

Appendix C. Table 1. Release and recovery data for brood year 1995 steelhead released from Clearwater Fish Hatchery. Only 1- and 2-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 pre-spawning mortalities. Recovery data is from Hansen and White (In Press, a) and Hansen and White (In Press, b).

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Red River: S Fk Clwtr 4/16/1996	1995	DWOR B	104630	6,163	LV	Supplementation NBS	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
Red River: S Fk Clwtr 4/16/1996	1995	DWOR B	Untagged	191	NONE	Supplementation NBS	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
Totals:				6,354			0	0	0	0	
S Fk Red River 9/6/1995	1995	DWOR B	102022	40,970	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Red River 9/6/1995	1995	DWOR B	Untagged	6,256	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				47,226			ND	ND	ND		
S Fk Clwtr@ Red House Hole 4/17/1996	1995	DWOR B	102029	63,743	AD,LV	Contribution	1	0	0	0	0.21
							2	61	72	133	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/17/1996	1995	DWOR B	Untagged	121,471	AD	Contribution	1	0	0	0	0.20
							2	112	133	245	
							3	ND	ND	ND	
Totals:				185,214			173	205	378	0.20	
S Fk Clwtr; 2nd Br Up 4/18/1996	1995	DWOR B	103515	64,254	AD,LV	Contribution	1	0	0	0	0.26
							2	97	73	170	
							3	ND	ND	ND	
S Fk Clwtr; 2nd Br Up 4/18/1996	1995	DWOR B	Untagged	61,755	AD	Contribution	1	0	0	0	0.26
							2	93	70	163	
							3	ND	ND	ND	
Totals:				126,009			190	143	333	0.26	
Clear Ck Clwtr R 4/19/96-4/24/96	1995	DWOR B	103053	63,556	AD,LV	Contribution	1	0	2	2	0.11
							2	26	44	70	
							3	ND	ND	ND	
Clear Ck Clwtr R 4/19/96-4/24/96	1995	DWOR B	Untagged	99,049	AD	Contribution	1	0	3	3	0.11
							2	40	69	109	
							3	ND	ND	ND	
Totals:				162,605			66	118	184	0.11	
Cottonwood Ck S Fk Clwtr R 4/18/1996	1995	DWOR B	103514	63,551	AD,LV	Contribution	1	0	0	0	0.2
							2	56	72	128	
							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 (%)
Cottonwood Ck S Fk Clwtr R 4/18/1996	1995	DWOR B	Untagged	57,739	AD	Contribution	1	0	0	0	0.20
							2	51	65	116	
							3	ND	ND	ND	
Totals:				121,290				107	137	244	0.20
Red River: S Fk Clwtr 4/17/1996	1995	DWOR B	Untagged	8,000	AD	Supplementation Project	1	0	0	0	0.03
							2	0	2	2	
							3	ND	ND	ND	
Totals:				8,000				0	2	2	0.03
Clear Ck Clwtr R 4/17/1996	1994	DWOR B	Untagged	135,837	AD	2 Yr Rearing	1	0	4	4	0.11
							2	56 ^a	94 ^a	150 ^a	
							3	ND	ND	ND	
Totals:				135,837				56	98	154	0.11
Crooked R Ponds 4/15/1996	1995	SELWAY	Untagged	15,215	LV	Wild Selway Stock	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
Totals:				15,215				0	0	0	0
Crooked R Ponds 4/15/1996	1995	DWOR B	Untagged	16,144	LV	Selway Study, Hatchery Stock	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
Totals:				16,144				0	0	0	0
Crooked R Ponds 4/15/1996	1995	DWOR B	Untagged	14,659	LV	Hatch/Wild Selway study	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
Totals:				14,659				0	0	0	0
Total 1-Ocean:						9					
Total 2-Ocean:						1,286					
Total 3-Ocean:						ND					
Total Harvest Recoveries:						592					
Total Hatchery Recoveries:						703					
Total Releases:						838,553					
Total Recoveries:						1,295					

^a Based on harvest and rack return rates for 1-year reared fish from marked Clear Creek release group.

Appendix C. Table 2. Release and recovery data for brood year 1995 steelhead released from Hagerman National Fish Hatchery. Only 1- and 2-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 Hansen and White (In Press, a) and Hansen and White (In Press, b).

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 4/8—4/22/1996	1995	Hells Canyon A	104538	20,068	AD	Contribution	1	37	37	74	0.42
							2	5	5	10	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/8—4/22/1996	1995	Hells Canyon A	104539	21,012	AD	Contribution	1	82	82	164	1.16
							2	40	40	80	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/8—4/22/1996	1995	Hells Canyon A	104540	20,389	AD	Contribution	1	54	54	108	0.64
							2	11	11	22	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/8—4/22/1996	1995	Hells Canyon A	Untagged	271,829	AD	Contribution	1	402	402	804	0.46
							2	229	229	458	
							3	ND	ND	ND	
Totals:				333,298				860	860	1,720	0.52
Salmon R @ Torrey's Hole 4/19/1996	1995	Sawtooth A	104526	21,388	AD	Acc. Torrey's Hole	1	48	13	61	0.42
							2	26	2	28	
							3	ND	ND	ND	
Salmon R @ Torrey's Hole 4/19/1996	1995	Sawtooth A	104527	21,765	AD	Acc. Torrey's Hole	1	88	23	111	0.56
							2	9	1	10	
							3	ND	ND	ND	
Salmon R @ Torrey's Hole 4/19/1996	1995	Sawtooth A	104528	21,503	AD	Acc. Torrey's Hole	1	20	5	25	0.14
							2	4	2	6	
							3	ND	ND	ND	
Salmon R @ Torrey's Hole 4/19/1996	1995	Sawtooth A	Untagged	2,000	AD	Acc. Torrey's Hole	1	5	1	6	0.35
							2	1	0	1	
							3	ND	ND	ND	
Totals:				66,656				201	47	248	0.37
Sawtooth Hatchery 4/19—5/16/1996	1995	Pah A	104532	21,720	AD	Acc. & Vol. Pah-A Release	1	73	10	83	0.5
							2	22	3	25	
							3	ND	ND	ND	
Sawtooth Hatchery 4/19—5/16/1996	1995	Pah A	104533	22,336	AD	Acc. & Vol. Pah-A Release	1	34	10	44	0.31
							2	24	1	25	
							3	ND	ND	ND	
Sawtooth Hatchery 4/19—5/16/1996	1995	Pah A	104534	20,414	AD	Acc. & Vol. Pah-A Release	1	16	4	20	0.17
							2	15	0	15	
							3	ND	ND	ND	
Sawtooth Hatchery 4/19—5/16/1996	1995	Pah A	Untagged	179,964	AD	Acc. & Vol. Pah-A Release	1	437	153	590	0.43
							2	137	41	178	
							3	ND	ND	ND	
Totals:				244,434				758	222	980	0.4

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 (%)
Lt Salmon R @ Warm Springs Br 4/8—4/22/1996	1995	Pah A	104535	20,699	AD	Contribution	1	0	0	0	0.1
							2	10	10	20	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/8—4/22/1996	1995	Pah A	104536	20,825	AD	Contribution	1	0	0	0	0.05
							2	5	5	10	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/8—4/22/1996	1995	Pah A	104537	19,762	AD	Contribution	1	8	8	16	0.4
							2	32	32	64	
							3	ND	ND	ND	
Lt Salmon R @ Warm Springs Br 4/8—4/22/1996	1995	Pah A	Untagged	3,771	AD	Contribution	1	5	5	10	0.42
							2	3	3	6	
							3	ND	ND	ND	
Totals:				65,057				63	63	126	0.19
Pahsimeroi Hatchery 3/26/1996	1995	Pah A	Untagged	21,196	AD	Pahsimeroi FH Contribution	1	80	38	118	0.7
							2	22	9	31	
							3	ND	ND	ND	
Totals:				21,196				102	47	149	
Hazard Ck Lt Salmon R 4/24—4/29/1996	1995	Hells Canyon A	Untagged	130,911	AD	Contribution	1	192	192	384	0.46
							2	109	109	218	
							3	ND	ND	ND	
Totals:				130,911				301	301	602	
Sawtooth Hatchery 4/15—4/19/1996	1995	Sawtooth A	104531	21,305	AD	Sawtooth Acclimated	1	57	16	73	0.41
							2	13	2	15	
							3	ND	ND	ND	
Sawtooth Hatchery 4/15—4/19/1996	1995	Sawtooth A	104529	22,036	AD	Sawtooth Acclimated	1	70	17	87	0.44
							2	8	3	11	
							3	ND	ND	ND	
Sawtooth Hatchery 4/15—4/19/1996	1995	Sawtooth A	104530	21,716	AD	Sawtooth Acclimated	1	32	12	44	0.34
							2	29	1	30	
							3	ND	ND	ND	
Sawtooth Hatchery 4/15—4/19/1996	1995	Sawtooth A	Untagged	327,655	AD	Sawtooth Acclimated	1	791	278	1,069	0.42
							2	247	75	322	
							3	ND	ND	ND	
Totals:				392,712				1,247	404	1,651	0.42
Sawtooth Hatchery 4/15—4/19/1996	1995	Sawtooth A	104525	21,581	AD	Sawtooth Direct Release	1	13	18	31	0.18
							2	7	1	8	
							3	ND	ND	ND	
Sawtooth Hatchery 4/15—4/19/1996	1995	Sawtooth A	104523	22,106	AD	Sawtooth Direct Release	1	26	21	47	0.34
							2	24	4	28	
							3	ND	ND	ND	
Sawtooth Hatchery 4/15—4/19/1996	1995	Sawtooth A	104524	21,652	AD	Sawtooth Direct Release	1	40	17	57	0.3
							2	5	3	8	
							3	ND	ND	ND	
Sawtooth Hatchery 4/15—4/19/1996	1995	Sawtooth A	Untagged	3,246	AD	Sawtooth Direct Release	1	16	6	22	0.86
							2	5	1	6	
							3	ND	ND	ND	
Totals:				68,585				136	71	207	0.3

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 (%)
				Total 1-Ocean:		4,048					
				Total 2-Ocean:		1,635					
				Total 3-Ocean:		ND					
				Total Harvest Recoveries:		3,668					
				Total Recoveries:	Hatchery	2,015					
				Total Releases:		1,322,849					
				Total Recoveries:		5,683					

Appendix C. Table 3. Release and recovery data for brood year 1995 steelhead released from Magic Valley Fish Hatchery. Only 1- and 2-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 Hansen and White (In Press, a) and Hansen and White (In Press, b).

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 4/17/96-4/19/96	1995	PAH A	103513	62,686	AD	Contribution	1	127	47	174	0.36
							2	24	27	51	
							3	ND	ND	ND	
Salmon R @ Bruno Bridge 4/17/96-4/19/96	1995	PAH A	Untagged	144,559	AD	Contribution	1	293	108	401	0.36
							2	55	62	117	
							3	ND	ND	ND	
Totals:				207,245			499	244	743	0.36	
Lemhi R: Salmon R 4/15/96-4/26/96	1995	PAH A	103512	61,673	AD	Contribution	1	262	97	359	0.65
							2	17	26	43	
							3	ND	ND	ND	
Lemhi R: Salmon R 4/15/96-4/26/96	1995	PAH A	Untagged	139,539	AD	Contribution	1	593	219	812	0.65
							2	39	59	98	
							3	ND	ND	ND	
Totals:				201,212			911	401	1,312	0.65	
Salmon R @ McNabb Point 4/15/96-4/17/96	1995	PAH A	103511	61,552	AD	Contribution	1	214	79	293	0.57
							2	30	26	56	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/15/96-4/17/96	1995	PAH A	Untagged	140,417	AD	Contribution	1	488	180	668	0.57
							2	68	60	128	
							3	ND	ND	ND	
Totals:				201,969			800	345	1,145	0.57	
N Fk Salmon Release 4/15/96-4/16/96	1995	PAH A	103510	61,852	AD	Contribution	1	408	151	559	1.07
							2	75	26	101	
							3	ND	ND	ND	
N Fk Salmon Release 4/15/96-4/16/96	1995	PAH A	Untagged	65,856	AD	Contribution	1	434	160	594	1.07
							2	80	28	108	
							3	ND	ND	ND	
Totals:				127,708			997	365	1,362	1.07	
Hazard Ck Lt Salmon R 4/9/96-4/12/96	1995	DWOR B	103509	62,228	AD,LV	Contribution	1	4	4	8	0.16
							2	47	47	94	
							3	ND	ND	ND	
Hazard Ck Lt Salmon R 4/9/96-4/12/96	1995	DWOR B	Untagged	341,053	AD	Contribution	1	22	22	44	0.16
							2	258	258	516	
							3	ND	ND	ND	
Totals:				403,281			331	331	662	0.16	
E Fk Salmon R Trap 4/24/96-5/4/96	1995	DWOR B	103508	63,440	AD,LV	Contribution	1	0	0	0	0.03
							2	17	4	21	
							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 4/24/96-5/4/96	1995	DWOR B	Untagged	115,235	AD	Contribution	1	11	2	13	0.05
							2	31	8	39	
							3	ND	ND	ND	
Totals:				178,675				59	14	73	0.04
Slate Ck U Salmon R 4/26/96-5/2/96	1995	DWOR B	103507	61,962	AD,LV	Contribution	1	0	0	0	0.01
							2	7	2	9	
							3	ND	ND	ND	
Totals:				236,297				27	12	39	0.02
E Fk Salmon R Trap 4/24/96-4/30/96	1995	East Fk B	104613	10,891	AD,LV	Contribution	1	7	1	8	0.11
							2	3	1	4	
							3	ND	ND	ND	
Totals:				62,920				29	7	36	0.06
E Fk Salmon R @ Dumpster 4/27/96-5/4/96	1995	DWOR B	Untagged	210,459	AD	Contribution	1	20	3	23	0.05
							2	57	17	74	
							3	ND	ND	ND	
Totals:				210,459				77	20	97	0.05
E Fk Salmon R Below Herd Ck 4/12/1996	1995	DWOR B	Untagged	38,320	AD	Contribution	1	5	1	6	0.05
							2	12	3	15	
							3	ND	ND	ND	
Totals:				38,320				17	4	21	0.05
Total 1-Ocean:						3,971					
Total 2-Ocean:						1,519					
Total 3-Ocean:						ND					
Total Harvest Recoveries:						3,747					
Total Hatchery Recoveries:						1,743					
Total Releases:						1,868,086					
Total Recoveries:						5,490					

Appendix D. Table 1. Release and recovery data for brood year 1994 steelhead released from Clearwater Fish Hatchery. All returns 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 and White (2001), Hansen and White (In Press a), and Hansen and White (In Press, b).

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	0	0	0	0.05
							2	19	0	19	
							3	0	3	3	
S Fk Clwtr@ Red House Hole 4/19/95-4/20/95	1994	DWOR B	Untagged	136,975	AD	Contribution	1	16	16	32	0.1
							2	61	29	90	
							3	0	10	10	
Totals:				179,556			96	58	154	0.09	
Cottonwood Ck S Fk Clwtr R 4/20/1995	1994	DWOR B	104727	21,252	AD,LV	Contribution	1	0	0	0	0.01
							2	0	1	1	
							3	0	2	2	
Cottonwood Ck S Fk Clwtr R 4/20/1995	1994	DWOR B	Untagged	84,150	AD	Contribution	1	10	10	20	0.09
							2	32	15	47	
							3	0	6	6	
Totals:				105,402			42	34	76	0.07	
S Fk Red River 10/27/1994	1994	DWOR B	104506	21,590	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Red River 10/27/1994	1994	DWOR B	104505	22,060	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Red River 10/27/1994	1994	DWOR B	Untagged	6,140	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				49,790			ND	ND	ND	ND	
Clear Ck Clwtr R 4/18/1995	1994	DWOR B	102025	56,533	AD,LV	Fin Erosion Study	1	143	2	145	0.3
							2	0	17	17	
							3	5	1	6	
Clear Ck Clwtr R 4/18/1995	1994	DWOR B	102026	62,834	AD,LV	Fin Erosion Study	1	0	1	1	0.1
							2	28	34	62	
							3	0	0	0	
Clear Ck Clwtr R 4/18/1995	1994	DWOR B	102027	58,301	AD,LV	Fin Erosion Study	1	0	2	2	0.14
							2	51	28	79	
							3	0	1	1	
Clear Ck Clwtr R 4/18/1995	1994	DWOR B	Untagged	6,044	NONE	Fin Erosion Study	1	5	0	5	0.18
							2	3	3	6	
							3	0	0	0	
Totals:				183,712			235	89	324	0.18	

Appendix D. 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 4/19/1995	1994	DWOR B	104728	20,710	AD,LV	Contribution	1	10	0	10	0.06
							2	0	0	0	
							3	0	2	2	
S Fk Clwtr R@ MP18 4/19/1995	1994	DWOR B	Untagged	98,582	AD	Contribution	1	11	11	22	0.07
							2	26	12	38	
							3	0	7	7	
Totals:				119,292				47	32	79	0.07
Total 1-Ocean:							237				
Total 2-Ocean:							359				
Total 3-Ocean:							37				
Total Harvest Recoveries:							420				
Total Hatchery Recoveries:							213				
Total Releases:							637,752				
Total Recoveries:							633				

Appendix D. Table 2. Release and recovery data for brood year 1994 steelhead released from Hagerman National Fish Hatchery. All returns 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 and White (2001), Hansen and White (In Press a), and Hansen and White (In Press, b).

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 @ Torrey's Hole 4/19/1995	1994	Sawtooth A	104513	20,287	AD	Torrey's Hole (Indian Riffles) Acclimated	1	71	30	101	0.6
							2	8	4	12	
							3	0	0	0	
Salmon R @ Torrey's Hole 4/19/1995	1994	Sawtooth A	104514	21,887	AD	Torrey's Hole (Indian Riffles) Acclimated	1	54	23	77	0.4
							2	10	2	12	
							3	0	0	0	
Salmon R @ Torrey's Hole 4/19/1995	1994	Sawtooth A	104515	19,085	AD	Torrey's Hole (Indian Riffles) Acclimated	1	91	39	130	0.8
							2	16	2	18	
							3	0	0	0	
Salmon R @ Torrey's Hole 4/19/1995	1994	Sawtooth A	Untagged	2,908	AD	Torrey's Hole (Indian Riffles) Acclimated	1	10	4	14	0.6
							2	2	0	2	
							3	0	0	0	
Totals:				64,167				262	104	366	0.6
Sawtooth Hatchery 4/17/1995	1994	Sawtooth A	104510	20,321	AD	Acclimated	1	46	16	62	0.5
							2	31	7	38	
							3	0	0	0	
Sawtooth Hatchery 4/17/1995	1994	Sawtooth A	104511	19,335	AD	Acclimated	1	53	24	77	0.4
							2	7	2	9	
							3	0	0	0	
Sawtooth Hatchery 4/17/1995	1994	Sawtooth A	104512	20,591	AD	Acclimated	1	20	35	55	0.3
							2	7	3	10	
							3	0	0	0	
Sawtooth Hatchery 4/17/1995	1994	Sawtooth A	Untagged	288,522	AD	Acclimated	1	1,100	518	1,618	0.9
							2	731	90	821	
							3	0	0	0	
Totals:				348,769				1,995	695	2,690	0.8
Lt Salmon R @ Warm Springs Br 4/10/1995-4/28/1995	1994	Pah A	104516	21,481	AD	Contribution	1	30	30	60	0.3
							2	0	0	0	
							3	0	0	0	
Lt Salmon R @ Warm Springs Br 4/10/1995-4/28/1995	1994	Pah A	104517	20,853	AD	Contribution	1	0	0	0	0
							2	4	4	8	
							3	0	0	0	
Lt Salmon R @ Warm Springs Br 4/10/1995-4/28/1995	1994	Pah A	Untagged	42,831	AD	Contribution	1	177	177	354	0.9
							2	12	12	24	
							3	0	0	0	
Totals:				85,165				223	223	446	0.5
Lt Salmon R @ Warm Springs Br 4/10/1995-4/28/1995	1994	Hells Canyon A	104521	22,923	AD	Contribution	1	17	17	34	0.2
							2	5	5	10	
							3	0	0	0	

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 4/10/1995-4/28/1995	1994	Hells Canyon A	104522	19,236	AD	Contribution	1	28	28	56	0.4
							2	14	14	28	
							3	0	0	0	
Lt Salmon R @ Warm Springs Br 4/10/1995-4/28/1995	1994	Hells Canyon A	Untagged	273,180	AD	Contribution	1	291	290	581	0.3
							2	74	74	148	
							3	0	0	0	
Totals:				315,339				429	428	857	0.3
Sawtooth Hatchery 4/21/1995	1994	Pah A	104518	23,576	AD	Pah-A Acclimated	1	40	16	56	0.6
							2	81	1	82	
							3	0	0	0	
Sawtooth Hatchery 4/21/1995	1994	Pah A	104519	21,995	AD	Pah-A Acclimated	1	38	10	48	0.4
							2	35	1	36	
							3	0	0	0	
Sawtooth Hatchery 4/21/1995	1994	Pah A	104520	18,109	AD	Pah-A Acclimated	1	53	8	61	0.4
							2	4	1	5	
							3	3	0	3	
Sawtooth Hatchery 4/21/1995	1994	Pah A	Untagged	195,922	AD	Pah-A Acclimated	1	747	352	1,099	0.9
							2	496	61	557	
							3	13	2	15	
Totals:				259,602				1,510	452	1,962	0.8
Sawtooth Hatchery 4/17/1995	1994	Sawtooth A	104509	19,900	AD	Direct Release	1	63	29	92	0.7
							2	43	9	52	
							3	0	0	0	
Sawtooth Hatchery 4/17/1995	1994	Sawtooth A	104507	19,923	AD	Direct Release	1	20	23	43	0.3
							2	21	3	24	
							3	0	0	0	
Sawtooth Hatchery 4/17/1995	1994	Sawtooth A	104508	19,689	AD	Direct Release	1	75	22	97	0.7
							2	34	4	38	
							3	0	0	0	
Sawtooth Hatchery 4/17/1995	1994	Sawtooth A	Untagged	17,123	AD	Direct Release	1	66	30	96	0.9
							2	43	6	49	
							3	0	0	0	
Totals:				76,635				365	126	491	0.6
Total 1-Ocean:						4,811					
Total 2-Ocean:						1,983					
Total 3-Ocean:						18					
Total Harvest Recoveries:						4,784					
Total Hatchery Recoveries:						2,028					
Total Releases:						1,149,677					
Total Recoveries:						6,812					

Appendix D. Table 3. Release and recovery data for brood year 1994 steelhead released from Magic Valley Fish Hatchery. All returns are complete at this time. Data is shown by groups with 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), Hansen and White (In Press, a), and Hansen and White (In Press, b).

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	0.22
							2	113	3	116	
							3	0	0	0	
E Fk Salmon R Trap 4/19/95-4/25/95	1994	East Fk B	Untagged	2,516	AD	Contribution	1	1	0	1	0.28
							2	6	0	6	
							3	0	0	0	
Totals:				65,000				128	14	142	0.22
E Fk Salmon R Trap 4/19/95-4/25/95	1994	DWOR B	102012	21,143	AD	Contribution	1	0	0	0	0.07
							2	15	0	15	
							3	0	0	0	
E Fk Salmon R Trap 4/19/95-4/25/95	1994	DWOR B	102003	21,698	AD	Contribution	1	1	0	1	0.22
							2	45	1	46	
							3	0	0	0	
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	0	0	0	
							3	0	0	0	
E Fk Salmon R Trap 4/19/95-4/25/95	1994	DWOR B	Untagged	359,915	AD	Contribution	1	9	13	22	0.11
							2	356	11	367	
							3	0	0	0	
Totals:				423,705				426	25	451	0.11
N Fk Salmon Release 4/13/95-4/14/95	1994	PAH A	104661	31,090	AD	Contribution	1	117	81	198	1.15
							2	114	47	161	
							3	0	0	0	
N Fk Salmon Release 4/13/95-4/14/95	1994	PAH A	104660	31,639	AD	Contribution	1	38	26	64	1.25
							2	234	96	330	
							3	0	0	0	
N Fk Salmon Release 4/13/95-4/14/95	1994	PAH A	Untagged	52,321	AD	Contribution	1	133	92	225	1.23
							2	298	122	420	
							3	0	0	0	
Totals:				115,050				934	464	1,398	1.22
Salmon R @ McNabb Point 4/10/95-4/12/95	1994	PAH A	102018	21,328	AD	Contribution	1	67	21	88	0.66
							2	34	18	52	
							3	0	0	0	
Salmon R @ McNabb Point 4/10/95-4/12/95	1994	PAH A	102016	20,862	AD	Contribution	1	63	20	83	0.62
							2	31	16	47	
							3	0	0	0	
Salmon R @ McNabb Point 4/10/95-4/12/95	1994	PAH A	102017	21,078	AD	Contribution	1	105	33	138	0.89
							2	33	17	50	
							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 (%)
Salmon R @ McNabb Point 4/10/95-4/12/95	1994	PAH A	Untagged	144,577	AD	Contribution	1	546	172	718	0.73
							2	227	117	344	
							3	0	0	0	
							Totals:	207,845	1,106	414	
Lemhi R: Salmon R 4/14/95-4/17/95	1994	PAH A	102015	20,783	AD	Contribution	1	53	37	90	0.57
							2	19	10	29	
							3	0	0	0	
							Totals:	20,783	102	47	
Lemhi R: Salmon R 4/14/95-4/17/95	1994	PAH A	102007	20,810	AD	Contribution	1	31	22	53	0.71
							2	63	32	95	
							3	0	0	0	
							Totals:	20,810	116	54	
Lemhi R: Salmon R 4/14/95-4/17/95	1994	PAH A	102008	20,672	AD	Contribution	1	109	76	185	1.14
							2	25	13	38	
							3	4	8	12	
							Totals:	20,672	148	97	
Lemhi R: Salmon R 4/14/95-4/17/95	1994	PAH A	Untagged	136,005	AD	Contribution	1	441	306	747	0.89
							2	244	126	370	
							3	29	59	88	
							Totals:	136,005	1,018	689	
Hazard Ck Lt Salmon R 4/26/95-5/1/95	1994	DWOR B	102014	21,036	AD	Contribution	1	10	10	20	0.17
							2	8	8	16	
							3	0	0	0	
							Totals:	21,036	26	26	
Hazard Ck Lt Salmon R 4/26/95-5/1/95	1994	DWOR B	102006	20,471	AD	Contribution	1	0	0	0	0.03
							2	3	3	6	
							3	0	0	0	
							Totals:	20,471	3	3	
Hazard Ck Lt Salmon R 4/26/95-5/1/95	1994	DWOR B	102013	21,137	AD	Contribution	1	0	0	0	0.05
							2	5	5	10	
							3	0	0	0	
							Totals:	21,137	5	5	
Hazard Ck Lt Salmon R 4/26/95-5/1/95	1994	DWOR B	Untagged	280,035	AD	Contribution	1	49	49	98	0.09
							2	77	77	154	
							3	0	0	0	
							Totals:	280,035	152	152	
Salmon R @ Bruno Bridge 4/17/95-4/19/95	1994	PAH A	102011	21,135	AD	Contribution	1	85	27	112	1.04
							2	71	37	108	
							3	0	0	0	
							Totals:	21,135	156	64	
Salmon R @ Bruno Bridge 4/17/95-4/19/95	1994	PAH A	102009	20,456	AD	Contribution	1	47	15	62	0.59
							2	38	20	58	
							3	0	0	0	
							Totals:	20,456	85	35	
Salmon R @ Bruno Bridge 4/17/95-4/19/95	1994	PAH A	102010	20,460	AD	Contribution	1	85	28	113	0.86
							2	41	21	62	
							3	0	0	0	
							Totals:	20,460	126	49	
Salmon R @ Bruno Bridge 4/17/95-4/19/95	1994	PAH A	Untagged	100,819	AD	Contribution	1	430	136	566	1.01
							2	298	156	454	
							3	0	0	0	
							Totals:	100,819	1,095	440	
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	0	0	0	
							3	0	0	0	
							Totals:	21,224	0	0	
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	0	0	0	
							3	0	0	0	
							Totals:	21,065	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 (%)
Slate Ck U Salmon R 4/12/95-4/22/95	1994	DWOR B	102002	21,355	AD	Contribution	1 2 3	5 13 0	0 1 0	5 14 0	0.09
Slate Ck U Salmon R 4/12/95-4/22/95	1994	DWOR B	Untagged	152,290	AD	Contribution	1 2 3	13 19 0	0 1 0	13 20 0	0.02
Totals:				215,934				50	2	52	0.02
Total 1-Ocean:						3,621					
Total 2-Ocean:						3,388					
Total 3-Ocean:						100					
Total Harvest Recoveries:						4,909					
Total Hatchery Recoveries:						2,200					
Total Releases:						1,731,353					
Total Recoveries:						7,109					

Prepared by:

Chris Harrington
Sr. Fisheries Research Biologist

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

Virgil K. Moore, Chief
Bureau of Fisheries

Steve Yundt
Fisheries Research Manager