



LOWER SNAKE RIVER COMPENSATION PLAN STEELHEAD FISH HATCHERY EVALUATIONS—IDAHO

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Lower Snake River Compensation Plan Steelhead Fish Hatchery Evaluations—Idaho

2000 Annual Report

By

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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, 1999 through September 30, 2000. Included in this report are all fall 1999 and spring 2000 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 14,866 adult LSRCP steelhead returned to Idaho in the fall of 1999 and spring of 2000. This estimated minimum consisted of 8,279 steelhead from Hagerman National Fish Hatchery releases, 5,559 from Magic Valley Fish Hatchery releases, and 1,028 from Clearwater Fish Hatchery releases. Though well below the LSRCP goal of 29,260 adult steelhead, this was a 60% improvement over the 1998-1999 return year.

In April and May 2000, the Idaho-LSRCP steelhead hatcheries released 3,960,187 steelhead smolts. Clearwater Fish Hatchery released 735,266 smolts, all of which were brood year 1999 Dworshak B-stock. Hagerman National Fish Hatchery released 1,174,882 brood year 1999 smolts, consisting of 727,797 Sawtooth A-stock and 447,085 Hells Canyon A-stock. Magic Valley Fish Hatchery released 2,050,039 smolts, of which 1,157,999 were B-stock and 892,040 A-stock.

The out-migration conditions in 2000 were mixed, with good flows occurring early in the migratory season but declining to below average levels towards the end of the season. Total seasonal flows were below levels observed in recent years.

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 62.9%. Hagerman National Fish Hatchery releases were detected at an overall rate of 53.2%. Magic Valley Fish Hatchery releases were detected at a lower rate of 46.9%, but a large part of this was caused by poor detections of several releases tagged in association with the Squaw Pond study.

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INTRODUCTION

The completion of the four hydroelectric dams on the lower section of the Snake River in Washington reduced the returns of anadromous salmonids to the Snake River drainage. The Water Resources Development Act of 1976 authorized the Lower Snake River Compensation Plan (LSRCP) to mitigate for the loss of fisheries and wild runs to the Upper Snake River basin in Idaho, Washington, and Oregon. Mitigation for anadromous fishery losses included improvements in smolt passage at the dams and 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 the identification of factors limiting hatchery success at meeting return goals and the recommendation of 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, 1999 through September 30, 2000. This report also summarizes total returns, weir operation, and contribution to the fisheries for adult steelhead returning to Idaho during the fall of 1999 and spring of 2000. 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, 1999 and September 30, 2000 are documented in this report. Any information relevant to the quality of the brood year 1999 smolts released in 2000 or relevant to the early rearing success of brood year 2000 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. Information on final release numbers, release sites, and mark information was obtained from the Release database maintained by the IDFG Coded-Wire Tag (CWT) Recovery Laboratory in Lewiston, Idaho.

Fish Marking

All brood year 1999 steelhead released from Hagerman National were adipose fin clipped. However, 139,993 of the 735,266, or 19.0%, of the steelhead released by Clearwater Fish Hatchery, and 265,858 Dworshak B-stock steelhead from Magic Valley destined for the Clearwater drainage, were released with no external mark as part of the interim agreement under the Columbia River Fish Management Planning process. The remaining 595,273 smolts released by Clearwater Fish Hatchery had their adipose fins removed to indicate their hatchery origin and their availability to the fishery.

With the exception of the unclipped steelhead released by Clearwater Fish Hatchery and Magic Valley Fish Hatchery, representative samples destined for most release sites received coded-wire tags to facilitate measurement of adult return success. All steelhead that received a coded-wire tag had the left ventral fin removed to indicate the presence of a tag.

Small numbers of steelhead also received a 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. 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 1999 and the spring of 2000. These adults were from the out-migrations in the springs of 1996, 1997, or 1998. Therefore, the flow conditions during the emigration period for these three years and the flow conditions during the emigration period of 2000 are reported. Water flow data for these periods was obtained through the Columbia River DART (Data Access in Real Time) 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 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 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. Idaho Department of Fish and Game fish marking and HES personnel performed tagging of hatchery steelhead about one month before release in order to give the fish a chance to recover and to allow any tagging-induced mortality to occur. Size and mark information was collected at the

time of marking and was submitted to PIT Tag Information Systems (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.

PIT tags were interrogated at four 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 minimum 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 2000. 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 IDFG Harvest Monitoring Project (HMP) estimated the number of LSRCP steelhead that returned to Idaho in the 1999-2000 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 released 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 29,260 adults. The original LSRCP adult return goal was 39,260, but the adult return goal from Clearwater Fish Hatchery was reduced from 14,000 to 4,000 in 1997 to comply with a hatchery steelhead production cap imposed by the National Marine Fisheries Service (NMFS). The 2000 return year was the first to be affected by this reduction in adult return goals. It should also 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. 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.

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 by 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, 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 2000, 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 third year of releases from Squaw Pond occurred in 2000. 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 on April 10. The screens blocking the outlet were removed on April 25, which allowed the smolts a minimum of two weeks to imprint on the pond and Squaw Creek. Once the screens had been removed, 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 of obtaining a representative sample.

See Newman (2002) for additional information regarding the design and operation of the Squaw Pond study in 2000.

RESULTS AND DISCUSSION

Hatchery Operations Documentation

Clearwater Fish Hatchery

Brood Year 1999—In 1997, smolt production at Clearwater Fish Hatchery was reduced from an eventual release goal of 2,000,000 to 800,000 to comply with the NMFS hatchery production cap for the Snake River basin. Brood year 1999 was the third year under the lower goal. Clearwater Fish Hatchery never attained the higher goal, but came very close to achieving the lower goal with brood year 1999 smolts.

A total of 889,200 brood year 1999 Dworshak B-stock eyed steelhead eggs were received from Dworshak National Fish Hatchery (George and McGehee 2001). 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 87.5% (George and McGehee 2001), which is a slight improvement over the previous years. No disease incidence was reported for the brood year 1998 steelhead. Fish marking occurred during the summer of 1999. Complete information on release sizes, numbers, and locations can be found in Appendix A, Table 1.

Survival to the dams was approximately 60% for the groups released in the upper South Fork of the Clearwater River, whereas survival to the dams for the Clear Creek and lower South Fork of the Clearwater River was about 67% (Table 1). It should be noted that these two estimates are not very different. While releases from the upper stretch of the South Fork of the Clearwater River were not detected at the same rate as releases from the lower stretch, they were much more comparable than had been seen in the last few years.

Brood Year 2000—During the month of April, Clearwater Fish Hatchery received 985,886 eyed brood year 2000 Dworshak B-stock steelhead eggs from the middle takes at Dworshak National Fish Hatchery (Tighe 2001). No survival was reported for the early life

stages, but Tighe (2001) did report an incidence of coldwater disease and ectoparasites that affected the juvenile steelhead during September of 2000 and inhibited their growth.

Hagerman National Fish Hatchery

Brood Year 1999—Hagerman National Fish Hatchery received a total of 1,453,000 eyed steelhead eggs from Oxbow Fish Hatchery and Sawtooth Fish Hatchery (Hagerman National Fish Hatchery 1999). These eggs consisted of two stocks: 899,000 Sawtooth A-stock and 554,000 Oxbow A-stock (Hagerman National Fish Hatchery 1999). Survival from egg to release was 79.5% for the Sawtooth A-stock and 75.6% for the Oxbow A-stock. This survival is slightly lower than what is typically reported for this facility. No incidences of disease were reported by the hatchery.

During the end of September and the first half of October, the adipose fins were removed from all fish used in steelhead production releases. In early November, representative groups of steelhead from most of the releases received CWTs to evaluate return success and contribution to the fishery. The PIT tagging was performed in February 2000. Complete information on marks, release numbers, and release locations 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 49.3% to a high of 60.3% (Table 1). All but one of the PIT-tagged groups was released at the Sawtooth Fish Hatchery weir, which accounts for much of the uniformity of the performance for these groups. The one exception was a group of 300 steelhead released in the Little Salmon River, which was detected at the highest rate.

Brood Year 2000—During late May and early June 2000, 1,393,042 eyed brood year 2000 steelhead eggs were received from Sawtooth Fish Hatchery and Clearwater Fish Hatchery (Kurt Shilling, USFWS, personal communication). These eggs consisted of 946,595 Sawtooth A-stock, 213,977 Pahsimeroi A-stock, and 232,470 Dworshak B-stock. Hatching success was 98.3%, 98.0%, and 87.7% for the three stocks, respectively. This pattern is consistent with observations at Magic Valley Fish Hatchery for these stocks. The hatching success for the Dworshak B-stock eggs is often considerably lower than either of the A-stocks.

Magic Valley Fish Hatchery

Brood Year 1999—During the latter part of April, all of May, and the first part of June, Magic Valley Fish Hatchery received five stocks of eyed steelhead eggs consisting of: 1,446,208 Dworshak B-, 57,954 East Fork B-, 515,375 Pahsimeroi A-, 389,982 Sawtooth A-, and 174,000 Oxbow A-stock eggs (Lowell et al. 2001a). Survival to release for the Pahsimeroi A, Sawtooth A, and Oxbow A stocks was 93.5%, 91.8%, and 94.3%, respectively. Survival to release for the Dworshak B-stock fish was 76.7%, and survival to release for the East Fork B-stock steelhead was 89.5%. Dworshak B-stock fish historically show lower survival than other stocks at this hatchery however, East Fork B-stock steelhead performed comparably to the A-stock fish. Most of the survival problems in Dworshak B-stock have been attributed to disease and other factors during the fingerling stage. For brood year 1999, the mortality for the Dworshak B-stock does not appear to be attributable to any disease, since Lowell et al. (2001a) reported excellent health for all stocks throughout the year. The reduced survival of Dworshak B-stock fish appears to have occurred before egg hatching.

All coded-wire tagging and fin clipping was performed during September and October of 1999. All PIT tagging was performed during February of 2000. Complete information on marks, release timing, and release location can be found in Appendix A, Table 3.

Detection rates of PIT-tagged steelhead at the dams was a little below normal, with a total survival below 60% for all releases except the Lemhi and Little Salmon River releases (Table 1). Little Salmon River releases have a much shorter travel distance to reach the dams relative to releases in the upper Salmon River basin. This may account for the slightly higher detection rates for these fish.

The survival rates for the smolts included in the Squaw Pond study are comparatively low. The range of median travel times for this group are particularly notable since they include the longest median travel time (23.1 days) and one of the shortest median travel times (7.8 days), even though the release location was the same (Table 1). Further discussion of these results can be found in Newman (2002).

Brood Year 2000—From April-June 2000, Magic Valley Fish Hatchery received a total of 2,533,374 eyed steelhead eggs comprised of five stocks: 544,006 Dworshak B, 51,384 East Fork B, 946,319 Pahsimeroi A, and 991,665 Sawtooth A (Lowell et al. 2001b). The Dworshak B-stock steelhead had a hatch percentage of only 87%, while the other stocks had hatch percentages of 96-99%. This repeats the pattern observed in brood year 1999 and continues the trend of poor survival for Dworshak B-stock steelhead compared to other stocks raised at Magic Valley Fish Hatchery.

Migration Conditions

Flows were mixed during the migration window in 1999 (Table 2). During the peak period, average outflow from the Lower Granite Dam fore bay was high, but average flows during the extended period were considerably lower. This suggests that flows were high toward the beginning of the run but declined as the run progressed. Spill at Lower Granite Dam was fairly constant and reasonably high, despite the declining flows.

The three migration years that contributed to the 2000 adult return were 1996, 1997, and 1998. All of these years had high flow and spill during the extended migration period. In fact, the spill levels were some of the highest recorded since 1977. However, 1998 had lower flows and spill during the peak migration period. This indicates that the spring runoff in 1998 was delayed. Flows during all three years should have provided above average migration conditions.

Migration Timing and Juvenile Survival

A total of 7,497 steelhead smolts were released with PIT tags in 2000. Overall, 51.8% (3,881) of the PIT tags were interrogated at the dams (Table 1). Median migration timing from the point of release to Lower Granite Dam ranged from 4.0 days up to 23.1 days. Most of this variability can be attributed to migration distance. However, the PIT tag groups released in association with the Squaw Pond study had median migration times ranging from 5.1 days to 23.1 days. This cannot be attributed to migration distance and is probably indicative of changing flows in the Salmon River.

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 14,866 adult steelhead to Idaho waters in the fall of 1999 and spring of 2000 (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 9,313 steelhead, while 5,548 either returned to hatchery racks or contributed to in-river escapement.

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. 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. The 1999-2000 return year showed improvements in adult numbers for both Hagerman National and Magic Valley fish hatcheries compared to the previous year, though Magic Valley fish hatchery returns did not reach the levels seen in 1998. The returns for Clearwater Fish Hatchery declined slightly.

Fisheries Contribution

Hansen and White (In Press, a) estimated that anglers harvested 24,100 hatchery steelhead during the 1999-00 season. Of these, 9,318 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—A total of 2,061 adult A-stock steelhead were trapped at the Sawtooth Fish Hatchery weir between March 21 and May 4, 2000 (Schilling et al. 2000). This total consisted of 1,082 males (52.5%) and 979 females (47.5%). Of the 1,082 males, 1,073 were of hatchery origin, and 1,040 (96.9%) of those were 1-ocean fish. Of the 979 females, 973 were of hatchery origin, and 851 (87.5%) of those were 1-ocean fish.

All wild/natural fish were released directly above the weir for natural spawning (Schilling et al. 2000). Another 15 pairs (15 males and 15 females) of hatchery steelhead were released into weired off sections of both Beaver Creek and Frenchman Creek for natural spawning as part of a supplementation study (Byrne 2002). In addition to these supplementation releases, 20 pairs of adult hatchery steelhead were released into Fourth of July Creek, Champion Creek, and the Salmon River at the Vienna turnout (Schilling et al. 2000). Those releases were an attempt to restore steelhead runs in these waters (Brent Snyder, IDFG, personal communications).

A total of 870 pairs of hatchery origin steelhead were spawned at the Sawtooth weir in 2000, yielding 3,950,103 green eggs (Schilling et al. 2000). Survival to eye-up for these eggs was 89.0%, which produced 3,516,250 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—Forty-eight B-stock steelhead were recovered at the East Fork Salmon River trap that operated between April 6 and April 27, 2000 (Schilling et al. 2000). These fish were primarily returns from East Fork progeny that had been raised at Magic Valley Fish Hatchery. Of the 48 total fish recovered, 26 (54.2%) were male and 22 (45.8%) were female. Two of the males and four of the females were of natural origin, while the rest were all hatchery origin. All of the natural origin steelhead were released above the weir to spawn naturally (Schilling et al. 2000). An unusually high proportion of these B-stock steelhead were identified as 1-ocean by size criteria. Of the 26 males trapped, 22 (84.6%), including both of the natural males, were classified as 1-ocean. The ratio of 1-ocean females was not as skewed, with only 10 of the 22 (45.5%) trapped and none of the natural-origin females classified as 1-ocean. B-stock steelhead tend to return predominantly as 2-ocean fish, so the ratios observed for both males and females are noteworthy. Complete disposition for all fish trapped can be found in Table 6.

Crooked River Weir—Trapping at the Crooked River trap commenced on March 13, 2000 and continued into chinook trapping in June, though the last steelhead was trapped on May 16 (George, 2000). During that time, 16 adult steelhead were trapped. All but three of these steelhead were released above the weir (Table 7). The three steelhead not released above the weir were adipose clipped males that were released below the weir. Furthermore, George (2000) reported that five additional steelhead (1 male and 4 females), trapped at Dworshak National Fish Hatchery, were transported above the Crooked River weir for natural production.

Red River Weir—The Red River trap began operation March 22 and continued through the chinook season (George 2000). No adult steelhead were trapped during this time. George (2000) reported that there were no problems due to high water this year, so the lack of returns could not be attributed to trap failure.

Smolt-to-Adult Return Rates

Clearwater Fish Hatchery

Adult returns in 2000 from Clearwater Fish Hatchery steelhead releases could consist of three different brood years of fish from 1995 through 1997. All of the adipose clipped fish that were available to the fishery were Dworshak B-stock. In 1996 and 1997, small releases (15,215 and 75,984 respectively) of Selway B-stock steelhead were not adipose clipped. Furthermore, releases in all three years, 1996, 1997, and 1998, included small numbers (22,498, 53,721, and 9,489, 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 1996, Clearwater Fish Hatchery released 838,553 brood year 1995 Dworshak B-stock smolts (Appendix D, Table 1). About 1,322 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 1996 releases show a declining performance relative to brood year 1995. However, the two major factors limiting adult recoveries for Clearwater Fish Hatchery steelhead still applied. Only 924 2-ocean adults were recovered from a release of 730,001 (Appendix C Table 1). It must be noted that nearly 18% of this total release (129,615) consisted of fish that did not receive an adipose clip and could not be evaluated adequately.

First year returns of brood year 1997 steelhead released in 1998 were quite low (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 2- and 3-ocean adults. A weak showing of 1-ocean returns may not indicate that the overall SAR for the year class will be similarly weak. Brood year 1996 steelhead returned more adults as 1-ocean than did brood year 1995, but brood year 1995 returned more total adults than did brood year 1996.

Hagerman National Fish Hatchery

The 1999-2000 adult steelhead return included fish from three release years. All of the brood year 1995, 1996, and 1997 fish released from Hagerman National Fish Hatchery from 1996-1998 were A-stock fish. A-stock fish seldom return as 3-ocean adults, and no 3-ocean adults were recovered in 1999-2000 (Appendix D, Table 2).

The HMP estimated that 3,742 adult 2-ocean steelhead were recovered in 1999-2000 from a total brood year 1996 release of 1,147,144 (Appendix C, Table 2). Of these, fishermen accounted for 1,892, 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 recovery rates continued to remain comparatively low, with SARs for upper Salmon River releases generally below 0.5%. The SARs for the Little Salmon River were similar with no estimates exceeding 0.5%. The SARs for the Little Salmon 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, c).

The first year of returns for brood year 1997 fish was promising. A total of 6,929 adult steelhead were recovered from a release of 1,032,408 (Appendix B, Table 2). Overall SARs after the first year were 0.67%, which, while still low, were three times as high as the SAR for brood year 1996 fish reported by Harrington (In Press). This number can be expected to rise further as the second year returns come in. Lower release numbers coupled with much higher first year SARs make it likely that overall brood year 1997 performance will be above average when compared with 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 143 3-ocean adult steelhead recovered in 1999-2000 were all Pahsimeroi A-stock according to coded-wire tag expansions (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 low (Harrington In Press).

The HMP estimated 4,083 adult brood year 1996 steelhead returned in 1999-2000 from a total release of 1,643,202 (Appendix C, Table 2). Of this total, anglers harvested 2,708 while the remainder either returned to a hatchery rack or contributed to in-river escapement. Since a sizeable percentage of the steelhead released in 1997 were B-stock, it is possible that there will be 3-ocean returns in 2001, but past performance, along with low 1- and 2-ocean returns, suggests that these returns will most likely not alter the overall SARs for these release groups.

The overall SAR for Magic Valley Fish Hatchery brood year 1996 steelhead was 0.25%. This estimate was heavily influenced by the very poor return of B-stock fish to both the East Fork and Little Salmon rivers. The brood year 1996 SAR is 13% less than the SAR for brood year 1995 steelhead, which suggests that the migration conditions encountered during the 1997 out-migration were inferior to those of 1996. This is contrary to expectations based on the very high flow and spill conditions encountered in 1997 when compared to 1996 (Table 2).

The first year of adult recoveries for brood year 1997 steelhead showed considerable improvement over the previous year. While this is encouraging, first year performance did not quite make up for the decline seen in brood year 1995. The number of smolts released increased slightly to 1,658,825, and the number of 1-ocean adults rose to 3,602 (Appendix B, Table 3).

Experimentation

Squaw Pond

The results of the 2000 emigration from Squaw Pond were encouraging. Newman (2002) reported that there was good evidence that the Squaw Pond acclimation facility had separated residual steelhead smolts from the general population, though sample sizes might not have been adequate to adequately document the increased rate in precocity of fish that failed to emigrate and remained in the pond. This was the first year in three years that there was a significant difference between migrant and non-migrant steelhead in the pond. Newman (2002) suggested that this result might have been influenced by the rate at which the water level in the pond was lowered. In 2000, the level may have more closely followed natural patterns. Complete information about the characteristics and behavior of the 2000 migrants, as well as information about the operation of the Squaw Pond facility during the 2000 emigration period, can be found in Newman (2002).

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 2000 migration period. A total of 7,497 of PIT-tagged steelhead were released from Clearwater, Hagerman National, and Magic Valley fish hatcheries during April and May of 2000. 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>															
KEP	Red River Ponds	4/27/00	300	135	45.0	23	7.7	10	3.3	1	0.3	169	56.3	8.3	
KEP	Clear Creek	4/19/99	300	82	27.3	64	21.3	49	16.3	4	1.3	199	66.3	4.0	
KEP	South Fork Clearwater R.	4/19/99	300	78	26.0	68	22.7	50	16.7	8	2.7	204	68.0	4.4	
KEP	Crooked River Ponds	4/28/00	300	149	49.7	18	6.0	14	4.7	2	0.7	183	61.0	8.6	
Total			1,200											755	62.9
Clearwater Hatchery Grand Total			1,200											755	62.9
Hagerman National Fish Hatchery															
<i>Sawtooth A-Stock:</i>															
TDR	Sawtooth Hatchery														
Feed/Fast Diet (Acclimated)															
	KEP00056.H42	4/26/00	300	147	49.0	5	1.7	3	1.0	3	1.0	158	52.6	9.5	
	KEP00056.H44	4/26/00	310	152	49.0	2	0.6	6	1.9	3	1.0	163	52.6	10.3	
	KEP00056.H45	4/26/00	299	148	49.5	12	4.0	5	1.7	2	0.7	167	55.7	10.2	
Feed/Fast Control (Acclimated)															
	KEP00056.H40	4/26/00	300	147	49.0	5	1.7	6	2.0	0	0	158	52.6	9.6	
	KEP00056.H41	4/26/00	300	136	45.3	7	2.3	2	0.7	3	1.0	148	49.3	10.4	
	KEP00056.H43	4/26/00	300	133	44.3	10	3.3	6	2.0	1	0.3	150	50.0	10.7	
Early Egg Take Progeny (Direct Rel.)															
	KEP00056.H39	4/26/00	300	149	49.7	8	2.7	6	2.0	1	0.3	164	54.7	9.4	
Late Egg Take Progeny (Direct Rel.)															
	KEP00056.H56	4/26/00	299	138	46.2	7	2.3	7	2.3	1	0.3	153	51.2	11.6	
KEP	Little Salmon R Stinky Spr	4/26/00	300	155	51.7	12	4.0	12	4.0	2	0.7	181	60.3	7.2	
Hagerman National Grand Total			2,708											1,442	53.2
Magic Valley Hatchery															
<i>Dworshak B-Stock</i>															
KEP	Lt. Salmon @ Stinky Spr	4/25/00	299	184	61.5	23	7.7	11	3.7	4	1.3	222	74.2	7.6	
KEP	Squaw Creek Production	5/1/00	300	120	40.0	7	2.3	10	3.3	3	1.0	140	46.7	18.5	
KEP	Squaw Pond Early Migrants	5/8/00	300	50	16.7	7	2.3	2	0.7	1	0.3	60	20.0	15.2	
KEP	Squaw Pond Late Migrants	5/26/00	299	45	15.1	12	4.0	6	2.0	4	1.3	67	22.4	7.8	
KEP	Squaw Pond Non-Migrants	6/5/00	292	10	3.4	4	1.4	1	0.3	0	0	15	5.1	23.1	
KEP	Squaw Pond Captive Group	5/10/00	300	118	39.3	6	2.0	8	2.7	3	1.0	135	45.0	15.3	
KEP	S Fk Clwtr @ Newsome Ck	5/3/00	300	138	46.0	12	4.0	13	4.3	6	2.0	169	56.3	15.5	
KEP	S Fk Clwtr @ American R	5/5/00	300	146	48.7	12	4.0	11	3.7	1	0.3	170	56.7	13.7	
Total			2,390											978	40.9
<i>E. Fork B-Stock</i>															
KEP	Squaw Creek Production	4/20/00	300	164	54.7	7	2.3	6	2.0	2	0.7	179	59.7	15.6	
<i>Sawtooth A-Stock</i>															
KEP	Salmon R. @ Tunnel Rock	4/20/00	299	130	43.5	18	6.0	12	4.0	0	0	160	53.5	12.5	
<i>Pahsimeroi A-Stock</i>															
KEP	Lemhi River	4/12/00	300	164	54.7	23	7.7	14	4.7	4	1.3	205	68.3	16.5	
KEP	N. Fk. Salmon River	4/14/00	300	121	40.3	24	8.0	15	5.0	2	0.7	162	54.0	15.3	
Total			600											367	61.2
Magic Valley Hatchery Grand Total			3,589											1,684	46.9

Table 2. Snake River mean daily out flow and spill (thousand cubic feet per second) for the Lower Granite Dam fore bay in Washington from 1977-2000 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
2000	99.8	88.3	25.5	23.0

Table 3. Estimated number of LSRCP hatchery steelhead that returned to Idaho from 1999-2000. The adult returns in 1999-2000 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 pre-spawning mortalities.

Hatchery	Brood Year	3-Ocean	2-Ocean	1-Ocean
Clearwater	1995	37	—	—
Clearwater	1996	—	924	—
Clearwater	1997	—	—	67
Estimated Fish Returned in 1999-2000			1,028	
Hagerman	1995	0	—	—
Hagerman	1996	—	1,350	—
Hagerman	1997	—	—	6,929
Estimated Fish Returned in 1999-2000			8,279	
Magic Valley	1995	143	—	—
Magic Valley	1996	—	1,814	—
Magic Valley	1997	—	—	3,602
Estimated Fish Returned in 1999-2000			5,559	
GRAND TOTAL			14,866	

Table 4. Steelhead smolts released from Magic Valley, Hagerman National, and Clearwater fish hatcheries that contributed to the 1999-2000 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 1999-2000 Adult Returns					
Brood Year	Fish Hatchery	Number Released	Design Target	Percent of Target	1999-2000 Adult Returns
1995	Clearwater	838,553	2,000,000	41.9%	37
1995	Hagerman National	1,322,849	1,300,000	101.8%	0
1995	Magic Valley	1,868,086	2,000,000	93.4%	143
	Total	3,858,183	6,150,000	79.0%	180
1996	Clearwater	730,001	2,000,000	36.5%	924
1996	Hagerman National	1,147,144	1,300,000	88.2%	1,350
1996	Magic Valley	1,643,202	2,000,000	82.2%	1,814
	Total	3,696,052	6,150,000	69.0%	4,088
1997	Clearwater	707,278	800,000	88.4%	67
1997	Hagerman National	1,032,407	1,300,000	79.4%	6,929
1997	Magic Valley	1,658,825	2,000,000	82.9%	3,602
	Total	3,513,247	5,600,000	83.6%	10,598
Mean annual release as percent of target:				77.2%	
				Total adult return: ^a	14,866
				Adult return goal:	29,260
				Percent of goal achieved:	50.8%

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

Table 5. Summary of the 2000 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. (2000).

Hatchery Origin n = 2,046										
Age ^b	Males n = 1,073					Females n = 973				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	1,040	87	ND	ND	ND	851	85	ND	ND	ND
2-ocean	33	3	ND	ND	ND	122	5	ND	ND	ND
Total	1,073	90 ^c	870	2	111 ^d	973	90 ^c	870	1	12 ^g

Natural Origin n = 15										
Age ^b	Males n = 9					Females n = 6				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	9	9	0	0	0	5	5	0	0	0
2-ocean	0	0	0	0	0	1	1	0	0	0
Total	9	9 ^e	0	0	0	6	7 ^e	0	0	0

Total Number Trapped	2,061	Green Egg Number	3,950,103
Trapping Period	3/21 – 5/4/00	Eyed Egg Number	3,516,250 ^f (89.0% eye up)

^a Fish were aged using the following aging criteria:

<u>RUN</u>	<u>SEX</u>	<u>LENGTH</u>	<u>AGE (Years in Ocean)</u>
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 1997 released in 1998. Hatchery fish classified as 2-ocean were brood year 1996 released in 1997.

^c Of these fish, 15 pairs (15 male, 15 female) were released into both Beaver and Frenchman creeks for natural spawning as part of a supplementation study. Another 10 pairs were released to each of Fourth of July Creek, Champion Creek, and the Salmon River at the Vienna pullout.

^d Fish were killed but not used for spawning.

^e Fish were released directly above the weir.

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

^g Fish were spawned out before trapping, and were, therefore, killed without using.

Table 6. Summary of the 2000 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. (2000).

Hatchery Origin n = 42										
Age ^b	Males n = 24					Females n = 18				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	20	0	ND	0	ND	10	0	ND	0	0
2-ocean	4	0	ND	0	ND	8	0	ND	0	0
Total	24	0	15	0	9 ^d	18	0	15	0	3 ^g

Natural Origin n = 15										
Age ^b	Males n = 9					Females n = 6				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	2	2	0	0	0	0	0	0	0	0
2-ocean	0	0	0	0	0	4	4	0	0	0
Total	2	2 ^e	0	0	0	4	4 ^e	0	0	0

Total Number Trapped	48	Green Egg Number	67,389
Trapping Period	4/6-4/27/99	Eyed Egg Number	51,384 ^e (76.2% eye up)

^a Fish were aged using the following aging criteria:

<u>RUN</u>	<u>SEX</u>	<u>LENGTH</u>	<u>AGE (Years in Ocean)</u>
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 1997 released in 1998. Hatchery fish classified as 2-ocean were brood year 1997 released in 1998.

^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.

^f Fish were spawned out before trapping, and were, therefore, killed without using.

Table 7. Summary of the 2000 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 George (2000).

Hatchery Origin n = 10										
Age ^b	Males n = 7					Females n = 3				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	0	0	0	0	0	0	0	0	0	0
2-ocean	7	7	0	0	0	3	0	0	0	0
Total	7	7 ^c	0	0	0	3	3 ^d	0	0	0

Natural Origin n = 6										
Age ^b	Males n = 4					Females n = 2				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	2	2	0	0	0	0	0	0	0	0
2-ocean	2	2	0	0	0	2	2	0	0	0
Total	4	2 ^d	0	0	0	2	2 ^d	0	0	0

Total Number Trapped	16	Green Egg Number	0
Trapping Period	3/13– 6/00	Eyed Egg Number	0

^a Fish were aged using the following aging criteria:

<u>RUN</u>	<u>SEX</u>	<u>LENGTH</u>	<u>AGE (Years in Ocean)</u>
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 Three of these fish were ad-clipped, indicating production origin. These production fish were released below the weir. All others were released above the weir to spawn naturally.

^d All fish released above the weir.

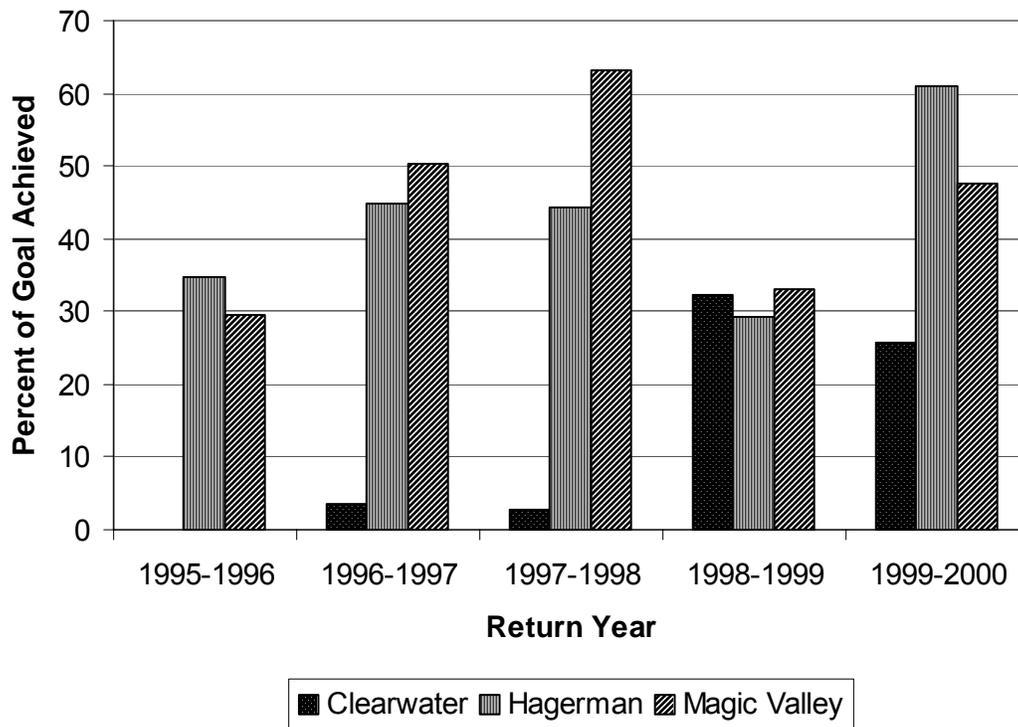


Figure 1. Percent of the adult steelhead return goal achieved by Clearwater, Hagerman National, and Magic Valley fish hatcheries between 1995 and 2000. Annual adult return goals for Clearwater, Hagerman National, and Magic Valley fish hatcheries were 4,000, 13,600, and 11,660, respectively. Note that the adult return goal for Clearwater went from 14,000 to 4,000 beginning with return year 1999.

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APPENDICES

Appendix A. Table 1. Release data for all steelhead released from Clearwater Fish Hatchery during 2000. 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 4/19/2000-4/20/2000	1999	Dwor B	R02E	61,427	AD		61,427	4.8	Contribution
Clear Ck: Clwtr R 4/19/2000-4/20/2000	1999	Dwor B	R03E	61,199	AD		61,199	4.5	Contribution
Clear Ck: Clwtr R 4/19/2000-4/20/2000	1999	Dwor B	R04E	61,231	CWT,AD,LV CWT,AD,LV,PIT AD AD,LV	105419 105419	43,075 300 16,514 1,342	4.9	Contribution
Total CWT Release:							43,375		
Total non-CWT Release:							140,482		
Total Group Release:							183,857		
S Fk Clwtr@ Red House Hole 4/20/2000-4/21/2000	1999	Dwor B	R01E	61,618	AD		61,618	4.5	Contribution
S Fk Clwtr@ Red House Hole 4/20/2000-4/21/2000	1999	Dwor B	R01W	61,498	AD		61,498	5.2	Contribution
S Fk Clwtr@ Red House Hole 4/20/2000-4/21/2000	1999	Dwor B	R02W	61,609	AD		61,609	5.1	Contribution
S Fk Clwtr@ Red House Hole 4/20/2000-4/21/2000	1999	Dwor B	R03W	61,436	AD		61,436	4.4	Contribution
S Fk Clwtr@ Red House Hole 4/20/2000-4/21/2000	1999	Dwor B	R04W	65,255	CWT,AD,LV CWT,AD,LV,PIT CWT,AD,LV CWT,AD,LV,PIT AD,LV	105426 105426 105408 105408	31,949 152 31,048 148 1,958	5.4	Contribution
Total CWT Release:							63,297		
Total non-CWT Release:							248,119		
Total Group Release:							311,416		
Red River Rearing Ponds 5/4/2000	1999	Dwor B	R05W	20,030	NONE		20,030	4.8	NPT Release No Mark
Red River Rearing Ponds 5/4/2000	1999	Dwor B	R06E	59,760	NONE NONE,PIT		59,460 300	4.8	NPT Release No Mark
Red River Rearing Ponds 5/4/2000	1999	Dwor B	R06W	59,872	NONE		59,872	4.8	NPT Release No Mark
Total CWT Release:							0		
Total non-CWT Release:							139,662		
Total Group Release:							139,662		

Appendix A. Table 1. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Crooked R Ponds 5/4/2000	1999	Dwor B	R05E	60,211	NONE NONE,PIT		59,911 300	4.6	NPT Release No Mark
Crooked R Ponds 5/4/2000	1999	Dwor B	R05W	40,120	NONE		40,120	4.6	NPT Release No Mark
Total CWT Release:							0		
Total non-CWT Release:							100,331		
Total Group Release:							100,331		
Total Dwor B-Stock CWT Release							106,672		
Total Dwor B-Stock non-CWT Release							628,594		
Total Dwor B-Stock Release							735,266		
Total CWT Release for Clearwater							106,672		
Total non-CWT Release for Clearwater							628,594		
Total PIT tag Release for Clearwater Hatchery							1,200		
Total Clearwater Hatchery Release							735,266		

Appendix A. Table 2. Release data for all steelhead released from Hagerman National Fish Hatchery during 2000. 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 4/26/2000	1999	Sawtooth A	R56	20,966	AD,CWT,LV	105525	20,458	4.21	Late Egg Take Direct Release
					AD,CWT,LV,PIT	105525	299		
					AD,LV		208		
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R57	19,856	AD,CWT,LV	105526	19,549	4	Late Egg Take Direct Release
					AD		136		
					AD,LV		171		
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R58	20,133	AD,CWT	105527	19,809	4.2	Late Egg Take Direct Release
					AD		324		
					Total CWT Release:		60,116		
Total non-CWT Release:		839							
Total Group Release:		60,955							
Hazard Ck: Lt Salmon R 4/7/2000-4/28/2000	1999	Hells Canyon A	R92	18,410	AD		18,410	5.03	Supplementation
Hazard Ck: Lt Salmon R 4/7/2000-4/28/2000	1999	Hells Canyon A	R93	16,833	AD		16,833	3.97	Supplementation
Hazard Ck: Lt Salmon R 4/7/2000-4/28/2000	1999	Hells Canyon A	R94	15,918	AD		15,918	4.2	Supplementation
Total CWT Release:		0							
Total non-CWT Release:		51,161							
Total Group Release:		51,161							
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R40	20,292	AD,CWT,LV	105519	19,141	4.35	Acclimation % Body Wt. Diet
					AD,CWT,LV,PIT	105519	300		
					AD,LV		851		
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R41	20,385	AD,CWT,LV	105520	19,699	4.36	Acclimation % Body Wt. Diet
					AD,CWT,LV,PIT	105520	300		
					AD,LV		386		
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R43	20,359	AD,CWT,LV	105522	19,263	4.56	Acclimation % Body Wt. Diet
					AD,CWT,LV,PIT	105522	300		
					AD,LV		796		
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R46	17,095	AD		17,095	4.85	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R47	17,069	AD		17,069	4.48	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R48	16,552	AD		16,552	4.45	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R49	17,010	AD		17,010	4.69	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R50	17,270	AD		17,270	4.29	Acclimation % 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 4/26/2000	1999	Sawtooth A	R51	16,768	AD		16,768	3.95	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R52	12,255	AD		12,255	4.15	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R53	11,632	AD		11,632	4.02	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R54	15,754	AD		15,754	4.49	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R55	14,403	AD		14,403	4.02	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R62	16,663	AD		16,663	4.42	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R63	17,480	AD		17,480	4.37	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R64	17,648	AD		17,648	4	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R65	16,672	AD		16,672	3.96	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R66	16,007	AD		16,007	3.72	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R67	15,281	AD		15,281	3.66	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R68	17,259	AD		17,259	3.91	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R69	16,715	AD		16,715	3.89	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R70	17,678	AD		17,678	4.2	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R71	16,220	AD		16,220	4.01	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R72	18,687	AD		18,687	4.36	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R73	18,217	AD		18,217	4.3	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R74	18,492	AD		18,492	4.35	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R75	17,304	AD		17,304	4.12	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R76	16,656	AD		16,656	3.92	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R77	16,113	AD		16,113	3.62	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R78	19,610	AD		19,610	4.1	Acclimation % 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 4/26/2000	1999	Sawtooth A	R79	16,956	AD		16,956	3.72	Acclimation % Body Wt. Diet
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R80	19,324	AD		19,324	4.07	Acclimation % Body Wt. Diet
Total CWT Release:							59,003		
Total non-CWT Release:							486,823		
Total Group Release:							545,826		
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R37	17,903	AD,CWT,LV AD,LV	105516	17,726 177	3.39	Early Egg Take Direct Release
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R38	21,290	AD,CWT,LV AD AD,LV	105517	20,187 204 899	3.95	Early Egg Take Direct Release
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R39	19,995	AD,CWT,LV AD,CWT,LV,PIT AD,LV	105518 105518	19,370 300 325	4.3	Early Egg Take Direct Release
Total CWT Release:							57,583		
Total non-CWT Release:							1,605		
Total Group Release:							59,188		
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R42	20,760	AD,CWT,LV AD,CWT,LV,PIT AD,LV	105521 105521	19,012 300 1,448	4.55	Acclimated Feed/Fast
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R44	18,756	AD,CWT,LV AD,CWT,LV,PIT AD,LV	105523 105523	17,843 310 603	4.3	Acclimated Feed/Fast
Sawtooth Hatchery 4/26/2000	1999	Sawtooth A	R45	22,312	AD,CWT,LV AD,CWT,LV,PIT AD AD,LV	105524 105524	19,871 299 1,417 725	5.05	Acclimated Feed/Fast
Total CWT Release:							57,635		
Total non-CWT Release:							4,193		
Total Group Release:							61,828		
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R59	16,995	AD		16,995	4.13	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R60	16,495	AD		16,495	4.27	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R81	17,529	AD		17,529	4.29	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R61	15,447	AD		15,447	4.01	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R82	17,789	AD		17,789	4.36	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R83	16,539	AD		16,539	4.54	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 4/3/2000-5/8/2000	1999	Hells Canyon A	R84	17,530	AD		17,530	4.64	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R85	17,694	AD		17,694	4.98	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R86	18,067	AD		18,067	4.24	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R87	17,740	AD		17,740	4.18	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R88	18,016	AD		18,016	4.05	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R94	2,642	AD		2,642	4.2	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R89	17,689	AD		17,689	4.13	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R97	20,072	AD AD,PIT		19,772 300	4.3	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R98	17,831	AD		17,831	3.99	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R90	18,169	AD		18,169	4.33	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R91	17,173	AD		17,173	3.91	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R99	19,823	AD		19,823	4.35	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R95	18,050	AD		18,050	4.03	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R96	18,133	AD		18,133	3.96	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R100	18,446	AD		18,446	4.08	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R101	19,110	AD		19,110	3.9	Contribution
Lt Salmon R @ Stinky Springs 4/3/2000-5/8/2000	1999	Hells Canyon A	R102	18,945	AD		18,945	3.86	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
Total CWT Release:							0		
Total non-CWT Release:							395,924		
Total Group Release:							395,924		
Total Sawtooth A-Stock Cwt Release							234,337		
Total Sawtooth A-Stock Non-CWT Release							493,460		
Total Sawtooth A-Stock Release							727,797		
Total Hells Canyon A-Stock Cwt Release							0		
Total Hells Canyon A-Stock Non-CWT Release							447,085		
Total Hells Canyon A-Stock Release							447,085		
Total CWT Release For Hagerman NFH							234,337		
Total Non-CWT Release For Hagerman NFH							940,545		
Total PIT Tag Release For Hagerman NFH Hatchery							2,708		
Total Hagerman NFH Hatchery Release							1,174,882		

Appendix A. Table 3. Release data for all steelhead released from Magic Valley Fish Hatchery during 2000. 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 @ Tunnel Rock 4/20/2000-4/21/2000	1999	Sawtooth A	R03W	63,354	CWT,AD,LV	105415	50,055	4.3	Contribution
					CWT,AD,LV,PIT	105415	245		
					CWT,AD,LV	104829	11,099		
					CWT,AD,LV,PIT AD,LV	104829	54 1,901		
Salmon R @ Tunnel Rock 4/20/2000-4/21/2000	1999	Sawtooth A	R04W	25,058	AD		25,058	4.2	Contribution
Salmon R @ Tunnel Rock 4/20/2000-4/21/2000	1999	Sawtooth A	R05W	18,576	AD		18,576	4.3	Contribution
Salmon R @ Tunnel Rock 4/20/2000-4/21/2000	1999	Sawtooth A	R06W	1,685	AD		1,685	4.2	Contribution
Total CWT Release:							61,453		
Total non-CWT Release:							47,220		
Total Group Release:							108,673		
Salmon R @ Shoup Bridge 4/14/2000	1999	Pah A	R10W	6,334	AD		6,334	4.1	Contribution
Salmon R @ Shoup Bridge 4/14/2000	1999	Pah A	R11W	61,594	CWT,AD,LV	105414	46,608	3.9	Contribution
					CWT,AD,LV,PIT	105414	258		
					CWT,AD,LV	104648	7,621		
					CWT,AD,LV,PIT AD,LV	104648	42 7,065		
Total CWT Release:							54,529		
Total non-CWT Release:							13,399		
Total Group Release:							67,928		
Squaw Ck Ponds 4/10/2000-4/11/2000	1999	Dwor B	R11E	57,979	AD		57,979	4.4	Production
Squaw Ck Ponds 4/10/2000-4/11/2000	1999	Dwor B	R12E	48,156	AD		48,156	4.4	Production
Total CWT Release:							0		
Total non-CWT Release:							106,135		
Total Group Release:							106,135		
E Fk Salmon R @ Dumpster 4/27/2000-5/2/2000	1999	Dwor B	R04E	22,400	AD		22,400	4.5	Production
E Fk Salmon R @ Dumpster 4/27/2000-5/2/2000	1999	Dwor B	R06E	47,138	AD		47,138	4.81	Production
E Fk Salmon R @ Dumpster 4/27/2000-5/2/2000	1999	Dwor B	R07E	66,175	AD		66,175	4.3	Production

Appendix A. Table 3. Continued

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
E Fk Salmon R @ Dumpster 4/27/2000-5/2/2000	1999	Dwor B	R08E	58,608	AD		58,608	4	Production
E Fk Salmon R @ Dumpster 4/27/2000-5/2/2000	1999	Dwor B	R09E	45,660	AD		45,660	4.6	Production
							Total CWT Release:	0	
							Total non-CWT Release:	239,981	
							Total Group Release:	239,981	
Salmon R @ Kilpatrick 4/18/2000	1999	Sawtooth A	R07W	21,500	AD		21,500	4.3	Production
							Total CWT Release:	0	
							Total non-CWT Release:	21,500	
							Total Group Release:	21,500	
Salmon R @ Eyehole 4/18/2000	1999	Sawtooth A	R07W	21,500	AD		21,500	4.3	Production
							Total CWT Release:	0	
							Total non-CWT Release:	21,500	
							Total Group Release:	21,500	
Salmon R @ McNabb Point 4/18/2000-4/21/2000	1999	Sawtooth A	R04W	20,920	AD		20,920	4.2	Production
Salmon R @ McNabb Point 4/18/2000-4/21/2000	1999	Sawtooth A	R06W	64,835	AD		64,835	4.2	Production
Salmon R @ McNabb Point 4/18/2000-4/21/2000	1999	Sawtooth A	R07W	19,823	AD		19,823	4.3	Production
							Total CWT Release:	0	
							Total non-CWT Release:	105,578	
							Total Group Release:	105,578	
S Fk Clwtr R@ Mill Ck 5/2/2000	1999	Dwor B	R15E	19,556	NONE		19,556	3.9	Production
							Total CWT Release:	0	
							Total non-CWT Release:	19,556	
							Total Group Release:	19,556	
Red River: S Fk Clwtr 5/10/2000	1999	Dwor B	R16E	30,480	NONE		30,480	4	Supplementation Late Eggs
							Total CWT Release:	0	
							Total non-CWT Release:	30,480	
							Total Group Release:	30,480	
American R: S Fk Clwtr R 5/5/2000	1999	Dwor B	R14E	66,487	NONE PIT		66,187 300	4.4	Supplementation Late Eggs

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
American R: S Fk Clwtr R 5/5/2000-5/9/2000	1999	Dwor B	R15E	11,700	NONE		11,700	3.9	Supplementation Late Eggs
American R: S Fk Clwtr R 5/5/2000-5/9/2000	1999	Dwor B	R16E	18,000	NONE		18,000	4	Supplementation Late Eggs
Total CWT Release:							0		
Total non-CWT Release:							96,187		
Total Group Release:							96,187		
Newsome Ck: S Fk Clwtr R 5/4/2000	1999	Dwor B	R13E	66,478	NONE NONE,PIT		66,178 300	4.2	Supplementation Late Eggs
Newsome Ck: S Fk Clwtr R 5/4/2000-5/9/2000	1999	Dwor B	R15E	15,600	NONE		15,600	3.9	Supplementation Late Eggs
Newsome Ck: S Fk Clwtr R 5/4/2000-5/9/2000	1999	Dwor B	R16E	18,000	NONE		18,000	4	Supplementation Late Eggs
Total CWT Release:							0		
Total non-CWT Release:							100,078		
Total Group Release:							100,078		
S Fk Clwtr R@ Meadow Ck. 5/2/2000	1999	Dwor B	R15E	19,557	NONE		19,557	3.9	Supplementation Late Eggs
Total CWT Release:							0		
Total non-CWT Release:							19,557		
Total Group Release:							19,557		
Squaw Ck 4/24/2000-6/5/2000	1999	Dwor B	R01E	22,030	AD		22,030	4.4	Contribution
Squaw Ck 4/24/2000-6/5/2000	1999	Dwor B	R02W	7,880	AD		7,880	3.9	Contribution
Squaw Ck 4/24/2000-6/5/2000	1999	Dwor B	R03E	7,325	AD		7,325	4.3	Contribution
Squaw Ck 4/24/2000-6/5/2000	1999	Dwor B	R04E	37,626	AD		37,626	4.5	Contribution
Squaw Ck 4/24/2000	1999	Dwor B	R05E	4,466	AD BWT,AD		4,119 347	4.3	Contribution
Squaw Ck 4/24/2000-6/5/2000	1999	Dwor B	R06E	19,042	AD		19,042	4.81	Contribution
Squaw Ck 4/24/2000-6/5/2000	1999	Dwor B	R08E	7,603	AD		7,603	4	Contribution
Squaw Ck 4/24/2000-6/5/2000	1999	Dwor B	R09E	20,554	AD		20,554	4.6	Contribution
Squaw Ck 4/24/2000-6/5/2000	1999	Dwor B	R10E	62,582	CWT,AD,LV CWT,AD,LV,PIT CWT,AD,LV CWT,AD,LV,PIT AD,LV	105413 105413 104647 104647	50,571 249 10,472 51 1,239	4.5	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 4/24/2000-6/5/2000	1999	Dwor B	R11E	4,528	AD		4,528	4.5	Contribution
							Total CWT Release:	61,343	
							Total non-CWT Release:	132,293	
							Total Group Release:	193,636	
Lt Salmon R @ Stinky Springs 4/11/2000-4/27/2000	1999	Dwor B	R01E	44,062	AD		44,062	4.4	Contribution
Lt Salmon R @ Stinky Springs 4/11/2000-4/27/2000	1999	Dwor B	R02E	65,312	CWT,AD,LV CWT,AD,LV,PIT AD AD,LV	103605 103605	62,945 299 1,644 424	3.8	Contribution
Lt Salmon R @ Stinky Springs 4/11/2000-4/27/2000	1999	Dwor B	R02W	57,915	AD		57,915	3.9	Contribution
Lt Salmon R @ Stinky Springs 4/11/2000-4/27/2000	1999	Dwor B	R03E	55,726	AD		55,726	4.3	Contribution
Lt Salmon R @ Stinky Springs 4/11/2000-4/27/2000	1999	Dwor B	R04E	4,035	AD		4,035	4.5	Contribution
Lt Salmon R @ Stinky Springs 4/11/2000	1999	Dwor B	R05E	59,777	AD BWT,AD		55,138 4,639	4.3	Contribution
Lt Salmon R @ Stinky Springs 4/11/2000-4/27/2000	1999	Dwor B	R12E	13,696	AD		13,696	4.28	Contribution
							Total CWT Release:	63,244	
							Total non-CWT Release:	237,279	
							Total Group Release:	300,523	
Salmon R @ Cottonwood Cg 4/14/2000-4/21/2000	1999	Sawtooth A	R04W	20,920	AD		20,920	4.2	Production
Salmon R @ Cottonwood Cg 4/14/2000-4/21/2000	1999	Sawtooth A	R07W	4,300	AD		4,300	4.3	Production
Salmon R @ Cottonwood Cg 4/14/2000-4/21/2000	1999	Sawtooth A	R08W	20,533	AD		20,533	4.1	Production
							Total CWT Release:	0	
							Total non-CWT Release:	45,753	
							Total Group Release:	45,753	
Lemhi R: Salmon R 4/12/2000-4/21/2000	1999	Pah A	R12W	46,239	AD		46,239	4.25	Contribution
Lemhi R: Salmon R 4/12/2000-4/21/2000	1999	Pah A	R13W	64,200	CWT,AD,LV CWT,AD,LV,PIT AD,LV	103606 103606	61,781 300 2,119	3.71	Contribution

Appendix A. Table 3. Continued

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Lemhi R: Salmon R 4/12/2000-4/21/2000	1999	Pah A	R14W	2,928	AD		2,928	4.18	Contribution
							Total CWT Release:	62,081	
							Total non-CWT Release:	51,286	
							Total Group Release:	113,367	
Lt Salmon R @ Stinky Springs 4/11/2000-4/12/2000	1999	Hells Canyon A	R15W	57,876	AD		57,876	4.35	Stinky HC-A Contribution
Lt Salmon R @ Stinky Springs 4/11/2000-4/12/2000	1999	Hells Canyon A	R16W	57,547	AD		57,547	4.17	Stinky HC-A Contribution
							Total CWT Release:	0	
							Total non-CWT Release:	115,423	
							Total Group Release:	115,423	
Salmon R @ Red Rock 4/12/2000	1999	Pah A	R14W	62,670	AD		62,670	4.2	Contribution
							Total CWT Release:	0	
							Total non-CWT Release:	62,670	
							Total Group Release:	62,670	
Salmon R @ Lewis Clark 4/17/2000	1999	Pah A	R09W	43,137	AD		43,137	4.1	Contribution
Salmon R @ Lewis Clark 4/17/2000	1999	Pah A	R10W	18,595	AD		18,595	4.1	Contribution
							Total CWT Release:	0	
							Total non-CWT Release:	61,732	
							Total Group Release:	61,732	
Salmon R @ Cottonwood Cg 4/14/2000-4/21/2000	1999	Pah A	R08W	16,189	AD		16,189	4.1	Production
Salmon R @ Cottonwood Cg 4/14/2000-4/21/2000	1999	Pah A	R10W	20,230	AD		20,230	4.1	Production
							Total CWT Release:	0	
							Total non-CWT Release:	36,419	
							Total Group Release:	36,419	
Squaw Ck 4/20/2000	1999	East Fk B	R01W	51,866	AD AD,PIT		51,566 300	3.9	Production
							Total non-CWT Release:	51,866	
							Total Group Release:	51,866	
Salmon R @ Colston Corner 4/18/2000	1999	Sawtooth A	R08W	11,533	AD		11,533	4.1	Production
							Total CWT Release:	0	
							Total non-CWT Release:	11,533	
							Total Group Release:	11,533	

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 @ Colston Corner 4/18/2000	1999	Pah A	R08W	9,092	AD		9,092	4.1	Production
							Total CWT Release:	0	
							Total non-CWT Release:	9,092	
							Total Group Release:	9,092	
Salmon R @ Challis 4/13/2000-4/24/2000	1999	Sawtooth A	R05W	24,491	AD		24,491	4.3	Production
							Total CWT Release:	0	
							Total non-CWT Release:	24,491	
							Total Group Release:	24,491	
Salmon R @ Challis 4/13/2000-4/24/2000	1999	Pah A	R12W	21,250	AD		21,250	4	Production
							Total CWT Release:	0	
							Total non-CWT Release:	21,250	
							Total Group Release:	21,250	
Salmon R @ Wagonhammer 4/17/2000	1999	Sawtooth A	R08W	1,845	AD		1,845	4.1	Production
							Total CWT Release:	0	
							Total non-CWT Release:	1,845	
							Total Group Release:	1,845	
Salmon R @ Wagonhammer 4/17/2000	1999	Pah A	R08W	1,455	AD		1,455	4.1	Production
Salmon R @ Wagonhammer 4/17/2000	1999	Pah A	R09W	17,339	AD		17,339	4.1	Production
Salmon R @ Wagonhammer 4/17/2000	1999	Pah A	R10W	20,452	AD		20,452	4.1	Production
							Total CWT Release:	0	
							Total non-CWT Release:	39,246	
							Total Group Release:	39,246	
Lemhi R: Salmon R 4/12/2000-4/21/2000	1999	Sawtooth A	R05W	24,040	AD		24,040	4.3	Production
							Total CWT Release:	0	
							Total non-CWT Release:	24,040	
							Total Group Release:	24,040	
							Total Sawtooth A-Stock Cwt Release	61,453	
							Total Sawtooth A-Stock Non-CWT Release	303,460	
							Total Sawtooth A-Stock Release	364,913	
							Total Pah A-Stock Cwt Release	116,610	
							Total PAH A-Stock Non-CWT Release	295,094	
							Total Pah A-Stock Release	411,704	

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
							124,587		
							981,546		
							1,106,133		
							0		
							115,423		
							115,423		
							0		
							51,866		
							51,866		
							302,650		
							1,747,389		
							2,398		
							2,050,039		

Appendix B. Table 1. Release and recovery data for brood year 1997 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 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 (%)
S Fk Clwtr@ Red House Hole 4/20/1998-4/29/1998	1997	Dwor B	104740	21,093	AD,LV	Contribution	1	0	2	2	
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/20/1998-4/29/1998	1997	Dwor B	104738	21,859	AD,LV	Contribution	1	0	2	2	
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/20/1998-4/29/1998	1997	Dwor B	104739	21,079	AD,LV	Contribution	1	0	2	2	
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/20/1998-4/29/1998	1997	Dwor B	Untagged	468,274	AD	Contribution	1	0	45	45	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:								0	51	51	
Red River: S Fk Clwtr 4/24/1998	1997	Dwor B	Untagged	4,497	All PIT	Supplementation PIT tag only	1	0	0	0	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:								0	0	0	
Clear Ck: Clwtr R 4/20/1998-4/29/1998	1997	Dwor B	105225	20,851	AD,LV	Contribution	1	0	2	2	
							2	ND	ND	ND	
							3	ND	ND	ND	
Clear Ck: Clwtr R 4/20/1998-4/29/1998	1997	Dwor B	Untagged	144,633	AD	Contribution	1	0	14	14	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:								0	16	16	
S Fk Red River 9/5/1996	1996	Dwor B	Untagged	4,992	All PIT	Supplementation	1	0	0	0	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:								0	0	0	
						Total 1-Ocean:	67				
						Total 2-Ocean:	ND				
						Total 3-Ocean:	ND				
						Total Harvest Recoveries:	67				
						Total Hatchery Recoveries:	0				
						Total Releases:	707,278				
						Total Recoveries:	67				

Appendix B. Table 2. Release and recovery data for brood year 1997 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 (%)
Sawtooth Hatchery 4/24/1998	1997	Sawtooth A	104719	20,168	AD	Direct Release	1	77	35	112	0.56
						Feed - Fast	2	ND	ND	ND	
						Diet	3	ND	ND	ND	
Sawtooth Hatchery 4/24/1998	1997	Sawtooth A	104717	19,105	AD	Direct Release	1	105	37	142	0.74
						Feed - Fast	2	ND	ND	ND	
						Diet	3	ND	ND	ND	
Sawtooth Hatchery 4/24/1998	1997	Sawtooth A	104718	20,060	AD	Direct Release	1	73	39	112	0.56
						Feed - Fast	2	ND	ND	ND	
						Diet	3	ND	ND	ND	
Sawtooth Hatchery 4/24/1998	1997	Sawtooth A	Untagged	2,022	AD	Direct Release	1	10	7	17	0.84
						Feed - Fast	2	ND	ND	ND	
						Diet	3	ND	ND	ND	
Totals:				61,355				265	118	383	0.62
Lt Salmon R @ Stinky Springs 4/13/1998-4/29/1998	1997	Pah A	104614	10,544	AD	Contribution	1	6	6	12	0.11
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/13/1998-4/29/1998	1997	Pah A	104708	19,295	AD	Contribution	1	66	66	132	0.68
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/13/1998-4/29/1998	1997	Pah A	Untagged	317,631	AD	Contribution	1	766	766	1,532	0.48
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				347,470				838	838	1,676	0.48
Sawtooth Hatchery 4/1/1998-4/9/1998	1997	Sawtooth A	104609	20,929	AD	Acclimated/ %body wt. diet	1	58	18	76	0.36
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/1/1998-4/9/1998	1997	Sawtooth A	104550	19,891	AD	Acclimated/ %body wt. diet	1	54	16	70	0.35
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/1/1998-4/9/1998	1997	Sawtooth A	104608	19,208	AD	Acclimated/ %body wt. diet	1	110	25	135	0.7
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/1/1998-4/9/1998	1997	Sawtooth A	Untagged	443,940	AD	Acclimated/ %body wt. diet	1	2,176	1,527	3,703	0.83
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				503,968				2,398	1,586	3,984	0.79
Sawtooth Hatchery 3/31/1998	1997	Sawtooth A	104504	19,535	AD	Acclimated	1	114	31	145	0.74
							2	ND	ND	ND	
							3	ND	ND	ND	

Appendix B. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Sawtooth Hatchery 3/31/1998	1997	Sawtooth A	104503	20,790	AD	Acclimated	1	119	25	144	0.69
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/31/1998	1997	Sawtooth A	104720	19,442	AD	Acclimated	1	55	35	90	0.46
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/31/1998	1997	Sawtooth A	Untagged	808	AD	Acclimated	1	4	3	7	0.87
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				60,575				292	94	386	0.64
Sawtooth Hatchery 3/31/1998-4/1/1998	1997	Sawtooth A	104549	20,409	AD	Acclimated Feed-Fast diet	1	199	22	221	1.08
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/31/1998-4/1/1998	1997	Sawtooth A	104547	18,337	AD	Acclimated Feed-Fast diet	1	144	31	175	0.95
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/31/1998-4/1/1998	1997	Sawtooth A	104548	17,839	AD	Acclimated Feed-Fast diet	1	52	32	84	0.47
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 3/31/1998-4/1/1998	1997	Sawtooth A	Untagged	2,454	AD	Acclimated Feed-Fast diet	1	12	8	20	0.81
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				59,039				407	93	500	0.85
						Total 1-Ocean:	6,929				
						Total 2-Ocean:	ND				
						Total 3-Ocean:	ND				
						Total Harvest Recoveries:	4,200				
						Total Hatchery Recoveries:	2,729				
						Total Releases:	1,032,407				
						Total Recoveries:	6,929				

Appendix B. Table 3. Release and recovery data for brood year 1997 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 (%)
E Fk Salmon R Trap 4/30/1998-5/1/1998	1997	East Fk B	104707	20,781	AD,LV	Contribution	1	3	0	3	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/30/1998-5/1/1998	1997	East Fk B	104705	21,372	AD,LV	Contribution	1	10	2	12	0.06
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/30/1998-5/1/1998	1997	East Fk B	104706	21,088	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R Trap 4/30/1998-5/1/1998	1997	East Fk B	Untagged	63,679	AD	Contribution	1	13	26	39	0.06
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				126,920				26	28	54	0.04
E Fk Salmon R @ Dumpster 4/24/1998-4/29/1998	1997	Dwor B	102143	20,367	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R @ Dumpster 4/24/1998-4/29/1998	1997	Dwor B	102144	20,932	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R @ Dumpster 4/24/1998-4/29/1998	1997	Dwor B	102145	19,811	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
E Fk Salmon R @ Dumpster 4/24/1998-4/29/1998	1997	Dwor B	Untagged	224,916	AD	Contribution	1	0	7	7	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				286,026				0	7	7	0
Salmon R @ McNabb Point 4/16/1998-4/17/1998	1997	Sawtooth A	102142	19,786	AD	Contribution	1	109	26	135	0.68
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/16/1998-4/17/1998	1997	Sawtooth A	102140	21,016	AD	Contribution	1	125	27	152	0.72
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/16/1998-4/17/1998	1997	Sawtooth A	102141	20,191	AD	Contribution	1	75	26	101	0.5
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ McNabb Point 4/16/1998-4/17/1998	1997	Sawtooth A	Untagged	97,667	AD	Contribution	1	495	14	509	0.52
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				158,660				804	93	897	0.57

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 @ Shoup Bridge 4/20/1998-4/21/1998	1997	Sawtooth A	102139	17,514	AD	Contribution	1	7	23	30	0.17
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Shoup Bridge 4/20/1998-4/21/1998	1997	Sawtooth A	102137	21,696	AD	Contribution	1	90	28	118	0.54
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Shoup Bridge 4/20/1998-4/21/1998	1997	Sawtooth A	102138	21,478	AD	Contribution	1	70	28	98	0.46
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Shoup Bridge 4/20/1998-4/21/1998	1997	Sawtooth A	Untagged	48,227	AD	Contribution	1	134	63	197	0.41
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				108,915				301	142	443	0.41
Salmon R @ Red Rock 4/23/1998-4/24/1998	1997	Pah A	102136	16,299	AD	Contribution	1	60	21	81	0.5
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Red Rock 4/23/1998-4/24/1998	1997	Pah A	102134	21,407	AD	Contribution	1	22	28	50	0.23
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Red Rock 4/23/1998-4/24/1998	1997	Pah A	102135	21,639	AD	Contribution	1	105	28	133	0.61
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Red Rock 4/23/1998-4/24/1998	1997	Pah A	Untagged	77,715	AD	Contribution	1	245	101	346	0.45
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				137,060				432	178	610	0.45
Lt Salmon R @ Stinky Springs 4/13/1998-4/15/1998	1997	Dwor B	102133	20,212	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/13/1998-4/15/1998	1997	Dwor B	102131	21,428	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/13/1998-4/15/1998	1997	Dwor B	102132	20,983	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/13/1998-4/15/1998	1997	Dwor B	Untagged	218,326	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				280,949				0	0	0	0
E Fk Salmon R @ Dumpster 4/28/1998	1997	Dwor B	Untagged	35,700	AD	Fin Erosion Study	1	0	1	1	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				35,700				0	1	1	0
Squaw Ck Ponds 4/10/1998-4/13/1998	1997	Dwor B	Untagged	52,800	AD	Volitional Release Study	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				52,800				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 (%)
Slate Ck: U Salmon R 5/4/1998-5/7/1998	1997	East Fk B	102146	21,173	AD,LV	Contribution	1	7	1	8	0.04
							2	ND	ND	ND	
							3	ND	ND	ND	
Slate Ck: U Salmon R 5/4/1998-5/7/1998	1997	East Fk B	102147	21,178	AD,LV	Contribution	1	3	1	4	0.02
							2	ND	ND	ND	
							3	ND	ND	ND	
Slate Ck: U Salmon R 5/4/1998-5/7/1998	1997	East Fk B	102148	17,324	AD,LV	Contribution	1	5	1	6	0.03
							2	ND	ND	ND	
							3	ND	ND	ND	
Slate Ck: U Salmon R 5/4/1998-5/7/1998	1997	East Fk B	Untagged	114,905	AD	Contribution	1	29	4	33	0.03
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				174,580				44	7	51	0.03
Salmon R @ Cottonwood Cg 4/17/1998-4/20/1998	1997	Sawtooth A	Untagged	142,650	AD	Contribution	1	723	185	908	0.64
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				142,650				723	185	908	0.64
Lemhi R: Salmon R 4/21/1998-4/22/1998	1997	Pah A	Untagged	154,565	AD	Contribution	1	430	201	631	0.41
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				154,565				430	201	631	0.41
						Total 1-Ocean:	3,602				
						Total 2-Ocean:	ND				
						Total 3-Ocean:	ND				
						Total Harvest Recoveries:	2,760				
						Total Hatchery Recoveries:	842				
						Total Releases:	1,658,825				
						Total Recoveries:	3,602				

Appendix C. Table 1. Release and recovery data for brood year 1996 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 (%)
Clear Ck: Clwtr R 4/28/1997	1996	Dwor B	105145	31,672	AD,LV	Coded-wire tag length experiment.	1	0	3	3	0.09
							2	12	12	24	
							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	0.07
							2	7	11	18	
							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	0.08
							2	34	41	75	
							3	ND	ND	ND	
Totals:				179,213				53	84	137	0.08
Crooked R: S Fk Clwtr 4/23/1997	1995	Selway	Untagged	75,894	RV	Selway Program, RV only.	1	0	0	0	0.03
							2	11	12	23	
							3	ND	ND	ND	
Totals:				75,894				11	12	23	0.03
S Fk Clwtr@ Red House Hole 4/28/1997-4/30/1997	1996	Dwor B	104610	21,451	AD,LV	Contribution	1	0	2	2	0.14
							2	7	22	29	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/28/1997-4/30/1997	1996	Dwor B	102129	21,291	AD,LV	Contribution	1	0	2	2	0.14
							2	6	21	27	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/28/1997-4/30/1997	1996	Dwor B	102130	21,163	AD,LV	Contribution	1	0	2	2	0.31
							2	42	21	63	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/28/1997-4/30/1997	1996	Dwor B	Untagged	357,268	AD	Contribution	1	0	36	36	0.2
							2	307	358	665	
							3	ND	ND	ND	
Totals:				421,173				362	464	826	0.2
S Fk Red River 9/5/1996	1996	Dwor B	105120	42,426	NONE	Supplementation	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
S Fk Red River 9/5/1996	1996	Dwor B (4,992 PIT Tags)	Untagged	6,304	NONE	Supplementation	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
Totals:				48,730				0	0	0	0
Red River@ Soda Ck Bridge 4/28/1997	1996	Dwor B	Untagged	4,991	All PIT	Supplementation	1	0	0	0	0
							2	0	0	0	
							3	ND	ND	ND	
Totals:				4,991				0	0	0	0

Appendix C. Table 2. Release and recovery data for brood year 1996 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 (%)
Salmon R @ Torrey's Hole 4/25/1997	1996	Sawtooth A	105146	57,115	AD	Acclimated Torrey's Hole Contribution	1	108	49	157	0.46
							2	96	11	107	
							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	0.37
							2	11	1	12	
							3	ND	ND	ND	
Totals:				65,420			228	67	295	0.45	
Lt Salmon R @ Stinky Springs 4/14/1997-5/2/1997	1996	Pah A	105105	10,977	AD	Contribution	1	15	15	30	0.45
							2	0	19	19	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/14/1997-5/2/1997	1996	Pah A	105205	20,939	AD	Contribution	1	0	0	0	0.17
							2	0	36	36	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/14/1997-5/2/1997	1996	Pah A	Untagged	279,225	AD	Contribution	1	131	131	262	0.26
							2	0	477	477	
							3	ND	ND	ND	
Totals:				311,141			146	678	824	0.26	
Lt Salmon R @ Stinky Springs 4/16/1997	1996	Sawtooth A	Untagged	31,140	AD	Contribution	1	15	15	30	0.27
							2	0	53	53	
							3	ND	ND	ND	
Totals:				31,140			15	68	83	0.27	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105159	19,619	AD	Contribution	1	27	11	38	0.23
							2	3	4	7	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105157	20,507	AD	Contribution	1	18	11	29	0.3
							2	27	5	32	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105158	19,794	AD	Contribution	1	13	14	27	0.19
							2	7	3	10	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	416,978	AD	Contribution	1	596	570	1,166	0.37
							2	271	103	374	
							3	ND	ND	ND	
Totals:				478,124			962	721	1,683	0.35	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105156	20,464	AD	Direct Release	1	51	12	63	0.33
							2	3	2	5	
							3	ND	ND	ND	

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 (%)
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105154	19,301	AD	Direct Release	1	39	33	72	0.46
							2	11	6	17	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105155	19,480	AD	Direct Release	1	35	17	52	0.37
							2	18	2	20	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	2,903	AD	Direct Release	1	4	4	8	0.38
							2	2	1	3	
							3	ND	ND	ND	
Totals:				62,148				163	77	240	0.39
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105153	20,038	AD	Acclimated Group	1	36	17	53	0.31
							2	6	3	9	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105151	20,498	AD	Acclimated Group	1	35	19	54	0.32
							2	8	4	12	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105152	20,268	AD	Acclimated Group	1	20	11	31	0.21
							2	10	1	11	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	727	AD	Acclimated Group	1	1	1	2	0.28
							2	0	0	0	
							3	ND	ND	ND	
Totals:				61,531				116	56	172	0.28
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105148	27,801	AD	Double Length Wire	1	32	24	56	0.27
							2	13	5	18	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105147	31,771	AD	Double Length Wire	1	40	31	71	0.42
							2	51	11	62	
							3	ND	ND	ND	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	2,122	AD	Double Length Wire	1	3	3	6	0.38
							2	1	1	2	
							3	ND	ND	ND	
Totals:				61,694				140	75	215	0.35
Salmon R @ McNabb Point 4/9/1997-4/24/1997	1996	Sawtooth A	Untagged	75,946	AD	Contribution	1	81	85	166	0.3
							2	41	23	64	
							3	ND	ND	ND	
Totals:				75,946				122	108	230	0.3
						Total 1-Ocean:	2,392				
						Total 2-Ocean:	1,350				
						Total 3-Ocean:	ND				
						Total Harvest Recoveries:	1,892				
						Total Hatchery Recoveries:	1,850				
						Total Releases:	1,147,144				
						Total Recoveries:	3,742				

Appendix C. Table 3. Release and recovery data for brood year 1996 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 (%)
Sawtooth Hatchery 4/11/1997	1996	Pah A	Untagged	84,715	AD	Late eggs from SFH Acclimated 2 wk @ SFH before release	1	122	72	194	0.31
							2	55	16	71	
							3	ND	ND	ND	
							Totals:	84,715	177	88	
E Fk Salmon R @ Dumpster 4/23/1997-4/30/1997	1996	Dwor B	105224	13,032	AD,LV	Contribution	1	0	0	0	0.06
							2	7	1	8	
							3	ND	ND	ND	
E Fk Salmon R @ Dumpster 4/23/1997-4/30/1997	1996	Dwor B	105222	19,347	AD,LV	Contribution	1	0	0	0	0.04
							2	7	1	8	
							3	ND	ND	ND	
E Fk Salmon R @ Dumpster 4/23/1997-4/30/1997	1996	Dwor B	105223	19,798	AD,LV	Contribution	1	0	0	0	0.35
							2	69	1	70	
							3	ND	ND	ND	
E Fk Salmon R @ Dumpster 4/23/1997-4/30/1997	1996	Dwor B	Untagged	240,777	AD	Contribution	1	0	0	0	0.16
							2	383	14	397	
							3	ND	ND	ND	
Totals:				292,954			466	17	483	0.2	
N Fk Salmon Release 4/21/1997	1996	Pah A	105216	20,026	AD	Contribution	1	79	22	101	0.61
							2	16	6	22	
							3	ND	ND	ND	
N Fk Salmon Release 4/21/1997	1996	Pah A	105217	19,979	AD	Contribution	1	38	22	60	0.35
							2	3	6	9	
							3	ND	ND	ND	
N Fk Salmon Release 4/21/1997	1996	Pah A	105218	17,633	AD	Contribution	1	22	20	42	0.7
							2	76	5	81	
							3	ND	ND	ND	
N Fk Salmon Release 4/21/1997	1996	Pah A	Untagged	76,673	AD	Contribution	1	185	86	271	0.55
							2	126	23	149	
							3	ND	ND	ND	
Totals:				134,311			545	190	735	0.55	
Lt Salmon R @ Stinky Springs 4/9/1997-4/10/1997	1996	Dwor B	105206	19,407	AD,LV	Contribution	1	0	0	0	0.2
							2	19	19	38	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/9/1997-4/10/1997	1996	Dwor B	105106	9,505	AD,LV	Contribution	1	0	0	0	0.09
							2	0	9	9	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/9/1997-4/10/1997	1996	Dwor B	Untagged	211,618	AD	Contribution	1	0	0	0	0.2
							2	207	207	414	
							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 (%)
Totals:				240,530				226	235	461	0.19
Salmon R @ McNabb Point 4/14/1997-4/15/1997	1996	Pah A	105212	14,694	AD	Contribution	1 2 3	19 3 ND	16 4 ND	35 7 ND	0.29
Salmon R @ McNabb Point 4/14/1997-4/15/1997	1996	Pah A	105210	17,401	AD	Contribution	1 2 3	12 7 ND	19 5 ND	31 12 ND	0.25
Salmon R @ McNabb Point 4/14/1997-4/15/1997	1996	Pah A	105211	17,574	AD	Contribution	1 2 3	22 17 ND	20 5 ND	42 22 ND	0.36
Salmon R @ McNabb Point 4/14/1997-4/15/1997	1996	Pah A	Untagged	104,802	AD	Contribution	1 2 3	112 57 ND	118 32 ND	230 89 ND	0.3
Totals:				154,471				249	219	468	0.3
Slate Ck: U Salmon R 4/25/1997-5/1/1997	1996	Dwor B	105162	15,480	AD,LV	Contribution	1 2 3	0 0 ND	ND 1 ND	0 1 ND	0.01
Slate Ck: U Salmon R 4/25/1997-5/1/1997	1996	Dwor B	105160	20,273	AD,LV	Contribution	1 2 3	0 4 ND	ND 2 ND	0 6 ND	0.03
Slate Ck: U Salmon R 4/25/1997-5/1/1997	1996	Dwor B	105161	21,448	AD,LV	Contribution	1 2 3	0 0 ND	ND 2 ND	0 2 ND	0.01
Slate Ck: U Salmon R 4/25/1997-5/1/1997	1996	Dwor B	Untagged	156,010	AD	Contribution	1 2 3	0 11 ND	ND 11 ND	0 22 ND	0.01
Totals:				213,211				15	16	31	0.01
E Fk Salmon R Trap 4/22/1997-4/23/1997	1996	East Fk B	105221	15,007	AD,LV	Contribution	1 2 3	18 13 ND	5 2 ND	23 15 ND	0.25
E Fk Salmon R Trap 4/22/1997-4/23/1997	1996	East Fk B	105219	19,375	AD,LV	Contribution	1 2 3	10 10 ND	4 2 ND	14 12 ND	0.13
E Fk Salmon R Trap 4/22/1997-4/23/1997	1996	East Fk B	105220	20,667	AD,LV	Contribution	1 2 3	17 13 ND	2 0 ND	19 13 ND	0.15
E Fk Salmon R Trap 4/22/1997-4/23/1997	1996	East Fk B	Untagged	76,171	AD	Contribution	1 2 3	62 50 ND	27 10 ND	89 60 ND	0.2
Totals:				131,220				193	52	245	0.19
Lemhi R: Salmon R 4/16/1997-4/18/1997	1996	Pah A	105213	20,560	AD	Contribution	1 2 3	58 0 ND	23 6 ND	81 6 ND	0.42
Lemhi R: Salmon R 4/16/1997-4/18/1997	1996	Pah A	105214	20,628	AD	Contribution	1 2 3	36 15 ND	23 6 ND	59 21 ND	0.39
Lemhi R: Salmon R 4/16/1997-4/18/1997	1996	Pah A	105215	15,226	AD	Contribution	1 2 3	27 3 ND	17 5 ND	44 8 ND	0.34

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 (%)
Lemhi R: Salmon R 4/16/1997-4/18/1997	1996	Pah A	Untagged	185,096	AD	Contribution	1 2 3	397 59 ND	208 56 ND	605 115 ND	0.39
			Totals:	241,510				595	344	939	0.39
Salmon R @ Bruno Bridge 4/15/1997-4/16/1997	1996	Pah A	Untagged	150,280	AD	Contribution	1 2 3	160 82 ND	169 45 ND	329 127 ND	0.3
			Totals:	150,280				242	214	456	0.3
						Total 1-Ocean:				2,269	
						Total 2-Ocean:				1,814	
						Total 3-Ocean:				ND	
						Total Harvest Recoveries:				2,708	
						Total Hatchery Recoveries:				1,375	
						Total Releases:				1,643,202	
						Total Recoveries:				4,083	

Appendix D. Table 1. Release and recovery data for brood year 1995 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 Hansen and White (In Press, a), Hansen and White (In Press, b), and Hansen and White (In Press, c).

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 4/17/1996	1995	Dwor B	102029	63,743	LV	Contribution	1	0	0	0	0.22
							2	61	72	133	
							3	4	1	5	
S Fk Clwtr@ Red House Hole 4/17/1996	1995	Dwor B	Untagged	121,471	AD	Contribution	1	0	0	0	0.22
							2	129	135	264	
							3	4	2	6	
Totals:				185,214			198	210	408	0.22	
SF Red River 9/6/1995	1995	Dwor B	102022	40,970	NONE	Supplementation	1	ND	ND	ND	ND
							2	ND	ND	ND	
							3	ND	ND	ND	
SF Red River 9/6/1995	1995	Dwor B	Untagged	6,256	NONE	Supplementation	1	ND	ND	ND	ND
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				47,226			ND	ND	ND	ND	
S Fk Clwtr; 2nd Br Up 4/18/1996	1995	Dwor B	103515	64,254	AD,LV	Contribution	1	0	0	0	0.27
							2	97	73	170	
							3	0	1	1	
S Fk Clwtr; 2nd Br Up 4/18/1996	1995	Dwor B	Untagged	61,755	AD	Contribution	1	0	0	0	0.22
							2	66	69	135	
							3	2	1	3	
Totals:				126,009			165	144	309	0.25	
Clear Ck: Clwtr R 4/19/1996-4/24/1996	1995	Dwor B	103053	63,556	AD,LV	Contribution	1	0	2	2	0.12
							2	26	44	70	
							3	0	3	3	
Clear Ck: Clwtr R 4/19/1996-4/24/1996	1995	Dwor B	Untagged	99,049	AD	Contribution	1	0	3	3	0.12
							2	40	69	109	
							3	0	11	11	
Totals:				162,605			66	132	198	0.12	
Cottonwood Ck: S Fk Clwtr R 4/18/1996	1995	Dwor B	103514	63,551	AD,LV	Contribution	1	0	0	0	0.21
							2	56	72	128	
							3	4	1	5	
Cottonwood Ck: S Fk Clwtr R 4/18/1996	1995	Dwor B	Untagged	57,739	AD	Contribution	1	0	0	0	0.22
							2	61	64	125	
							3	2	1	3	
Totals:				121,290			123	138	261	0.22	
Red River: S Fk Clwtr 4/16/1996-4/17/1996	1995	Dwor B	104630	6,163	LV	Supplementation NBS	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	

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 (%)
Red River: S Fk Clwtr 4/16/1996-4/17/1996	1995	Dwor B	Untagged	8,191	AD	Supplementation NBS	1	0	0	0	0.02
							2	0	2	2	
							3	0	0	0	
Totals:				14,354				0	2	2	ND
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	94	150	
							3	0	0	0	
Totals:				135,837				56	98	154	0.11
Crooked R Ponds 4/15/1996	1995	Selway	Untagged	15,215	LV	Wild Selway Stock	1	ND	ND	ND	ND
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				15,215				ND	ND	ND	ND
Crooked R Ponds 4/15/1996	1995	Dwor B	Untagged	16,144	LV	Selway Study, Hatchery Stock	1	ND	ND	ND	ND
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				16,144				ND	ND	ND	ND
Crooked R Ponds 4/15/1996	1995	Dwor B	Untagged	14,659	LV	Hatch/Wild Selway study	1	ND	ND	ND	ND
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				14,659				ND	ND	ND	ND
Total 1-Ocean:						9					
Total 2-Ocean:						1,286					
Total 3-Ocean:						37					
Total Harvest Recoveries:						608					
Total Hatchery Recoveries:						724					
Total Releases:						838,553					
Total Recoveries:						1,332					

Appendix D. Table 2. Release and recovery data for brood year 1995 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, being 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), Hansen and White (In Press, b), and Hansen and White (In Press, c).

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 4/8/1996-4/22/1996	1995	Hells Canyon A	104538	20,068	AD	Contribution	1	37	37	74	0.42
							2	5	5	10	
							3	0	0	0	
Lt Salmon R @ Warm Springs Br 4/8/1996-4/22/1996	1995	Hells Canyon A	104539	21,012	AD	Contribution	1	82	82	164	1.16
							2	40	40	80	
							3	0	0	0	
Lt Salmon R @ Warm Springs Br 4/8/1996-4/22/1996	1995	Hells Canyon A	104540	20,389	AD	Contribution	1	54	54	108	0.64
							2	11	11	22	
							3	0	0	0	
Lt Salmon R @ Warm Springs Br 4/8/1996-4/22/1996	1995	Hells Canyon A	Untagged	271,829	AD	Contribution	1	400	400	800	0.46
							2	228	228	456	
							3	0	0	0	
Totals:				333,298				857	857	1,714	0.51
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	0	0	0	
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	0	0	0	
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	0	0	0	
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	0	0	0	
Totals:				66,656				201	47	248	0.37
Sawtooth Hatchery 4/19/1996-5/16/1996	1995	Pah A	104532	21,720	AD	Acc. & Vol. Pah-A Release	1	73	10	83	0.5
							2	22	3	25	
							3	0	0	0	
Sawtooth Hatchery 4/19/1996-5/16/1996	1995	Pah A	104533	22,336	AD	Acc. & Vol. Pah-A Release	1	34	10	44	0.31
							2	24	1	25	
							3	0	0	0	
Sawtooth Hatchery 4/19/1996-5/16/1996	1995	Pah A	104534	20,414	AD	Acc. & Vol. Pah-A Release	1	16	4	20	0.17
							2	15	0	15	
							3	0	0	0	
Sawtooth Hatchery 4/19/1996-5/16/1996	1995	Pah A	Untagged	179,964	AD	Acc. & Vol. Pah-A Release	1	438	154	592	0.43
							2	137	41	178	
							3	0	0	0	
Totals:				244,434				759	223	982	0.4
Lt Salmon R @ Warm Springs Br 4/8/1996-4/22/1996	1995	Pah A	104535	20,699	AD	Contribution	1	0	0	0	0.1
							2	10	10	20	
							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 4/8/1996-4/22/1996	1995	Pah A	104536	20,825	AD	Contribution	1	0	0	0	0.05
							2	5	5	10	
							3	0	0	0	
Lt Salmon R @ Warm Springs Br 4/8/1996-4/22/1996	1995	Pah A	104537	19,762	AD	Contribution	1	8	8	16	0.4
							2	32	32	64	
							3	0	0	0	
Lt Salmon R @ Warm Springs Br 4/8/1996-4/22/1996	1995	Pah A	Untagged	3,771	AD	Contribution	1	6	6	12	0.48
							2	3	3	6	
							3	0	0	0	
Totals:				65,057				64	64	128	0.2
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	0	0	0	
Totals:				21,196				102	47	149	0.7
Hazard Ck: Lt Salmon R 4/24/1996-4/29/1996	1995	Hells Canyon A	Untagged	130,911	AD	Contribution	1	193	193	386	0.46
							2	110	110	220	
							3	0	0	0	
Totals:				130,911				303	303	606	0.46
Sawtooth Hatchery 4/15/1996-4/19/1996	1995	Sawtooth A	104531	21,305	AD	Sawtooth Acclimated	1	57	16	73	0.41
							2	13	2	15	
							3	0	0	0	
Sawtooth Hatchery 4/15/1996-4/19/1996	1995	Sawtooth A	104529	22,036	AD	Sawtooth Acclimated	1	70	17	87	0.44
							2	8	3	11	
							3	0	0	0	
Sawtooth Hatchery 4/15/1996-4/19/1996	1995	Sawtooth A	104530	21,716	AD	Sawtooth Acclimated	1	32	12	44	0.34
							2	29	1	30	
							3	0	0	0	
Sawtooth Hatchery 4/15/1996-4/19/1996	1995	Sawtooth A	Untagged	327,655	AD	Sawtooth Acclimated	1	798	280	1,078	0.43
							2	250	75	325	
							3	0	0	0	
Totals:				392,712				1,257	406	1,663	0.42
Sawtooth Hatchery 4/15/1996-4/19/1996	1995	Sawtooth A	104525	21,581	AD	Sawtooth Direct Release	1	13	18	31	0.19
							2	7	1	8	
							3	0	0	0	
Sawtooth Hatchery 4/15/1996-4/19/1996	1995	Sawtooth A	104523	22,106	AD	Sawtooth Direct Release	1	26	21	47	0.34
							2	24	4	28	
							3	0	0	0	
Sawtooth Hatchery 4/15/1996-4/19/1996	1995	Sawtooth A	104524	21,652	AD	Sawtooth Direct Release	1	40	17	57	0.3
							2	5	3	8	
							3	0	0	0	
Sawtooth Hatchery 4/15/1996-4/19/1996	1995	Sawtooth A	Untagged	3,246	AD	Sawtooth Direct Release	1	8	3	11	0.43
							2	2	1	3	
							3	0	0	0	
Totals:				68,585				125	68	193	0.28
Total 1-Ocean:						4,048					
Total 2-Ocean:						1,635					
Total 3-Ocean:						0					
Total Harvest Recoveries:						3,668					
Total Hatchery Recoveries:						2,016					
Total Releases:						1,322,849					
Total Recoveries:						5,683					

Appendix D. Table 3. Release and recovery data for brood year 1995 steelhead released from Magic Valley 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, being 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), Hansen and White (In Press, b), and Hansen and White (In Press, c).

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Hazard Ck: Lt Salmon R 4/9/1996-4/12/1996	1995	Dwor B	103509	62,228	AD, LV	Contribution	1	4	4	8	0.16
							2	47	47	94	
							3	0	0	0	
Hazard Ck: Lt Salmon R 4/9/1996-4/12/1996	1995	Dwor B	Untagged	341,053	AD	Contribution	1	22	22	44	0.16
							2	258	258	516	
							3	0	0	0	
Totals:				403,281				331	331	662	0.16
E Fk Salmon R @ Dumpster 4/27/1996-5/4/1996	1995	Dwor B	Untagged	210,459	AD	Contribution	1	20	3	23	0.04
							2	57	14	71	
							3	0	0	0	
Totals:				210,459				77	17	94	0.04
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	0	0	0	
Totals:				38,320				17	4	21	0.05
E Fk Salmon R Trap 4/24/1996-4/30/1996	1995	East Fk B	104709	22,225	AD, LV	Contribution	1	0	1	1	0.04
							2	7	2	9	
							3	0	0	0	
E Fk Salmon R Trap 4/24/1996-4/30/1996	1995	East Fk B	104613	10,891	AD, LV	Contribution	1	7	1	8	0.11
							2	3	1	4	
							3	0	0	0	
E Fk Salmon R Trap 4/24/1996-4/30/1996	1995	East Fk B	Untagged	29,804	AD	Contribution	1	3	0	3	0.06
							2	9	5	14	
							3	0	0	0	
Totals:				67,256				29	10	39	0.06
Slate Ck: U Salmon R 4/26/1996-5/2/1996	1995	Dwor B	103507	61,962	AD, LV	Slate Ck	1	0	0	0	0.01
							2	7	2	9	
							3	0	0	0	
Slate Ck: U Salmon R 4/26/1996-5/2/1996	1995	Dwor B	Untagged	174,335	AD	Slate Ck	1	0	5	5	0.02
							2	20	5	25	
							3	0	0	0	
Totals:				236,297				27	12	39	0.02
Salmon R @ Bruno Bridge 4/17/1996-4/19/1996	1995	Pah A	103513	62,686	AD	Contribution	1	127	47	174	0.39
							2	24	27	51	
							3	3	19	22	
Salmon R @ Bruno Bridge 4/17/1996-4/19/1996	1995	Pah A	Untagged	144,559	AD	Contribution	1	293	108	401	0.39
							2	55	62	117	
							3	7	43	50	
Totals:				207,245				509	306	815	0.39

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 4/15/1996-4/17/1996	1995	Pah A	103511	61,552	AD	Contribution	1	214	79	293	0.57
							2	30	26	56	
							3	0	0	0	
Salmon R @ McNabb Point 4/15/1996-4/17/1996	1995	Pah A	Untagged	140,417	AD	Contribution	1	488	180	668	0.57
							2	68	60	128	
							3	0	0	0	
Totals:				201,969				800	345	1,145	0.57
N Fk Salmon Release 4/15/1996-4/16/1996	1995	Pah A	103510	61,852	AD	Contribution	1	408	151	559	1.07
							2	75	26	101	
							3	0	0	0	
N Fk Salmon Release 4/15/1996-4/16/1996	1995	Pah A	Untagged	65,856	AD	Contribution	1	434	160	594	1.07
							2	80	28	108	
							3	0	0	0	
Totals:				127,708				997	365	1,362	1.07
Lemhi R: Salmon R 4/15/1996-4/26/1996	1995	Pah A	103512	61,673	AD	Contribution	1	262	97	359	0.69
							2	17	26	43	
							3	3	19	22	
Lemhi R: Salmon R 4/15/1996-4/26/1996	1995	Pah A	Untagged	139,539	AD	Contribution	1	593	219	812	0.69
							2	39	59	98	
							3	7	42	49	
Totals:				201,212				921	462	1,383	0.69
E Fk Salmon R Trap 4/24/1996-5/4/1996	1995	Dwor B	103508	63,440	AD,LV	E Fk Prog Dwor B	1	0	0	0	0.03
							2	17	4	21	
							3	0	0	0	
E Fk Salmon R Trap 4/24/1996-5/4/1996	1995	Dwor B	Untagged	115,235	AD	E Fk Prog Dwor B	1	11	2	13	0.05
							2	31	8	39	
							3	0	0	0	
Totals:				178,675				59	14	73	0.04
						Total 1-Ocean:	3,971				
						Total 2-Ocean:	1,519				
						Total 3-Ocean:	143				
						Total Harvest Recoveries:	3,767				
						Total Hatchery Recoveries:	1,866				
						Total Releases:	1,868,086				
						Total Recoveries:	5,633				

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