



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

Project Progress Report

October 1, 2000 to September 30, 2001



Jerry McGehee and Tom Rogers with steelhead

**Chris Harrington
Sr. Fisheries Research Biologist**

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

2001 Annual Report

By

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ABSTRACT

This annual report summarizes activities associated with Idaho-Lower Snake River Compensation Plan (LSRCP) hatcheries' activities from October 1, 2000 through September 30, 2001. Included in this report are all fall 2000 and spring 2001 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 22,655 adult LSRCP steelhead returned to Idaho in the fall of 2000 and spring of 2001. This return total consisted of 13,012 estimated to have returned from Hagerman National Fish Hatchery releases, 8,249 estimated to have returned from Magic Valley Fish Hatchery releases, and 1,394 estimated to have returned from Clearwater Fish Hatchery releases. Although well below the LSRCP goal of 39,260 adult steelhead, this was the best return year of the last five.

In April and May 2001, the Idaho-LSRCP hatcheries released 3,369,756 steelhead smolts. Clearwater Fish Hatchery released 786,654 smolts, all of which were brood year 1997 Dworshak B-stock. Hagerman National Fish Hatchery released 1,229,288 brood year 2000 smolts that were composed of 207,169 Pahsimeroi-A, 845,490 Sawtooth-A, and 176,629 Dworshak-B stock steelhead. Magic Valley Fish Hatchery released 2,022,017 brood year 2000 smolts that were composed of 874,816 Sawtooth-A, 791,527 Pahsimeroi-A, 317,650 Dworshak-B, and 38,024 East Fork-B stock steelhead.

The out-migration conditions in 2001 were poor with flow during the migration period being almost the lowest values recorded in the last 20 years and spill being nonexistent. Passive integrated transponder-tag detections were about normal compared to recent years.

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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 (Raymond 1979). The Water Resources Development Act of 1976 authorized the Lower Snake River Compensation Plan (LSRCP) to mitigate for the loss of fisheries and wild runs to the Upper Snake River basin in Idaho, Washington, and Oregon. Mitigation for anadromous fishery losses included improvements in smolt passage at the dams as well as the construction and operation of fish hatcheries for stock augmentation in the affected region. The United States Fish and Wildlife Service (USFWS) was authorized to administer the operation and maintenance of 12 hatcheries and 11 satellite facilities in the region.

The LSRCP includes a Hatchery Evaluation Studies (HES) component to monitor and determine the best practices for the operation of LSRCP hatcheries in each state. In Idaho, the Idaho Department of Fish and Game (IDFG) operates McCall Fish Hatchery and the Sawtooth Fish Hatchery for producing Chinook salmon *Oncorhynchus tshawytscha*, the Magic Valley Fish Hatchery for producing steelhead 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 and Dworshak National Fish Hatchery for producing Chinook salmon as part of the LSRCP mitigation program. The purpose of this report is to summarize the HES activities and hatchery accomplishments for the LSRCP steelhead facilities in Idaho from October 1, 2000 through September 30, 2001.

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

METHODS

IDFG-LSRCP Program Success Documentation

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

Hatchery Operations Documentation

Hatchery operations between October 1, 2000 and September 30, 2001 are documented in this report. Any information relevant to the quality of the brood year 2000 smolts released in 2001, or relevant to the early rearing success of brood year 2001, is discussed. Information

concerning size at release, health problems, and dietary considerations was obtained through the Hatchery Brood Year and Run reports from each hatchery. Further information on final numbers and mark information was obtained through the Release database maintained by the IDFG coded-wire tag recovery laboratory.

Fish Marking

The supplementation steelhead that had been raised at Magic Valley Fish Hatchery in past years were raised at Hagerman National Fish Hatchery in 2000 as part of the interim agreement under the Columbia River Fish Management Planning process. Further supplementation steelhead were raised at Clearwater Fish Hatchery as had happened in past years. Supplementation steelhead did not receive an adipose clip, though a portion of them did receive coded-wire tags. All other steelhead raised at each of the three hatcheries received an adipose clip to indicate their hatchery origin and availability to the fishery.

A portion of all the steelhead received coded-wire tags to facilitate measurement of adult return success. With the exception of the supplementation steelhead, all steelhead that received coded-wire tags also had their left ventral fin removed to indicate the presence of the tag.

Small groups of steelhead (generally 300 fish per group) also received a passive integrated transponder (PIT) tag to monitor out-migration success and timing. Not all releases included a PIT tag group, but groups were distributed with the intention that at least one PIT tag group would be included in each basin. PIT tags were added preferentially to coded-wire-tagged fish when possible.

Migration Conditions

One of the important factors found to influence adult returns of Idaho anadromous salmonids is the condition of the river corridor during the out-migration (Raymond 1979). 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 2000 and the spring of 2001. These adults were from the out-migrations in the springs of 1997, 1998, and 1999, respectively. Therefore, the flow conditions during the emigration period for these three years, as well as the flow conditions during the emigration period of 2001, are reported. Water flow data for these periods was obtained through the Columbia River Data Access in Real Time (DART) web site.

Petrosky (1991) defined two 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 period when approximately 50% of the yearling Chinook salmon reach Lower Granite Dam. The extended period is from April 20 to May 30 and encompasses the time when most of the wild and natural yearling Chinook salmon reach the dam. Hatchery raised steelhead in Idaho are generally released beginning in early to mid-April, and all releases are finished by early May. Hatchery steelhead emigration generally mimics Chinook in timing, so flows and spill during the peak and extended period are reported.

Juvenile Migration Timing and Survival

Juvenile out-migration timing and survival was estimated by injecting representative samples of fish with PIT tags and evaluating detections through the dams. Idaho Department of Fish and Game fish marking and HES personnel tagged 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 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. Median arrival timing and tag interrogation 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 hatcheries are scanned for PIT tags.

Median travel time to Lower Granite dam was calculated for each of the PIT tag groups released in 2001. Unique interrogation rates were calculated for each PIT tag group by dividing the number of unique interrogations at Lower Granite, Little Goose, Lower Monumental, and McNary dams by the number of PIT tagged fish released, multiplied by 100.

Adult Returns

The IDFG Harvest Monitoring Project estimated the number of LSRCP steelhead that returned to Idaho in the 2000-2001 return year (Hansen and White In Press a). This estimate includes steelhead caught in the sport harvest, 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 39,260 adults. The adult return goal for Clearwater Fish Hatchery was reduced from 14,000 to 4,000 in 1997 by IDFG to comply with a hatchery steelhead production cap imposed by the National Oceanographic and Atmospheric Administration Fisheries (NOAA Fisheries, formerly National Marine Fisheries Service); however, this does not reduce the mandated LSRCP mitigation 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 and Clearwater 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 coded-wire tag 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 Coded-Wire Tag Recovery Lab in Lewiston, Idaho for processing. The HMP derived a harvest estimate by river section for the fishery through a phone survey of angler success (Hansen and White In Press c). 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 c). Contribution to the fishery for each LSRCP group was calculated by dividing the number of tags of each code recovered by the sample rate for the river section and month where the tag was recovered.

Hatchery Weirs

Hatchery personnel documented the number of steelhead that returned to the East Fork Salmon River weir, Sawtooth Fish Hatchery weir, and two weirs operated by Clearwater Fish Hatchery. The Clearwater Fish Hatchery weirs are located on Crooked River and Red River, which are tributaries to the South Fork of the Clearwater River. All adult steelhead recovered at the traps were measured for length and sex and were scanned for the presence of coded-wire tags. Snouts from steelhead containing a coded-wire tag were removed and sent to the Idaho Coded-Wire Tag Recovery 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.

Experimentation

Magic Valley Fish Hatchery

Squaw Pond—The Squaw Pond acclimation facility was put into operation for the first time in 1998. The Squaw Pond facility was designed to reduce residualism and increase migration success for steelhead smolts in the upper Salmon River drainage. A secondary objective was to provide further angling opportunity on B-stock steelhead in the Salmon River. A study of smolt migration and adult return characteristics of the releases from the Squaw Pond facility was initiated in 1998 to determine whether the facility was attaining the intended objectives. 2001 was the fourth year of Squaw Pond operations.

Steelhead smolts from Magic Valley Hatchery were released into the Squaw Pond acclimation facility at the earliest practical opportunity in the spring, depending upon climate conditions. This allowed the smolts a minimum of two weeks to imprint on the pond and Squaw Creek. After the acclimation period, the dam boards were removed from the outlet according to a prearranged schedule. The goal of board removal was to steadily lower the water level in the pond to encourage the smolts to emigrate freely without forcing them to leave. Representative groups from the early migrants (taken from the first thousand migrants), late migrants (taken from the last few thousand migrants), and nonmigrants (taken from among fish remaining in the pond after migration ended) 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 have been removed.

Prior to trucking from Magic Valley Fish Hatchery, the population of smolts destined for Squaw Pond was sampled for size and precocity rate. The number and rate of smolts emigrating from the pond was determined using two fish counters installed in series. The reason for the dual count was that a single counter was not deemed reliable enough. Once smolts stopped emigrating from the pond, a screen was placed in the outlet, and those smolts remaining in the pond were considered nonmigrants. The nonmigrant group was sampled for size, sex ratio, and precocity rate that were compared against the measures taken prior to stocking.

Complete information about the design and operation of the Squaw Pond study can be found in Osborne and Rhine (1999) and Newman (2002).

RESULTS AND DISCUSSION

Hatchery Operations Documentation

Clearwater Fish Hatchery

Brood Year 2000—In 1997, the smolt production objective at Clearwater Fish Hatchery was reduced from an objective of 2,000,000 down to 800,000 to comply with the National NOAA Fisheries hatchery production cap for the Snake River basin. Clearwater Fish Hatchery had not yet attained the higher objective, though smolt production had been growing every year. Unfortunately, adult return goals were not reduced by a proportional amount, so Clearwater Fish Hatchery is unlikely to attain their stated adult return objectives.

A total of 985,886 Dworshak B-stock eyed steelhead eggs were received from Dworshak National Fish Hatchery (Tighe 2001). These eggs were all from the middle or later egg takes and did not represent the entire run. This is common practice for Clearwater Fish Hatchery steelhead since the fish will be released offsite and will not be part of a broodstock program.

Survival from eyed egg to smolt was reported to be 79.8% (Tighe 2001). This included reportedly heavy losses during incubation and swim-up and was considerably lower than survival in recent years.

The brood year 2000 Dworshak B-stock steelhead were divided into two groups during marking in the summer of 2000 (Tighe 2001). The first group was designated the production group. All steelhead in this group had their adipose fin excised to designate them as harvestable in the fishery. A representative number of each harvestable release received a code-wire tag to allow the HMP group to evaluate fishery contribution of the different releases. All fish that received a coded-wire tag also had the left ventral fin removed as a visible external indicator of the coded-wire tag. Furthermore, a representative selection from each release received PIT tags to measure out-migration survival and timing. The second group of steelhead created at the time of marking was a stock supplementation group released in Red River and Crooked River. None of the supplementation fish received any externally visible mark, though a portion of the supplementation release at Crooked River did receive blank wire tags. Further information on release sites and exact numbers of each mark type can be found in Appendix A, Table 1.

PIT tag detection at the four dams was about 65% for the groups released in the lower South Fork Clearwater River (Table 1). Survival for the group released in the upper South Fork Clearwater River was mixed, with the Red River group (68.9%) outperforming the lower South Fork Clearwater release (64.7%), while the Crooked River group had the lowest detection rate (42.8%). Travel time mirrored the pattern seen in detection, which suggests that release timing may have been a significant factor in dam passage in 2001.

The decrease in survival noted in previous years (Harrington 2003) was not seen in 2001. The mixed performance of the groups released at Crooked River and Red River suggest that the upper river is not as hostile an environment for steelhead releases as had been previously thought.

Brood Year 2001—During the months of March and April, Clearwater Fish Hatchery received 891,201 eyed Dworshak B-stock steelhead eggs from the middle takes at Dworshak National Fish Hatchery (George and Shockman 2002). No health problems were reported.

Hagerman National Fish Hatchery

Brood Year 2000—A total of 1,393,042 eyed steelhead eggs were received by Hagerman National Fish Hatchery (Hagerman National Fish Hatchery 2001) to comprise the total releases in 2001. These eggs consisted of three stocks: Sawtooth A, Pahsimeroi A, and Dworshak B. The Pahsimeroi A- and Dworshak B-stocks were both used exclusively for unclipped supplementation releases in 2001, while the Sawtooth A-stock was used exclusively for ad clipped fishery contribution releases. Survival from egg to release was 89.3% for the Sawtooth A-stock, 96.8% for the Pahsimeroi A-stock, and 76.0% for the Dworshak-B stock (Kurt Schilling, personal communication). This reduced survival for Dworshak-B stock steelhead is typical for the Hagerman Valley area, though no specific causal factor has yet been identified. The survival in the Sawtooth stock was somewhat below normal but falls within the typical range of values for A-stock steelhead.

Fin clipping occurred between the end of September and the first half of October of 2000, while coded-wire tagging occurred during early November. PIT tagging took place during the end of February and beginning of March. Complete information on marks, release timing, release locations, and numbers can be found in Appendix A, Table 2.

Survival of the PIT-tagged fish to the dams was comparatively low, with detection rates ranging from a low of 32.3% to a high of 83.3% (Table 1). The best performance, with a detection rate of 83.3%, came from a group released in the Little Salmon River at Stinky Springs, which had a much shorter migration than the other releases that were all in the upper Salmon River drainage.

Complete information on release timing and marks on production steelhead can be found in Appendix A, Table 2.

Brood Year 2001—During late May and early June of 2001, 1,377,858 eyed steelhead eggs were received from Sawtooth Fish Hatchery, Pahsimeroi Fish Hatchery, and Dworshak National Fish Hatchery via Clearwater Fish Hatchery (Hagerman National Fish Hatchery 2001). These eggs consisted of 958,941 Sawtooth A-stock, 216, 897 Pahsimeroi A-stock, and 202,020

Dworshak B-stock. Hatching success for the three stocks was 98.0%, 95.0%, and 97.2%, respectively (Hagerman National Fish Hatchery 2001).

Magic Valley Fish Hatchery

Brood Year 2000—During the latter part of April, all of May, and the first part of June, Magic Valley Fish Hatchery received four stocks of eyed steelhead eggs consisting of: 544,006 Dworshak B, 51,384 East Fork B, 946,319 Pahsimeroi A, and 991,665 Sawtooth A eggs (Lowell et al. 2001). Survival to release for the East Fork B, Pahsimeroi A, and Sawtooth A stocks was 74%, 84%, and 88%, respectively. Survival to release for the Dworshak B-stock fish was only 58%. Considerably lower survival is consistent for Dworshak B-stock fish raised at Magic Valley Fish Hatchery (Dave May, IDFG, personal communication). Lowell et al. (2001) further reported that the majority of the mortality occurred during the earlier stages of life, and a primary disease factor influencing Dworshak B survival was cold water disease (*Flavobacterium psychrophilum*).

All coded-wire tagging and fin clipping was performed during September and October of 2000. All PIT tagging, with the exception of the Squaw Pond study PIT tagging, was performed during the end of February 2001. Complete information on marks, release timing, release location, and numbers can be found in Appendix A, Table 3.

Survival to the dams of the PIT-tagged fish was good, ranging from 58.3% to a high of 80%. The exception to these detection rates were the groups tagged as part of the Squaw Pond Study (Table 1). Detection rates of the Squaw Pond study fish were much lower for all groups. The late migrant group had a detection rate of 7%, while the early migrant group had a detection rate of 44%. These rates may indicate a difference in migration conditions encountered by these groups relative to the general release, or they may indicate other health or behavioral issues.

Median travel time of the PIT-tagged groups of fish varied from 10 days to 26 days (Table 1) and did not reflect a pattern similar to that seen with detection. Migration usually is highly influenced by flow levels and distance of travel. However, the group from the Little Salmon River at Stinky Springs had the longest median travel time but the shortest migration distance.

Brood Year 2001—From April to June of 2001, Magic Valley Fish Hatchery received a total of 2,518,676 eyed steelhead eggs comprised of five stocks: 1,131,772 Dworshak B, 81,622 East Fork B, 3,800 East Fork B Naturals, 906,282 Pahsimeroi A, and 399,000 Sawtooth A (Lowell et al. 2003). The Dworshak B-stock steelhead had a hatching percentage of 87%, which is lower than the hatching percentages of the other four stocks that ranged from 97-99%. This lower performance of Dworshak B-stock steelhead at Magic Valley Fish Hatchery is normal, but often does not manifest this early in development.

Migration Conditions

Migration year 2001 had low flow conditions during all spring migration periods (Table 2) identified by Petrosky (1991). Since steelhead smolts migrate during the same window, these periods are probably significant for them as well. Flows in 2001 were very close to a 20-year record low during the migration window, with no spill at all. This suggests that smolts in the spring of 2001 may have had great difficulty migrating, and that survival may have been reduced as a result. However, PIT tag detections remained at a high level for almost all groups

(Table 1), which does not appear to support this supposition. However, PIT tag detections may have been artificially increased this year relative to the past several years, since a lack of spill at the dams would tend to reduce the alternative routes for a fish that was not detected in the smolt bypass system.

The three migration years that contributed to the 2001 adult return were 1996, 1997, and 1998. Of these three years, only 1998 had flows that were not much higher than the 20-year average during the peak migration period, and all three years had flows during the extended period that were among the best seen in the last 20 years. These conditions probably contributed to the good returns seen in 2001.

Migration Timing and Juvenile Survival

A total of 6,586 steelhead smolts were released with PIT tags in 2001. These included a mix of production and supplementation fish. Overall, 3,953 (60.0%) of the PIT tags were interrogated at the dams (Table 1). This number was slightly reduced by the performance of the groups being released as part of the Squaw Pond study, but is fairly indicative of the performance of the migrating smolts overall. However, a complete lack of spill at the dams during the migration period would inflate detection numbers, since a good alternative to the smolt bypass system was denied to the migrating smolts.

In addition, the juvenile detection points at the dams detected small numbers of fish that were tagged in previous years. Detections from the 2000 migration year are probably steelhead that did not migrate their first year but remained in the river for one extra year before migrating. Detections from earlier migration years are probably adults that fell back through the detection system. In either case, these detections were exceedingly rare and hold no analytical value, and thus were not reported here.

Adult Returns

The HMP (Hansen and White In Press a) estimated that Hagerman National, Magic Valley, and Clearwater fish hatcheries returned a minimum of 22,655 adult steelhead to Idaho waters in the fall of 2000 and spring of 2001 (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 11,967 steelhead, while 10,688 either returned to hatchery racks or escaped to spawn naturally.

The number of steelhead smolts released and the estimated number of adults that returned are compared to facility design production targets and projected adult return goals in Table 4. No facility was able to reach their production target, but that was generally due to a lack of sufficient water rather than a lack of available eggs. 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 six years. Since juvenile production was below target, it was understandable that none of the facilities achieved their adult return objectives; however, the 2000-2001 return year was the best return year in a decade for all three steelhead hatcheries.

The adult return goals for both Hagerman National Fish Hatchery and Clearwater Fish Hatchery remain as they were originally intended, even though smolt production at both facilities has been greatly reduced from original goals. This reduction in smolts released makes the adult

return goals unattainable, and the poor performance of Clearwater Fish Hatchery apparent in Figure 1 is largely due to this mathematical issue rather than any hatchery practice or stock quality problem.

Fisheries Contribution

Hansen and White (In Press a) estimated that anglers harvested 35,942 hatchery steelhead during the 2000-2001 season. Of these, 11,967 were produced by the three Idaho facilities, while Dworshak National Fish Hatchery, Niagara Springs Fish Hatchery, and hatcheries in Oregon and Washington produced the remainder.

Weir Operation

Sawtooth Hatchery Weir—A total of 3,055 adult A-stock steelhead were trapped at the Sawtooth Fish Hatchery weir between March 19 and May 3, 2001 (Snider and Heindel 2003). This total consisted of 1,689 males (55.3%) and 1,366 females (44.7%) (Table 5). Of the 1,689 males, 1,665 were of hatchery origin, and 1,487 (89.3%) of those were 1-ocean fish. Of the 1,366 females, 1,353 were of hatchery origin with 1,020 (75.4%) of those being 1-ocean fish.

All wild/natural fish along with 11 hatchery-origin females were released directly above the weir for natural spawning (Snider and Heindel 2003). An additional 20 hatchery males and 20 hatchery females were released into an off section of Beaver Creek that was blocked with a weir, and a further 20 pairs of hatchery steelhead were released into Frenchman Creek. This last release was part of a natural spawning study associated with IDFG's steelhead supplementation studies program. All other hatchery-origin adults shown as released in Table 5 were released below the weir to provide angling opportunity.

Six hundred thirty-three pairs of hatchery-origin steelhead were spawned at the Sawtooth Fish Hatchery in 2001, yielding 2,867,634 green eggs (Table 5) (Snider and Heindel 2003). Survival to eye-up for these eggs was 80.2%, which left 2,300,978 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—Sixty-two B-stock steelhead were recovered at the East Fork trap that operated between March 28 and May 11, 2001 (Snider and Heindel 2003). These fish were primarily returns from East Fork progeny that had been raised at Magic Valley or Hagerman National fish hatcheries. Of the 62 steelhead recovered, 25 (40.3%) were male and 37 (59.7%) were female. Three of the males and eight of the females were of natural origin, while the rest were all hatchery origin. All of the natural origin male steelhead, along with three hatchery origin males and five of the natural-origin females, were released above the weir to spawn naturally (Snider and Heindel 2003). Complete disposition for all fish trapped can be found in Table 6.

Squaw Creek Weir—2001 was the first year that a weir was operated on Squaw Creek. However, only four A-stock size steelhead were trapped, and they were marked with an opercle punch and returned to the river.

Crooked River Weir—Trapping at the Crooked River trap commenced on March 27, 1998 and concluded in June (Tighe and Hedrick 2001). During that time, only 10 steelhead were

trapped. All of these steelhead were natural origin fish, and all were released above the weir except two that were spawned out females. The two kelts were released below the weir. Complete disposition for all fish trapped at Crooked River in 2001 can be found in Table 7.

Red River Weir—The Red River trap began operation on March 27 and continued through Chinook season (Tighe and Hedrick 2001). Five steelhead were trapped at Red River weir in 2001. Of these, four were natural origin and one was hatchery origin. All steelhead were released above the weir. Complete disposition for all fish trapped at Red River in 2001 can be found in Table 8.

Smolt-to-Adult Return Rates

Clearwater Fish Hatchery

Adult returns in 2001 from Clearwater Fish Hatchery steelhead releases could consist of fish from brood years 1996 through 1998. All of the adipose clipped fish that were available to the fishery were Dworshak B-stock. A small number (75,984 fish) of Selway B-stock steelhead from brood year 1996 were not adipose clipped. Furthermore, both brood years 1996 and 1997 included small numbers (53,721 and 9489, respectively) of unclipped steelhead that were part of supplementation programs. Smolt-to-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 1997, Clearwater Fish Hatchery released 730,001 smolts of which the majority, minus the small number of Selway B-stock smolts mentioned in the preceding paragraph, was brood year 1996 Dworshak B-stock. A minimum of 1,061 adults were estimated by the HMP to have returned from this release (Appendix D, Table 1) for an SAR of 0.15%. However, since the returns from the unclipped smolt releases could not be adequately evaluated, a more appropriate release figure of 600,386 ad clipped smolts should be used. This lower release number gives an SAR of 0.18%. Furthermore, the majority of these smolts was not released at a weir and was not expected to return to a weir, which may decrease the accuracy of the return count since the number of adults that escaped the fishery was estimated.

Another factor influencing the poor return of adults was that production of smolts was well below the target of 2,000,000 (Table 4). Production at the Clearwater Fish Hatchery 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 have not changed, though the production has been reduced.

The 2-ocean returns for release year 1998 show a slight improvement over release year 1997 and will likely end higher once the three-ocean adults are added in the following year. HMP estimates a minimum of 1,148 adult steelhead have already returned from this release for an SAR of 0.16%, though the release number was about the same as the previous year (Appendix C, Table 1).

First year returns from brood year 1998 are fairly low, with only 238 adults accounted for (Appendix B, Table 1). Since all of these releases consist of B-stock steelhead, which tend to

return after two years in the ocean, this does not indicate how the overall year class will perform. The 1-ocean returns for brood year 1998, though low, are higher than recent years.

Hagerman National Fish Hatchery

The 2000-2001 adult steelhead return included fish from two release years. All of the fish released from Hagerman National Fish Hatchery in 1997-1999 were A-stock fish, which seldom return as 3-ocean fish. Indeed, no 3-ocean fish were recovered for the brood year 1996 fish released in 1997 (Appendix D, Table 2).

The HMP estimated that 2,342 adult 2-ocean steelhead were recovered from a total brood year 1997 release of 1,032,407 (Appendix C, Table 2). This completes the return for brood year 1997 steelhead, since no significant numbers will return in 2002. The total return was 9,271 steelhead from brood year 1997, of which fishermen harvested an estimated 5,530.

Smolt-to-adult recovery (SAR) rates were generally poor, though better than has been seen in recent years. SARs topped 1% for several release groups, though the overall SAR was about 0.9%. The SARs for the Little Salmon River were somewhat lower than SARs in the upper Salmon River, but were generally better than the previous year. The SARs for the Little Salmon release may appear a little below the actual return numbers, since there are no rack recoveries for the river. All data for the Little Salmon River are based on creel survey data, along with exploitation rate estimates by Ball (1999) and Hansen and White (In Press c).

The first year of returns for brood year 1998 fish looked promising. A total of 10,670 adult 1-ocean steelhead were recovered from a release of 1,133,825 smolts (Appendix B, Table 2). Overall, SAR after the first year was 0.94%, which is nearly as high as the SAR for all of the previous brood year and is higher than the SAR for the last several years.

Magic Valley Fish Hatchery

Adult returns from Magic Valley releases potentially consisted of fish from three different brood years. However, there was no contribution from brood year 1996, since no adult B-stock steelhead returned as a 3-ocean fish (Appendix D, Table 3). These are disappointing but not unexpected results. The 2-ocean returns for the brood year 1996 B-stock releases from Magic Valley were not very good (Appendix D, Table 3), so few if any 3-ocean returns were expected.

The HMP estimated 2,067 brood year 1997 steelhead returned to the state as 2-ocean adults in 2001 from a total release of 1,658,825 smolts (Appendix C, Table 3). This brings the total return for brood year 1997 to 5,669, though there were a large number of B-stock fish released so this return could be increased by 3-ocean returns. However, past performance suggests that 3-ocean returns will contribute few if any adults.

The overall SAR for brood year 1997 steelhead was only 0.34%. This estimate was heavily influenced by the very poor return of B-stock fish to both the East Fork and Little Salmon rivers. However, this SAR is a slight improvement over brood year 1996, and returns the SAR to near the levels seen in brood year 1995.

The first year of adult recoveries for brood year 1998 steelhead was nearly twice that of the previous year at 6,182 (Appendix B, Table 3). The number of smolts released increased to

1,941,406, which probably contributed to the increased return but is too small a production increase to account for all of it. The overall return for this brood year will probably be much higher than any recent year.

Experimentation

Magic Valley Fish Hatchery

Squaw Pond—2001 was the fourth year of operation at the Squaw Pond facility. PIT tag detections for all study groups were low at the dams (Table 1). However, it is notable that the late migrant group had the lowest detection rate (7%) of any group released from any steelhead hatchery in 2001. This was expected, since the late migrant group was expected to consist of residual steelhead that do not migrate. However, the very late timing (May 18) of the release of this group coupled with the low flows in 2001 may also account for the difference between the early and late migrant groups.

Precocity sampling, which had been conducted in prior years of the study, was conducted inconsistently in 2001 due to personnel turnover issues. However, a preliberation sample taken at Magic Valley Fish Hatchery showed only 5.7% precocial males (n = 140), whereas a sample taken of the reference group held at Sawtooth Fish Hatchery showed a lower rate of only 2% (n = 100), and a sample taken from the late migrant group from the pond showed no precocial males (n = 50). Unfortunately, no sample was taken from the nonmigrant group, because no smolts remained in the pond at the conclusion of the release in 2001. This was the first year that 100% of the smolts migrated from the pond during the migration period.

Adult trapping of returning Squaw Pond adults was poor. This was the first year that should have had returning 2-ocean adults, but none were either trapped or observed in the creek. As mentioned in the weir management section, very few 1-ocean adults were trapped as well.

Full information on facility design and operations can be found in Osborne and Rhine (1999). This report summarizes the purpose and operation that was in effect through the 2001 trapping season.

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 2001 migration period.

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>														
DTV	Red River Ponds	4/26/01	299	198	66.2	7	2.3	1	0.3	0	0	206	68.9	9.3
DTV	Crooked River Ponds (R3E)	4/26/01	300	151	50.3	9	3.0	1	0.3	0	0	161	53.7	11.6
DTV	Crooked River Ponds (R6E)	4/26/01	299	121	40.5	5	1.7	2	0.7	0	0	128	42.8	14.3
DTV	Lolo Creek	4/18/01	300	130	43.3	6	2.0	2	0.7	0	0	138	46.0	18.7
DTV	South Fork Clearwater R.	4/19/01	300	180	60.0	11	3.7	2	0.7	1	0.3	194	64.7	11.0
Total			1,198									827	69.0	
Clearwater Fish Hatchery Grand Total			1,198									827	69.0	
Hagerman National Fish Hatchery														
<i>Sawtooth A-Stock:</i>														
DTV	Sawtooth Hatchery													
	Acclimated Release													
	DTV01053.H44	3/14/01	99	31	31.3	0	0	1	1.0	0	0	32	32.3	73.9
	DTV01053.H52	4/11/01	200	117	58.5	2	1.0	0	0	0	0	119	59.5	34.7
	Direct Release													
	DTV01053.H59	4/25/01	300	186	62.0	11	3.7	2	0.7	0	0	199	66.3	20.3
DTV	Yankee Fork Dredge Ponds	5/9/01	297	144	48.5	10	3.4	2	0.7	2	0.7	158	53.2	17.6
<i>Pahsimeroi A-Stock:</i>														
DTV	Lt. Salmon @ Stinky Springs	4/4/01	300	234	78.0	9	3.0	6	2.0	1	0.3	250	83.3	28.6
<i>Dworshak B-Stock:</i>														
DTV	American River	4/30/01	295	119	40.3	2	0.7	0	0	0	0	121	41.0	16.5
DTV	Newsome Creek	5/7/01	296	150	50.7	3	1.0	2	0.7	0	0	155	52.4	11.1
Hagerman National Grand Total			1,787									1,034	57.9	

Table 1. Continued.

Coordinator	Release Site	Rel. Date	No. Rel.	Number / Percent Interrogated										Median Travel Time (Days)
				GRJ		GOJ		LMJ		MCJ		Total		
				No.	%	No.	%	No.	%	No.	%	No.	%	
Magic Valley Fish Hatchery														
<i>Dworshak B-Stock</i>														
DTV	Lt. Salmon @ Stinky Springs	4/9/01	300	211	70.3	4	1.3	3	1.0	1	0.3	219	73.0	26.3
DTV	Squaw Creek Direct Release	4/30/01	300	174	58.0	6	2.0	2	0.7	0	0	182	60.7	15.7
DTV	Squaw Pond Study													
	Early Migrants	5/10/01	300	122	40.7	9	0.3	1	0.3	1	0.3	133	44.3	16.6
	Late Migrants	5/18/01	300	17	5.7	3	1.0	1	0.3	0	0	21	7.0	26.2
	Control	5/5/01	300	134	44.7	1	0.3	1	0.3	1	0.3	137	45.7	26.1
	Total		1,500									692	46.1	
<i>East Fork B-Stock</i>														
DTV	Squaw Creek Direct Release	5/1/01	300	191	63.7	9	3.0	1	0.3	0	0	201	67.0	15.7
<i>Pahsimeroi A-Stock</i>														
DTV	Salmon R. @ Hammer Creek	4/16/01	300	227	75.7	13	4.3	0	0	0	0	240	80.0	13.4
<i>Sawtooth A-Stock</i>														
DTV	Salmon River @ Tunnel Rock	4/24/01	300	169	56.3	14	4.7	2	0.7	0	0	185	61.7	16.6
DTV	Salmon River @ Red Rock	4/19/01	300	207	69.0	8	2.7	4	1.3	1	0.3	220	73.3	15.8
DTV	Salmon River @ Shoup Bridge	4/19/01	301	193	64.1	8	2.7	2	0.7	0	0	203	67.4	16.7
DTV	Lemhi River	5/7/01	300	168	56.0	4	1.3	3	1.0	0	0	175	58.3	10.7
DTV	Yankee Fork @ 3 rd bridge up.	5/2/01	300	158	52.7	13	4.3	3	1.0	2	0.7	176	58.7	16.0
	Total		1,501									959	63.9	
Magic Valley Fish Hatchery Grand Total			3,601									2,092	58.1	

Table 2. Snake River mean daily outflow and spill (thousand cubic feet per second) for the Lower Granite Dam forebay in Washington from 1977-2001 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	109.1	111.8	36.8	41.1
2000	100.3	88.7	25.8	22.8
2001	42.5	57.8	0	0

Table 3. Estimated number of LSRCP hatchery steelhead that returned to Idaho in 2000-2001. The adult returns in 2000-2001 included fish from three age classes. Steelhead were reared at Clearwater, Hagerman National, and Magic Valley fish hatcheries.

Hatchery	Brood Year	3-Ocean	2-Ocean	1-Ocean
Clearwater	1996	75	—	—
Clearwater	1997	—	1,081	—
Clearwater	1998	—	—	238
Estimated Fish Returned in 2000-2001			1,394	
Hagerman	1996	0	—	—
Hagerman	1997	—	2,342	—
Hagerman	1998	—	—	10,670
Estimated Fish Returned in 2000-2001			13,012	
Magic Valley	1996	0	—	—
Magic Valley	1997	—	2,067	—
Magic Valley	1998	—	—	6,182
Estimated Fish Returned in 2000-2001			8,249	
GRAND TOTAL			22,655^a	

^a These estimates were prepared by the Idaho Department of Fish and Game Harvest Monitoring Project and only include steelhead harvested in Idaho's sport fisheries, steelhead that returned to hatchery racks, and in-river escapement. These are minimum estimates and do not include all tributary and mainstem strays or in-river prespawning mortalities.

Table 4. Steelhead smolts released from Magic Valley, Hagerman National, and Clearwater fish hatcheries that contributed to the 2000-2001 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 2000-2001 Adult Returns					
Brood Year	Fish Hatchery	Number Released	Design Target	Percent of Target	2000-01 Adult Returns
1996	Clearwater	730,001	2,000,000	36.5%	75
1996	Hagerman National	1,145,919	2,400,000	47.7%	0
1996	Magic Valley	1,643,202	2,000,000	82.2%	0
	Total	3,519,122	6,150,000	57.2%	75
1997	Clearwater	702,286	2,000,000	35.1%	1,081
1997	Hagerman National	1,032,407	2,400,000	43.0%	2,342
1997	Magic Valley	1,658,825	2,000,000	82.9%	2,067
	Total	3,393,518	6,150,000	55.5%	5,490
1998	Clearwater	595,997	2,000,000	29.8%	238
1998	Hagerman National	1,133,825	2,400,000	47.2%	10,670
1998	Magic Valley	1,941,406	2,000,000	97.1%	6,182
	Total	4,029,058	6,150,000	59.7%	17,090
Mean annual release as percent of target:				57.5%	
Total adult return:^a					22,655
Adult return goal:					39,260
Percent of goal achieved:					57.7%

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

Table 5. Summary of the 2001 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 are from Snider and Heindel (2003).

Hatchery Origin n = 3,018										
Age^b	Males n = 1,665					Females n = 1,353				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	1,505	ND	ND	0	ND	1,020	ND	ND	ND	ND
2-ocean	160	ND	ND	0	ND	333	ND	ND	ND	ND
Total	1,665	658 ^c	633	0	374 ^d	1,353	711 ^c	633	2	7 ^d

Natural Origin n = 37										
Age^b	Males n = 24					Females n = 13				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	19	19	0	0	0	6	6	0	0	0
2-ocean	5	5	0	0	0	7	7	0	0	0
Total	24	24 ^e	0	0	0	13	13 ^e	0	0	0

Total Number Trapped	3,055	Green Egg Number	2,867,634
Trapping Period	3/19 – 5/3/01	Eyed Egg Number	2,300,978 ^f (80.2% eye up)

^a Fish were aged using the following aging criteria:

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

^b Hatchery fish classified as 1-ocean were brood year 1998, released in 1999. Hatchery fish classified as 2-ocean were brood year 1997, released in 1998.

^c Of these fish, 20 pairs (20 male, 20 female) were released in Beaver, Frenchman, Fourth of July, and Champion Creeks, and into the Salmon River at the Vienna pull-out, for natural spawning as part of a supplementation study. A further nine females were released directly above the weir. The remaining released hatchery fish were all released below the weir at O'Brien Bridge to enhance angling opportunity.

^d Fish were killed but not used for spawning.

^e Fish were released above the weir.

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

Table 6. Summary of the 2001 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 Snider and Heindel (2003).

Hatchery Origin n = 51										
Age ^b	Males n = 22					Females n = 29				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	12	ND	ND	0	0	1	0	ND	0	0
2-ocean	10	ND	ND	0	0	28	0	ND	0	0
Total	22	2 ^c	20	0	0	29	0	29	0	0
Natural Origin n = 11										
Age ^b	Males n = 3					Females n = 8				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	2	2	0	0	0	3	2	ND	0	ND
2-ocean	1	1	0	0	0	5	3	ND	0	ND
Total	3	3 ^c	0	0	0	8	5 ^c	1	0	2
Total Number Trapped			62			Green Egg Number			142,348	
Trapping Period			3/28 – 5/11/01			Eyed Egg Number			81,647 ^d (57.4% eye up)	

^a Fish were aged using the following aging criteria:

RUN	SEX	LENGTH	AGE (Years in Ocean)
B	Male	≤ 73 cm	1-Ocean
B	Male	> 73 cm	2- or 3-Ocean
B	Female	≤ 68 cm	1-Ocean
B	Female	> 68 cm	2- or 3-Ocean

^b Hatchery fish classified as 1-ocean were brood year 1998, released in 1999. Hatchery fish classified as 2-ocean were brood year 1997, released in 1999.

^c Fish were released above the weir

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

Table 7. Summary of the 2001 B-stock steelhead return to the Crooked River weir. There were no fish of hatchery-origin trapped in 2001. Hatchery aging criteria, based on length, were used to determine age^a. Data is from Tighe and Hedrick (2001).

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

Natural Origin n = 10										
Age ^b	Males n = 5					Females n = 5				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	0	0	0	0	0	0	0	0	0	0
2-ocean	5	4	0	0	1	5	3	0	0	2
Total	5	4 ^c	0	0	1 ^d	5	3 ^c	0	0	2 ^d

Total Number Trapped	10	Green Egg Number	0
Trapping Period	3/27 – 6/1/98	Eyed Egg Number	0

^a Fish were aged using the following aging criteria:

RUN	SEX	LENGTH	AGE (Years in Ocean)
B	Male	≤ 73 cm	1-Ocean
B	Male	> 73 cm	2- or 3-Ocean
B	Female	≤ 68 cm	1-Ocean
B	Female	> 68 cm	2- or 3-Ocean

^b Hatchery fish classified as 1-ocean were brood year 1998, released in 1999. Hatchery fish classified as 2-ocean were brood year 1997, released in 1998.

^c Fish were released above the weir.

^d Fish were kelts and were released below the weir.

Table 8. Summary of the 2001 B-stock steelhead return to the Red River weir. There were no fish of hatchery-origin trapped in 2001. Hatchery aging criteria, based on length, were used to determine age^a. Data is from Tighe and Hedrick (2001).

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

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

Total Number Trapped	10	Green Egg Number	0
Trapping Period	3/27 – 6/1/98	Eyed Egg Number	0

^a Fish were aged using the following aging criteria:

RUN	SEX	LENGTH	AGE (Years in Ocean)
B	Male	≤ 73 cm	1-Ocean
B	Male	> 73 cm	2- or 3-Ocean
B	Female	≤ 68 cm	1-Ocean
B	Female	> 68 cm	2- or 3-Ocean

^b Hatchery fish classified as 1-ocean were brood year 1998, released in 1999. Hatchery fish classified as 2-ocean were brood year 1997, released in 1998.

^c Fish were released above the weir.

^d Fish were kelts and were released below the weir.

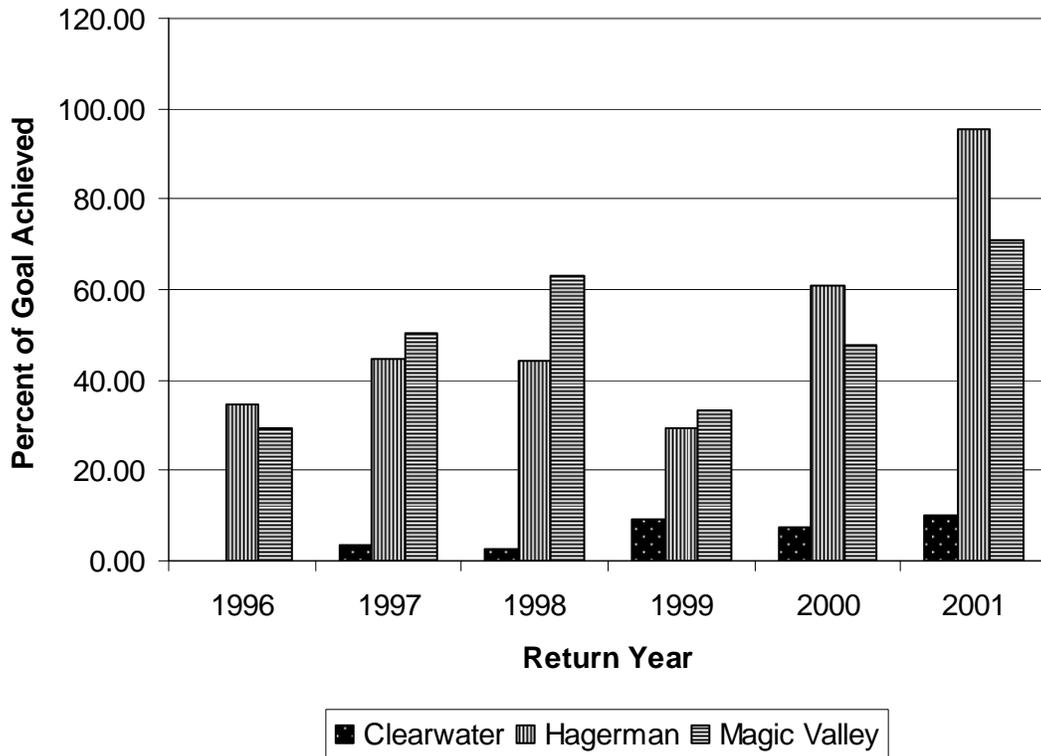


Figure 1. Percent of the adult steelhead return goal achieved by Clearwater, Hagerman National, and Magic Valley fish hatcheries between 1996 and 2001. Annual adult return goals for Clearwater, Hagerman National, and Magic Valley fish hatcheries were 14,000, 13,600, and 11,660, respectively. Figures for Clearwater do not reflect an intentional reduction in smolt production goals. The reduced production goals should reduce the expected returns, but return goals have not been changed.

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APPENDICES

Appendix A. Table 1. Release data for all steelhead released from Clearwater Fish Hatchery during 2001. 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 tag code, the PIT tags are assumed to be put into the various tag codes proportionally.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Clear Ck: Clwtr R 4/26/2001	2000	DWOR B	R01W	31,979	AD		31,979	6.9	supplementation Late eggs.
Clear Ck: Clwtr R 4/26/2001	2000	DWOR B	R02W	65,561	CWT,AD,LV AD AD,LV	104802	21,439 43,459 663	6.9	supplementation Late eggs.
							Total CWT Release:	21,439	
							Total non-CWT Release:	76,101	
							Total Group Release:	97,540	
S Fk Clwtr@ Red House Hole 4/19/2001	2000	DWOR B	R01E	32,069	AD		32,069	7.88	production
S Fk Clwtr@ Red House Hole 4/19/2001	2000	DWOR B	R02E	65,697	CWT,AD,LV CWT,AD,LV,PIT CWT,AD,LV CWT,AD,LV,PIT CWT,AD,LV CWT,AD,LV,PIT AD,LV	104828 104828 104827 104827 104826 104826	20,816 98 21,972 104 20,638 98 1,971	7.88	production
							Total CWT Release:	63,726	
							Total non-CWT Release:	34,040	
							Total Group Release:	97,766	

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
Meadow Ck. 4/13/2001									Late eggs.
							Total CWT Release:	0	
							Total non-CWT Release:	23,459	
							Total Group Release:	23,459	
S Fk Clwtr R@ Mill Ck 4/12/2001	2000	DWOR B	R09B	24,549	NONE		24,549	7.5	supplementation Late eggs.
							Total CWT Release:	0	
							Total non-CWT Release:	24,549	
							Total Group Release:	24,549	
Lolo Ck 4/16/2001	2000	DWOR B	R10A	24,412	NONE		24,412	7.28	supplementation Late eggs.
Lolo Ck 4/16/2001	2000	DWOR B	R10B	24,111	NONE		24,111	7.28	supplementation Late eggs.
							Total CWT Release:	0	
							Total non-CWT Release:	48,523	
							Total Group Release:	48,523	
Red River: S Fk Clwtr 4/20/2001	2000	DWOR B	R03W	23,220	NONE		23,220	6.5	supplementation Late eggs.
							Total CWT Release:	0	
							Total non-CWT Release:	23,220	
							Total Group Release:	23,220	
Red River: S Fk Clwtr 4/26/2001	2000	DWOR B	R03W	69,614	NONE		69,614	7.19	supplementation Late eggs.

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
Red River: S Fk Clwtr 4/26/2001	2000	DWOR B	R04W	56,512	NONE		56,512	7.19	supplementation Late eggs.
Total CWT Release:							0		
Total non-CWT Release:							126,126		
Total Group Release:							126,126		
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B	R03E	60,816	BWT BWT,PIT NONE		19,700 300 40,816	7.07	Supplementation
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B	R04E	35,816	NONE		35,816	7.07	Supplementation
Total CWT Release:							0		
Total non-CWT Release:							96,632		
Total Group Release:							96,632		
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B	R04E	25,000	AD		25,000	7.07	Production
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B	R05E	62,482	CWT,AD,LV AD AD,LV	104825	7,076 55,187 219	7.07	Production
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B	R06E	61,433	CWT,AD,LV CWT,AD,LV,PIT CWT,AD,LV CWT,AD,LV,PIT CWT,AD,LV CWT,AD,LV,PIT AD,LV	104825 104825 104824 104824 104823 104823	14,826 75 21,900 110 22,565 114 1,843	7.07	Production

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
							Total CWT Release:	66,666	
							Total non-CWT Release:	82,249	
							Total Group Release:	148,915	
Red River: S Fk Clwtr 4/26/2001	2000	DWOR B	R05W	36,288	AD		36,288	7.19	Production
Red River: S Fk Clwtr 4/26/2001	2000	DWOR B	R06W	63,636	AD		63,636	7.19	Production
							Total CWT Release:	0	
							Total non-CWT Release:	99,924	
							Total Group Release:	99,924	
							Total DWOR B-Stock CWT Release	151,831	
							Total DWOR B-Stock non-CWT Release	634,823	
							Total DWOR B-Stock Release	786,654	
							Total CWT Release for Clearwater	151,831	
							Total non-CWT Release for Clearwater	634,823	
							Total PIT tag Release for Clearwater Hatchery	899	
							Total Clearwater Hatchery Release	786,654	

Appendix A. Table 2. Release data for all steelhead released from Hagerman National Fish Hatchery during 2001. 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 tag code, the PIT tags are assumed to be put into the various tag codes proportionally.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Lt Salmon R @ Stinky Springs 4/2/2001-4/9/2001	2000	PAH A	R100	18,365	NONE		18,365	4.59	Supplementation
Lt Salmon R @ Stinky Springs 4/2/2001-4/9/2001	2000	PAH A	R92	20,310	NONE		20,310	5.25	Supplementation
Lt Salmon R @ Stinky Springs 4/2/2001-4/9/2001	2000	PAH A	R93	19,642	NONE		19,642	5.03	Supplementation
Lt Salmon R @ Stinky Springs 4/2/2001-4/9/2001	2000	PAH A	R94	18,582	NONE		18,582	4.62	Supplementation
Lt Salmon R @ Stinky Springs 4/2/2001-4/9/2001	2000	PAH A	R95	17,101	NONE		17,101	4.3	Supplementation
Lt Salmon R @ Stinky Springs 4/2/2001-4/9/2001	2000	PAH A	R101	19,197	NONE		19,197	4.74	Supplementation
Lt Salmon R @ Stinky Springs 4/2/2001-4/9/2001	2000	PAH A	R96	17,598	NONE		17,598	4.21	Supplementation
Stinky Springs 4/2/2001-4/9/2001									

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 4/2/2001-4/9/2001	2000	PAH A	R99	7,692	NONE		7,692	4.25	Supplementation
							Total CWT Release:	17,581	
							Total non-CWT Release:	139,031	
							Total Group Release:	156,612	
Yankee Fk Dredge Ponds 5/9/2001-5/11/2001	2000	Sawtooth A	R66	20,086	NONE		20,086	4.27	Supplementation
Yankee Fk Dredge Ponds 5/9/2001-5/11/2001	2000	Sawtooth A	R67	19,747	NONE		19,747	4.08	Supplementation
Yankee Fk Dredge Ponds 5/9/2001-5/11/2001	2000	Sawtooth A	R68	19,228	NONE		19,228	4.24	Supplementation
Yankee Fk Dredge Ponds 5/9/2001-5/11/2001	2000	Sawtooth A	R69	19,386	NONE		19,386	4.17	Supplementation
Yankee Fk Dredge Ponds 5/9/2001-5/11/2001	2000	Sawtooth A	R70	20,133	NONE		20,133	4.37	Supplementation
Yankee Fk Dredge Ponds 5/9/2001-5/11/2001	2000	Sawtooth A	R71	21,462	NONE		21,462	4.49	Supplementation
Yankee Fk Dredge Ponds 5/9/2001-5/11/2001	2000	Sawtooth A	R72	17,614	NONE		17,614	4.04	Supplementation

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:	137,656	
							Total Group Release:	137,656	
Newsome Ck: S Fk Clwtr R 5/2/2001-5/7/2001	2000	DWOR B	R81	9,769	NONE		9,769	4.03	Supplementation
Newsome Ck: S Fk Clwtr R 5/2/2001-5/7/2001	2000	DWOR B	R82	10,190	NONE		10,190	3.99	Supplementation
Newsome Ck: S Fk Clwtr R 5/2/2001-5/7/2001	2000	DWOR B	R83	17,031	NONE		17,031	4.09	Supplementation
Newsome Ck: S Fk Clwtr R 5/2/2001-5/7/2001	2000	DWOR B	R84	15,971	NONE		15,971	4.17	Supplementation
Newsome Ck: S Fk Clwtr R 5/2/2001-5/7/2001	2000	DWOR B	R85	16,746	NONE		16,746	4.37	Supplementation
Newsome Ck: S Fk Clwtr R 5/2/2001-5/7/2001	2000	DWOR B	R86	16,734	NONE		16,734	4.42	Supplementation
							Total CWT Release:	0	
							Total non-CWT Release:	86,441	
							Total Group Release:	86,441	
American R: S Fk Clwtr R 4/27/2001-5/2/2001	2000	DWOR B	R87	19,039	NONE		19,039	5.03	Supplementation

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
American R: S Fk Clwtr R 4/27/2001-5/2/2001	2000	DWOR B	R88	18,225	NONE		18,225	5.34	Supplementation
American R: S Fk Clwtr R 4/27/2001-5/2/2001	2000	DWOR B	R89	19,693	NONE		19,693	5.51	Supplementation
American R: S Fk Clwtr R 4/27/2001-5/2/2001	2000	DWOR B	R90	16,692	NONE		16,692	4.73	Supplementation
American R: S Fk Clwtr R 4/27/2001-5/2/2001	2000	DWOR B	R91	16,539	NONE		16,539	4.68	Supplementation
							Total CWT Release:	0	
							Total non-CWT Release:	90,188	
							Total Group Release:	90,188	
Hazard Ck: Lt Salmon R 4/6/2001-4/9/2001	2000	PAH A	R102	18,991	NONE		18,991	4.32	Supplementation
Hazard Ck: Lt Salmon R 4/6/2001-4/9/2001	2000	PAH A	R98	19,457	NONE		19,457	4.17	Supplementation
Hazard Ck: Lt Salmon R 4/6/2001-4/9/2001	2000	PAH A	R99	10,834	NONE		10,834	4.25	Supplementation
Hazard Ck: Lt Salmon R 4/6/2001-4/9/2001	2000	PAH A	R101	1,275	NONE		1,275	4.74	Supplementation

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:	50,557	
							Total Group Release:	50,557	
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R39	18,359	AD		18,359	4.33	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R73	17,338	AD		17,338	4.48	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R40	19,769	AD		19,769	4.34	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R41	19,846	AD		19,846	4.61	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R74	17,867	AD		17,867	4.39	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R42	19,671	AD		19,671	4.52	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R45	20,303	AD		20,303	4.43	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R75	18,856	AD		18,856	4.31	Production Acclimated

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 5/14/2001	2000	Sawtooth A	R44	19,015	AD,CWT,LV AD,LV	104805	18,445 570	4.56	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R46	17,709	AD		17,709	4.39	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R47	15,277	AD		15,277	4.19	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R48	18,368	AD		18,368	4.65	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R76	18,104	AD		18,104	4.22	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R49	18,628	AD		18,628	4.16	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R50	19,842	AD		19,842	4.65	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R78	17,598	AD		17,598	4.19	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R51	19,979	AD		19,979	4.69	Production Acclimated

Appendix A. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R79	17,807	AD		17,807	4.18	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R52	22,565	AD,CWT,LV AD AD,LV	104803	20,236 1,703 626	5.26	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R60	17,238	AD		17,238	4.42	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R53	19,251	AD		19,251	4.55	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R54	21,641	AD,CWT,LV AD AD,LV	104806	20,278 736 627	4.63	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R61	16,884	AD		16,884	4.2	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R55	20,543	AD		20,543	4.51	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R56	21,648	AD		21,648	4.88	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R57	21,916	AD		21,916	4.71	Production Acclimated

Appendix A. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R63	19,456	AD		19,456	4.53	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R37	19,872	AD		19,872	4.6	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R38	18,790	AD		18,790	4.38	Production Acclimated
Sawtooth Hatchery 4/23/2000-5/14/2001	2000	Sawtooth A	R62	17,004	AD		17,004	4.36	Production Acclimated
Total CWT Release:							58,959		
Total non-CWT Release:							512,185		
Total Group Release:							571,144		
Sawtooth Hatchery 3/30/2001-4/26/2001	2000	Sawtooth A	R43	20,271	AD		20,271	5.03	Production Direct Release
Sawtooth Hatchery 3/30/2001-4/26/2001	2000	Sawtooth A	R58	19,827	AD		19,827	4.3	Production Direct Release
Sawtooth Hatchery 3/30/2001-4/26/2001	2000	Sawtooth A	R59	17,806	AD		17,806	4.27	Production Direct Release
Sawtooth Hatchery 3/30/2001-4/26/2001	2000	Sawtooth A	R64	19,763	AD		19,763	4.65	Production Direct Release

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 3/30/2001-4/26/2001	2000	Sawtooth A	R65	17,724	AD		17,724	4.23	Production Direct Release
Sawtooth Hatchery 3/30/2001-4/26/2001	2000	Sawtooth A	R77	21,067	AD		21,067	4.55	Production Direct Release
Sawtooth Hatchery 3/30/2001-4/26/2001	2000	Sawtooth A	R80	20,232	AD		20,232	4.3	Production Direct Release
Total CWT Release:							0		
Total non-CWT Release:							136,690		
Total Group Release:							136,690		
Total PAH A-Stock CWT Release								17,581	
Total PAH A-Stock non-CWT Release								189,588	
Total PAH A-Stock Release								207,169	
Total SAWTOOTH A-Stock CWT Release								58,959	
Total SAWTOOTH A-Stock non-CWT Release								786,531	
Total SAWTOOTH A-Stock Release								845,490	
Total DWOR B-Stock CWT Release								0	
Total DWOR B-Stock non-CWT Release								176,629	
Total DWOR B-Stock Release								176,629	
Total CWT Release for Hagerman NFH								76,540	
Total non-CWT Release for Hagerman NFH								1,152,748	
Total PIT tag Release for Hagerman NFH Hatchery								0	
Total Hagerman NFH Hatchery Release								1,229,288	

Appendix A. Table 3. Release data for all steelhead released from Magic Valley Fish Hatchery during 2001. 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 tag code, the PIT tags are assumed to be put into the various tag codes proportionally.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
Salmon R @ Shoup Bridge 4/19/2001-4/24/2001	2000	Sawtooth A	R14E	14,415	AD		14,415	4.65	Production
Salmon R @ Shoup Bridge 4/19/2001-4/24/2001	2000	Sawtooth A	R16E	13,581	AD		13,581	5.03	Production
Salmon R @ Shoup Bridge 4/19/2001-4/24/2001	2000	Sawtooth A	R16WA	32,996	CWT,AD,LV CWT,AD,LV,PIT AD,LV	104835 104835	31,705 301 990	4.52	Production
Total CWT Release:							32,006		
Total non-CWT Release:							28,986		
Total Group Release:							60,992		
Lemhi R: Salmon R 4/17/2001-4/19/2001	2000	Sawtooth A	R15W	67,770	AD		67,770	4.69	Production
Lemhi R: Salmon R 4/17/2001	2000	Sawtooth A	R16WB	32,604	CWT,AD,LV AD,LV	104836	31,626 978	4.94	Production
Total CWT Release:							31,626		
Total non-CWT Release:							68,748		
Total Group Release:							100,374		
Lemhi R @ County Scale 5/3/2001-5/4/2001	2000	Pah A	R01W	20,448	AD		20,448	4.26	Supplementation

Appendix A. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	Raceway Number	Raceway Total	Mark Type	CWT Code	Release Number	Size (FPP)	Marking Purpose
							Total CWT Release:	0	
							Total non-CWT Release:	20,448	
							Total Group Release:	20,448	
Squaw Ck Ponds 4/9/2001-4/10/2001	2000	Dwor B	R02E	53,012	AD		53,012	4.57	Production
Squaw Ck Ponds 4/9/2001-4/10/2001	2000	Dwor B	R03E	22,900	AD		22,900	4.58	Production
							Total CWT Release:	0	
							Total non-CWT Release:	75,912	
							Total Group Release:	75,912	
Lemhi R @ L6 site 5/7/2001	2000	Pah A	R02W	1,269	AD		1,269	4.23	Supplementation
							Total CWT Release:	0	
							Total non-CWT Release:	1,269	
							Total Group Release:	1,269	
E Fk Salmon R @ Dumpster 4/27/2001	2000	Dwor B	R03E	23,550	AD		23,550	4.71	Production
E Fk Salmon R @ Dumpster 4/27/2001	2000	Dwor B	R04E	28,260	AD		28,260	4.71	Production
							Total CWT Release:	0	
							Total non-CWT Release:	51,810	
							Total Group Release:	51,810	
Lt Salmon R @ Stinky Springs 4/9/2001-4/16/2001	2000	Pah A	R03W	65,760	AD		65,760	4.8	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
Lt Salmon R @ Stinky Springs 4/9/2001-4/16/2001	2000	Pah A	R04W	63,106	AD		63,106	4.54	Production
Lt Salmon R @ Stinky Springs 4/9/2001-4/16/2001	2000	Pah A	R05W	66,007	AD		66,007	4.43	Production
Lt Salmon R @ Stinky Springs 4/9/2001-4/16/2001	2000	Pah A	R06W	65,945	AD		65,945	4.84	Production
Lt Salmon R @ Stinky Springs 4/9/2001-4/16/2001	2000	Pah A	R07W	65,910	AD		65,910	5.07	Production
Lt Salmon R @ Stinky Springs 4/9/2001-4/16/2001	2000	Pah A	R08W	66,008	AD		66,008	4.46	Production
Lt Salmon R @ Stinky Springs 4/9/2001-4/16/2001	2000	Pah A	R09W	37,474	AD		37,474	4.57	Production
Total CWT Release:							0		
Total non-CWT Release:							430,210		
Total Group Release:							430,210		
Yankee Fk @ 3 rd Bridge Up 5/2/2001	2000	Sawtooth A	R08E	67,044	AD AD,PIT		66,744 300	4.44	Production
Yankee Fk @ 3 rd Bridge Up 5/2/2001-5/3/2001	2000	Sawtooth A	R09E	31,579	AD		31,579	4.61	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
							Total CWT Release:	0	
							Total non-CWT Release:	98,623	
							Total Group Release:	98,623	
Lemhi R @ County Scale 5/3/2001-5/4/2001	2000	Sawtooth A	R09E	21,206	AD		21,206	4.61	Supplementation
							Total CWT Release:	0	
							Total non-CWT Release:	21,206	
							Total Group Release:	21,206	
Salmon R @ McNabb Point 4/26/2001-4/27/2001	2000	Sawtooth A	R09E	12,796	AD		12,796	4.49	Production
Salmon R @ McNabb Point 4/26/2001-4/27/2001	2000	Sawtooth A	R10E	68,443	AD		68,443	4.43	Production
Salmon R @ McNabb Point 4/26/2001-4/27/2001	2000	Sawtooth A	R11E	3,150	AD		3,150	4.5	Production
							Total CWT Release:	0	
							Total non-CWT Release:	84,389	
							Total Group Release:	84,389	
Salmon R @ Wagonhammer 4/26/2001	2000	Sawtooth A	R11E	64,800	AD		64,800	4.5	Production
Salmon R @ Wagonhammer 4/26/2001	2000	Sawtooth A	R12E	3,150	AD		3,150	4.5	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
							Total CWT Release:	0	
							Total non-CWT Release:	67,950	
							Total Group Release:	67,950	
Salmon R @ Cottonwood Cg 4/25/2001	2000	Sawtooth A	R12E	65,700	AD		65,700	4.5	Production
Salmon R @ Cottonwood Cg 4/25/2001	2000	Sawtooth A	R14E	12,090	AD		12,090	4.65	Production
							Total CWT Release:	0	
							Total non-CWT Release:	77,790	
							Total Group Release:	77,790	
Salmon R @ Colston Corner 4/18/2001	2000	Pah A	R12W	50,300	AD		50,300	5.03	Production
							Total CWT Release:	0	
							Total non-CWT Release:	50,300	
							Total Group Release:	50,300	
Salmon R @ Challis 4/24/2001	2000	Sawtooth A	R14E	41,850	AD		41,850	4.65	Production
							Total CWT Release:	0	
							Total non-CWT Release:	41,850	
							Total Group Release:	41,850	
Salmon R @ Lewis_Clark 4/23/2001-4/24/2001	2000	Sawtooth A	R14E	465	AD		465	4.65	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
Salmon R @ Lewis_Clark 4/23/2001-4/24/2001	2000	Sawtooth A	R15E	67,166	AD		67,166	4.73	Production
Salmon R @ Lewis_Clark 4/23/2001-4/24/2001	2000	Sawtooth A	R16E	8,551	AD		8,551	5.03	Production
							Total CWT Release:	0	
							Total non-CWT Release:	76,182	
							Total Group Release:	76,182	
Sawtooth Hatchery 4/18/2001	2000	Dwor B	R03E	1,145	AD		1,145	3.27	Production
							Total CWT Release:	0	
							Total non-CWT Release:	1,145	
							Total Group Release:	1,145	
Hayden Ck @ Basin Ck 5/4/2001	2000	Pah A	R01W	8,094	AD		8,094	4.26	Supplementation
Hayden Ck @ Basin Ck 5/4/2001	2000	Pah A	R02W	31,725	AD		31,725	4.23	Supplementation
							Total CWT Release:	0	
							Total non-CWT Release:	39,819	
							Total Group Release:	39,819	
Hayden Ck Hatchery 5/4/2001	2000	Pah A	R01W	40,044	AD		40,044	4.26	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
				Total CWT Release:			0		
				Total non-CWT Release:			40,044		
				Total Group Release:			40,044		
Lemhi R @ Hayden Ck 5/7/2001	2000	Pah A	R02W	34,052	AD		34,052	4.23	Supplementation
				Total CWT Release:			0		
				Total non-CWT Release:			34,052		
				Total Group Release:			34,052		
Salmon R @ Eyehole 4/23/2001	2000	Sawtooth A	R16E	45,270	AD		45,270	5.03	Production
				Total CWT Release:			0		
				Total non-CWT Release:			45,270		
				Total Group Release:			45,270		
Salmon R @ Hammer Creek 4/16/2001-4/18/2001	2000	Pah A	R09W	28,562	AD		28,562	4.57	Production
Salmon R @ Hammer Creek 4/16/2001-4/18/2001	2000	Pah A	R10W	66,276	CWT,AD,LV	105670	21,866	5.26	Production
					CWT,AD,LV,PIT	105670	103		
					CWT,AD,LV	105570	22,136		
					CWT,AD,LV,PIT	105570	103		
					CWT,AD,LV	105470	19,986		
					CWT,AD,LV,PIT	105470	94		
					AD,LV		1,988		
Salmon R @ Hammer Creek 4/16/2001-4/18/2001	2000	Pah A	R11W	63,948	AD		63,948	4.38	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
Salmon R @ Hammer Creek 4/16/2001-4/18/2001	2000	Pah A	R12W	16,599	AD		16,599	5.03	Production
Total CWT Release:							64,288		
Total non-CWT Release:							111,097		
Total Group Release:							175,385		
Lt Salmon R @ Stinky Springs 4/9/2001-4/16/2001	2000	Dwor B	R01E	58,346	CWT,AD,LV	105370	13,279	4.33	Production
					CWT,AD,LV,PIT	105370	71		
					CWT,AD,LV	105270	21,461		
					CWT,AD,LV,PIT	105270	114		
					CWT,AD,LV	105170	21,556		
					CWT,AD,LV,PIT	105170	115		
					AD,LV		1,750		
Total CWT Release:							56,596		
Total non-CWT Release:							1,750		
Total Group Release:							58,346		
Salmon R @ Tunnel Rock 4/24/2001-4/25/2001	2000	Sawtooth A	R13E	65,280	CWT,AD,LV	104820	20,677	5.1	Production
					CWT,AD,LV,PIT	104820	98		
					CWT,AD,LV	104819	20,961		
					CWT,AD,LV,PIT	104819	100		
					CWT,AD,LV	104818	21,384		
					CWT,AD,LV,PIT	104818	102		
					AD,LV		1,958		
Total CWT Release:							63,322		
Total non-CWT Release:							1,958		
Total Group Release:							65,280		

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 @ L6 Site 5/7/2001	2000	Sawtooth A	R13W	67,500	CWT,AD,LV	105970	21,390	5	Production
					CWT,AD,LV,PIT	105970	98		
					CWT,AD,LV	105870	22,141		
					CWT,AD,LV,PIT	105870	102		
					CWT,AD,LV	105770	21,644		
					CWT,AD,LV,PIT	105770	100		
					AD,LV		2,025		
Total CWT Release:							65,475		
Total non-CWT Release:							2,025		
Total Group Release:							67,500		
Salmon R @ Red Rock 4/19/2001	2000	Sawtooth A	R14W	67,410	CWT,AD,LV	106270	21,125	5.35	Production
					CWT,AD,LV,PIT	106270	97		
					CWT,AD,LV	106170	21,755		
					CWT,AD,LV,PIT	106170	101		
					CWT,AD,LV	106070	22,208		
					CWT,AD,LV,PIT	106070	102		
					AD,LV		2,022		
Total CWT Release:							65,388		
Total non-CWT Release:							2,022		
Total Group Release:							67,410		
Squaw Ck 4/27/2001-5/2/2001	2000	East Fk B	R07E	38,024	CWT,AD	104816	17,408	3.88	Production
					CWT,AD,PIT	104816	143		
					CWT,AD	104815	19,175		
					CWT,AD,PIT	104815	157		
					AD		1,141		
Total CWT Release:							36,883		
Total non-CWT Release:							1,141		
Total Group Release:							38,024		
Squaw Ck 4/27/2001-5/2/2001	2000	Dwor B	R04E	18,840	AD		18,840	4.71	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
Squaw Ck 4/27/2001-5/2/2001	2000	Dwor B	R05E	45,834	CWT,AD,LV	104822	17,664	4.39	Production
					CWT,AD,LV,PIT	104822	146		
					CWT,AD,LV	104821	18,576		
					CWT,AD,LV,PIT	104821	154		
					AD,LV		1,130		
					BWT,AD		8,164		
Squaw Ck 4/27/2001-5/2/2001	2000	Dwor B	R06E	65,763	AD		65,763	4.39	Production
Total CWT Release:							36,540		
Total non-CWT Release:							93,897		
Total Group Release:							130,437		
Total SAWTOOTH A-Stock CWT Release								257,817	
Total SAWTOOTH A-Stock non-CWT Release								616,999	
Total SAWTOOTH A-Stock Release								874,816	
Total PAH A-Stock CWT Release								64,288	
Total PAH A-Stock non-CWT Release								727,239	
Total PAH A-Stock Release								791,527	
Total DWOR B-Stock CWT Release								93,136	
Total DWOR B-Stock non-CWT Release								224,514	
Total DWOR B-Stock Release								317,650	
Total EAST FK B-Stock CWT Release								36,883	
Total EAST FK B-Stock non-CWT Release								1,141	
Total EAST FK B-Stock Release								38,024	
Total CWT Release for Magic Valley								452,124	
Total non-CWT Release for Magic Valley								1,569,893	
Total PIT tag Release for Magic Valley Hatchery								2,701	
Total Magic Valley Hatchery Release								2,022,017	

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

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 4/22/1999-4/23/1999	1998	DWOR B	105234	20,321	AD,LV	Bio-Diet Feed (Feed Exp.)	1	19	1	20	0.1
							2	ND	ND	ND	
							3	ND	ND	ND	
Clear Ck: Clwtr R 4/22/1999-4/23/1999	1998	DWOR B	Untagged	38,649	AD	Bio-Diet Feed (Feed Exp.)	1	20	2	22	0.06
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				58,970			39	3	42	0.07	
Clear Ck: Clwtr R 4/22/1999-4/23/1999	1998	DWOR B	105233	20,668	AD,LV	Moore/Clark Diet (Feed Exp.)	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Clear Ck: Clwtr R 4/22/1999-4/23/1999	1998	DWOR B	Untagged	110,901	AD	Moore/Clark Diet (Feed Exp.)	1	0	4	4	0
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				131,569			0	4	4	0	
Red River@ Soda Ck Bridge 4/20/1999	1998	DWOR B (No. PIT Tags: 4,993)	Untagged	4,993	NONE	Supplementation (PIT tag Only)	1	0	3	3	0.06
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				4,993			0	3	3	0.06	
S Fk Clwtr@ Red House Hole 4/27/1999-4/29/1999	1998	DWOR B	105235	20,648	AD,LV	Contribution	1	16	1	17	0.08
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/27/1999-4/29/1999	1998	DWOR B	105236	21,193	AD,LV	Contribution	1	11	1	12	0.06
							2	ND	ND	ND	
							3	ND	ND	ND	

Appendix B. Table 1. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
S Fk Clwtr@ Red House Hole 4/27/1999-4/29/1999	1998	DWOR B	105237	20,766	AD,LV	Contribution	1	0	1	1	0
							2	ND	ND	ND	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/27/1999-4/29/1999	1998	DWOR B	Untagged	337,858	AD	Contribution	1	146	13	159	0.05
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				400,465				173	16	189	0.05
Total 1-Ocean:						238					
Total 2-Ocean:						ND					
Total 3-Ocean:						ND					
Total Harvest Recoveries:						212					
Total Hatchery Recoveries:						26					
Total Releases:						595,997					
Total Recoveries:						238					

Appendix B. Table 2. Release and recovery data for brood year 1998 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). Actual return estimates used in Hansen and White (In Press a), could change slightly.

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 4/23/1999	1998	Sawtooth A	105263	19,678	AD	Acclimated Feed/Fast	1	130	34	164	0.83
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	105259	19,171	AD	Acclimated Feed/Fast	1	39	31	70	0.37
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	105260	19,426	AD	Acclimated Feed/Fast	1	37	41	78	0.4
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	Untagged	2,013	AD	Acclimated Feed/Fast	1	7	8	15	0.75
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				60,288				213	114	327	0.54
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	105261	17,807	AD	Acclimated, % Body Wt. Diet	1	80	21	101	0.57
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	105257	18,973	AD	Acclimated, % Body Wt. Diet	1	36	36	72	0.38
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	105258	18,786	AD	Acclimated, % Body Wt. Diet	1	7	32	39	0.21
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/23/1999	1998	Sawtooth A	Untagged	372,500	AD	Acclimated, % Body Wt. Diet	1	825	1519	2,344	0.63
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				428,066				948	1,608	2,556	0.6

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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	1998	Sawtooth A	Untagged	104,521	AD	Direct Release	1	275	426	701	0.67
4/21/1999-4/26/1999							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	104,521				275	426	701	0.67
Lt Salmon R @ Stinky Springs	1998	Hells Canyon A	104637	10,004	AD	Contribution	1	52	52	104	1.04
4/14/1999-5/10/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs	1998	Hells Canyon A	104636	10,137	AD	Contribution	1	7	7	14	0.14
4/14/1999-5/10/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs	1998	Hells Canyon A	104635	10,326	AD	Contribution	1	32	32	64	0.62
4/14/1999-5/10/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs	1998	Hells Canyon A	104638	10,317	AD	Contribution	1	32	32	64	0.62
4/14/1999-5/10/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs	1998	Hells Canyon A	Untagged	378,252	AD	Contribution	1	3,159	3,159	6,318	1.67
4/14/1999-5/10/1999							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	419,036				3,282	3,282	6,564	1.57
Sawtooth Hatchery	1998	Sawtooth A	105110	9,309	AD	Early Egg Progeny	1	16	9	25	0.27
4/22/1999-4/23/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery	1998	Sawtooth A	105109	9,495	AD	Early Egg Progeny	1	12	8	20	0.21
4/22/1999-4/23/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery	1998	Sawtooth A	105301	20,133	AD	Early Egg Progeny	1	36	31	67	0.33
4/22/1999-4/23/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery	1998	Sawtooth A	105302	18,088	AD	Early Egg Progeny	1	48	7	55	0.3
4/22/1999-4/23/1999							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	1998	Sawtooth A	Untagged	1,127	AD	Early Egg Progeny	1	2	5	7	0.62
4/22/1999-4/23/1999							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	58,152				114	60	174	0.3
Sawtooth Hatchery	1998	Sawtooth A	105107	9,008	AD	Late Egg Progeny	1	46	21	67	0.74
4/22/1999-4/26/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery	1998	Sawtooth A	104634	9,701	AD	Late Egg Progeny	1	26	18	44	0.45
4/22/1999-4/26/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery	1998	Sawtooth A	104643	9,257	AD	Late Egg Progeny	1	20	16	36	0.39
4/22/1999-4/26/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery	1998	Sawtooth A	104644	9,344	AD	Late Egg Progeny	1	38	12	50	0.54
4/22/1999-4/26/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery	1998	Sawtooth A	104645	9,509	AD	Late Egg Progeny	1	23	18	41	0.43
4/22/1999-4/26/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery	1998	Sawtooth A	104646	9,874	AD	Late Egg Progeny	1	35	23	58	0.59
4/22/1999-4/26/1999							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery	1998	Sawtooth A	Untagged	7,069	AD	Late Egg Progeny	1	23	29	52	0.74
4/22/1999-4/26/1999							2	ND	ND	ND	
							3	ND	ND	ND	
			Totals:	63,762				211	137	348	0.55
			Total 1-Ocean:					10,670			
			Total 2-Ocean:					ND			
			Total 3-Ocean:					ND			
			Total Harvest Recoveries:					5,043			
			Total Hatchery Recoveries:					5,627			
			Total Releases:					1,133,825			
			Total Recoveries:					10,670			

Appendix B. Table 3. Release and recovery data for brood year 1998 steelhead released from Magic Valley Fish Hatchery. Only 1-ocean recoveries are available at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish, shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Hansen and White (In Press a). Actual return estimates used in Hansen and White (In Press a), could change slightly.

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 @ Red Rock 4/16/1999-4/26/1999	1998	PAH A	105406	60,343	AD	Contribution	1	278	191	469	0.77
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Red Rock 4/16/1999-4/26/1999	1998	PAH A	Untagged	111,421	AD	Contribution	1	481	352	833	0.75
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				171,764			759	543	1302	0.76	
Salmon R @ Shoup Bridge 4/19/1999-4/20/1999	1998	PAH A	105405	60,453	AD	Contribution	1	261	191	452	0.75
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Shoup Bridge 4/19/1999-4/20/1999	1998	PAH A	Untagged	71,967	AD	Contribution	1	311	228	539	0.75
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				132,420			572	419	991	0.75	
Salmon R @ Tunnel Rock 4/21/1999-5/3/1999	1998	PAH A	105404	60,660	AD	Contribution	1	166	192	358	0.59
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Tunnel Rock 4/21/1999-5/3/1999	1998	PAH A	Untagged	68,553	AD	Contribution	1	188	217	405	0.59
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				129,213			354	409	763	0.59	
E Fk Salmon R @ Dumpster 4/29/1999-5/5/1999	1998	DWOR B	105403	59,129	AD,LV	Contribution	1	25	0	25	0.04
							2	ND	ND	ND	
							3	ND	ND	ND	

Appendix B. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
E Fk Salmon R @ Dumpster 4/29/1999-5/5/1999	1998	DWOR B	Untagged	209,796	AD	Contribution	1	89	0	89	0.04
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	268,925	114	0	
Salmon R @ Tunnel Rock 4/28/1999-5/3/1999	1998	DWOR B	105401	53,679	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	78,134	0	0	
Salmon R @ Tunnel Rock 4/28/1999-5/3/1999	1998	DWOR B	Untagged	24,455	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	78,134	0	0	
Squaw Ck 4/30/1999-5/11/1999	1998	DWOR B	105402	58,514	AD,LV	Contribution	1	28	0	28	0.05
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	204,806	98	0	
Squaw Ck 4/30/1999-5/11/1999	1998	DWOR B	Untagged	146,292	AD	Contribution	1	70	0	70	0.05
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	204,806	98	0	
Squaw Creek Pond Below Outlet 5/5/1999-5/12/1999	1998	DWOR B	105255	14,422	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	204,806	98	0	
Squaw Creek Pond Below Outlet 5/5/1999-5/12/1999	1998	DWOR B	105253	16,772	AD,LV	Contribution	1	8	0	8	0.05
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	204,806	98	0	
Squaw Creek Pond Below Outlet 5/5/1999-5/12/1999	1998	DWOR B	105254	17,651	AD,LV	Contribution	1	12	0	12	0.07
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	204,806	98	0	
Squaw Creek Pond Below Outlet 5/5/1999-5/12/1999	1998	DWOR B	Untagged	58,165	AD	Contribution	1	24	0	24	0.04
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	107,010	44	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 (%)
Lt Salmon R @ Stinky Springs 4/12/1999-4/16/1999	1998	PAH A	Untagged	28,820	AD	Contribution	1	57	57	114	0.4
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	28,820	57	57	114
Sawtooth Hatchery 4/23/1999	1998	PAH A	Untagged	39,660	AD	Contribution	1	104	162	266	0.67
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	39,660	104	162	266
Salmon R @ McNabb Point 4/23/1999-4/28/1999	1998	PAH A	Untagged	121,210	AD	Contribution	1	332	383	715	0.59
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	121,210	332	383	715
Squaw Ck Ponds 4/7/1999-4/12/1999	1998	DWOR B	Untagged	78,244	AD	Volitional Release Study.	1	37	0	37	0.05
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	78,244	37	0	37
Lt Salmon R @ Stinky Springs 4/12/1999-4/16/1999	1998	DWOR B	105256	16,416	AD,LV	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	16,416	0	0	0
Lt Salmon R @ Stinky Springs 4/12/1999-4/16/1999	1998	DWOR B	Untagged	308,139	AD	Contribution	1	0	0	0	0
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	324,555	0	0	0
Lt Salmon R @ Stinky Springs 5/6/1999	1998	PAH A	Untagged	12,800	AD	Contribution	1	25	25	50	0.39
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	12,800	25	25	50
Lemhi R: Salmon R 4/19/1999-4/26/1999	1998	PAH A (No. PIT Tags: 277)	Untagged	157,865	AD	Contribution	1	682	499	1,181	0.75
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	157,865	682	499	1,181
Salmon R @ Cottonwood Cg 4/29/1999-5/5/1999	1998	PAH A	Untagged	85,980	AD	Contribution	1	235	272	507	0.59
							2	ND	ND	ND	
							3	ND	ND	ND	
							Totals:	85,980	235	272	507

Appendix C. Table 1. Release and recovery data for brood year 1997 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 prespawning mortalities. Recovery data is from Hansen and White (In Press a, b). Actual return estimates used in Hansen and White (In Press a) could change slightly.

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	0.04
							2	0	7	7	
							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	0.26
							2	48	7	55	
							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	0.04
							2	0	7	7	
							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	0.12
							2	351	157	508	
							3	ND	ND	ND	
Totals:				532,305				399	229	628	0.12
Red River: S Fk Clwtr 4/24/1998	1997	DWOR B	Untagged	4,497	NONE	Supplementation PIT tag only.	1	0	0	0	0.18
							2	0	8	8	
							3	ND	ND	ND	
Totals:				4,497				0	8	8	0.18
Clear Crk: Clwtr R 4/20/1998-4/29/1998	1997	DWOR B	105225	20,851	AD,LV	Contribution	1	0	2	2	0.29
							2	51	7	58	
							3	ND	ND	ND	
Clear Crk: Clwtr R 4/20/1998-4/29/1998	1997	DWOR B	Untagged	144,633	AD	Contribution	1	0	14	14	0.31
							2	354	84	438	
							3	ND	ND	ND	
Totals:				165,484				405	107	512	0.31

Appendix C. Table 2. Release and recovery data for brood year 1997 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, b). Actual return estimates used in Hansen and White (In Press a) could change slightly.

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	0.61
						Feed -	2	10	1	11	
						Fast Diet	3	ND	ND	ND	
Sawtooth Hatchery 4/24/1998	1997	Sawtooth A	104717	19,105	AD	Direct Release	1	105	37	142	0.85
						Feed -	2	16	4	20	
						Fast Diet	3	ND	ND	ND	
Sawtooth Hatchery 4/24/1998	1997	Sawtooth A	104718	20,060	AD	Direct Release	1	73	39	112	0.65
						Feed -	2	15	3	18	
						Fast Diet	3	ND	ND	ND	
Sawtooth Hatchery 4/24/1998	1997	Sawtooth A	Untagged	2,022	AD	Direct Release	1	10	7	17	1.09
						Feed -	2	3	2	5	
						Fast Diet	3	ND	ND	ND	
			Totals:	61,355				309	128	437	0.71
Lt Salmon R @ Stinky Springs 4/13/1998-4/29/1998	1997	Pah A	104614	10,544	AD	Contribution	1	6	6	12	0.57
							2	24	24	48	
							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	0.88
							2	19	19	38	
							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	0.77
							2	458	458	916	
							3	ND	ND	ND	
			Totals:	347,470				1,339	1,339	2,678	0.77
Sawtooth Hatchery 4/1/1998-4/9/1998	1997	Sawtooth A	104609	20,929	AD	Acclimated/ %body wt. diet	1	58	18	76	0.59
							2	43	4	47	
							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 4/1/1998-4/9/1998	1997	Sawtooth A	104550	19,891	AD	Acclimated/ %body wt. diet	1	54	16	70	0.53
							2	35	0	35	
							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	0.76
							2	7	4	11	
							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	1.08
							2	625	470	1,095	
							3	ND	ND	ND	
Totals:				503,968				3,108	2,064	5,172	1.03
Sawtooth Hatchery 3/31/1998	1997	Sawtooth A	104504	19,535	AD	Acclimated	1	114	31	145	0.84
							2	14	6	20	
							3	ND	ND	ND	
Sawtooth Hatchery 3/31/1998	1997	Sawtooth A	104503	20,790	AD	Acclimated	1	119	25	144	0.7
							2	0	1	1	
							3	ND	ND	ND	
Sawtooth Hatchery 3/31/1998	1997	Sawtooth A	104720	19,442	AD	Acclimated	1	55	35	90	0.59
							2	21	4	25	
							3	ND	ND	ND	
Sawtooth Hatchery 3/31/1998	1997	Sawtooth A	Untagged	808	AD	Acclimated	1	4	3	7	1.11
							2	1	1	2	
							3	ND	ND	ND	
Totals:				60,575				328	106	434	0.72
Sawtooth Hatchery 3/31/1998-4/1/1998	1997	Sawtooth A	104549	20,409	AD	Acclimated Feed-Fast diet	1	199	22	221	1.1
							2	0	3	3	
							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	1.02
							2	11	1	12	
							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	0.63
							2	25	4	29	
							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 3/31/1998-4/1/1998	1997	Sawtooth A	Untagged	2,454	AD		1	12	8	20	1.06
							2	3	3	6	
						Acclimated Feed-Fast diet	3	ND	ND	ND	
Totals:				59,039			446	104	550	0.93	
Total 1-Ocean:						6,929					
Total 2-Ocean:						2,342					
Total 3-Ocean:						ND					
Total Harvest Recoveries:						5,530					
Total Hatchery Recoveries:						3,741					
Total Releases:						1,032,407					
Total Recoveries:						9,271					

Appendix C. Table 3. Release and recovery data for brood year 1997 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, b, 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 (%)
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	0.35
							2	70	0	70	
							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	0	1	1	
							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	0.09
							2	17	1	18	
							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	0.24
							2	88	27	115	
							3	ND	ND	ND	
Totals:				126,920				201	57	258	0.2
E Fk Salmon R @ Dumpster 4/24/1998-4/29/1998	1997	Dwor B	102143	20,367	AD,LV	Contribution	1	0	0	0	0.05
							2	11	0	11	
							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	0.03
							2	7	0	7	
							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	0.04
							2	7	0	7	
							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	0.04
							2	92	0	92	
							3	ND	ND	ND	
Totals:				286,026				117	7	124	0.04

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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 (%)
Salmon R @ McNabb Point 4/16/1998-4/17/1998	1997	Sawtooth A	102142	19,786	AD	Contribution	1	109	26	135	0.96
							2	28	26	54	
							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	0.89
							2	8	28	36	
							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	0.77
							2	27	27	54	
							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	0.76
							2	101	128	229	
							3	ND	ND	ND	
Totals:				158,660				968	302	1,270	0.8
Salmon R @ Shoup Bridge 4/20/1998-4/21/1998	1997	Sawtooth A	102139	17,514	AD	Contribution	1	7	23	30	0.41
							2	19	23	42	
							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	0.73
							2	9	29	38	
							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	0.6
							2	3	28	31	
							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	0.59
							2	25	63	88	
							3	ND	ND	ND	
Totals:				108,915				357	285	642	0.59
Salmon R @ Red Rock 4/23/1998-4/24/1998	1997	Pah A	102136	16,299	AD	Contribution	1	60	21	81	0.67
							2	8	21	29	
							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	0.48
							2	25	28	53	
							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 (%)
Salmon R @ Red Rock 4/23/1998-4/24/1998	1997	Pah A	102135	21,639	AD	Contribution	1	105	28	133	0.86
							2	25	28	53	
							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	0.67
							2	76	102	178	
							3	ND	ND	ND	
Totals:				137,060				566	357	923	0.67
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	0	0	0	
							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	0	0	0	
							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	0	0	0	
							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	0	0	0	
							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	0.04
							2	15	0	15	
							3	ND	ND	ND	
Totals:				35,700				15	1	16	0.04
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	0	0	0	
							3	ND	ND	ND	
Totals:				52,800				0	0	0	0
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	0.22
							2	37	1	38	
							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 (%)
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	0.19
							2	35	1	36	
							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	0.06
							2	4	1	5	
							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	0.16
							2	146	4	150	
							3	ND	ND	ND	
Totals:				174,580			266	14	280	0.16	
Salmon R @ Cottonwood Cg 4/17/1998-4/20/1998	1997	Sawtooth A	Untagged	142,650	AD	Contribution	1	723	185	908	0.87
							2	147	188	335	
							3	ND	ND	ND	
Totals:				142,650			870	373	1,243	0.87	
Lemhi R: Salmon R 4/21/1998-4/22/1998	1997	Pah A	Untagged	154,565	AD	Contribution	1	430	201	631	0.59
							2	79	203	282	
							3	ND	ND	ND	
Totals:				154,565			509	404	913	0.59	
Total 1-Ocean:						3,602					
Total 2-Ocean:						2,067					
Total 3-Ocean:						ND					
Total Harvest Recoveries:						3,869					
Total Hatchery Recoveries:						1,800					
Total Releases:						1,658,825					
Total Recoveries:						5,669					

Appendix D. Table 1. Release and recovery data for brood year 1996 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, b, 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 (%)
Clear Ck: Clwtr R 4/28/1997	1996	DWOR B	105145	31,672	AD,LV	Coded wire tag	1	0	3	3	0.15
						length	2	12	12	24	
						Experiment	3	20	2	22	
Clear Ck: Clwtr R 4/28/1997	1996	DWOR B	104663	32,575	AD,LV	Coded wire tag	1	0	4	4	0.07
						length	2	7	11	18	
						Experiment	3	0	0	0	
Clear Ck: Clwtr R 4/28/1997	1996	DWOR B	Untagged	114,966	AD	Coded wire tag	1	0	13	13	0.11
						length	2	34	41	75	
						Experiment	3	36	0	36	
Totals:				179,213				109	86	195	0.11
Crooked R: S Fk Clwtr 4/23/1997	1995	SELWAY	Untagged	75,894	RV	Selway	1	0	0	0	0.03
						Program,	2	11	12	23	
						RV only	3	0	1	1	
Totals:				75,894				11	13	24	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	0	0	0	
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	0	1	1	
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	0	0	0	
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	0	6	6	
Totals:				421,173				362	471	833	0.2

Appendix D. Table 1. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
S Fk Red River	1996	DWOR B	105120	42,426	NONE	Supplementation	1	0	0	0	0.02
9/5/1996							2	0	0	0	
							3	0	8	8	
S Fk Red River	1996	DWOR B	Untagged	6,304	NONE	Supplementation	1	0	0	0	0.02
9/5/1996							2	0	0	0	
							3	0	1	1	
			Totals:	48,730				0	9	9	0.02
Red River@ Soda Ck Bridge 4/28/1997	1996	DWOR B	Untagged	4,991	NONE	Supplementation	1	0	0	0	0
		(No. PIT Tags: 4,991)					2	0	0	0	
							3	0	0	0	
			Totals:	4,991				0	0	0	0
			Total 1-Ocean:								62
			Total 2-Ocean:								924
			Total 3-Ocean:								75
			Total Harvest Recoveries:								482
			Total Hatchery Recoveries:								579
			Total Releases:								730,001
			Total Recoveries:								1,061

Appendix D. Table 2. Release and recovery data for brood year 1996 steelhead released from Hagerman National Fish Hatchery. All returns are complete at this time. Data is shown by groups, with both hatchery and harvest recoveries for each tag code, along with any untagged fish, shown separately. Harvest estimates are based on angler phone surveys and creel census data. Hatchery estimates include rack returns along with estimates of in-stream escapement values. The total returns represent a minimum estimate of returns that do not include out-of-basin strays or prespawning mortalities. Recovery data is from Hansen and White (In Press a, b, 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 (%)
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105159	19,619	AD	Contribution	1	27	11	38	0.23
							2	3	4	7	
							3	0	0	0	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105157	20,507	AD	Contribution	1	18	11	29	0.3
							2	27	5	32	
							3	0	0	0	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105158	19,794	AD	Contribution	1	13	14	27	0.19
							2	7	3	10	
							3	0	0	0	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	416,979	AD	Contribution	1	596	570	1,166	0.37
							2	271	103	374	
							3	0	0	0	
				Totals:				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	0	0	0	
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	0	0	0	
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	0	0	0	
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	0	0	0	
				Totals:				163	77	240	0.39

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 (%)
Salmon R @ Torrey's Hole 4/25/1997	1996	Sawtooth A	105146	57,115	AD	Acclimated	1	108	49	157	0.46
						Torrey's Hole	2	96	11	107	
						Contribution	3	0	0	0	
Salmon R @ Torrey's Hole 4/25/1997	1996	Sawtooth A	Untagged	8,305	AD	Acclimated	1	13	6	19	0.37
						Torrey's Hole	2	11	1	12	
						Contribution	3	0	0	0	
			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	0	0	0	
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	0	0	0	
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	0	0	0	
			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	0	0	0	
			Totals:	31,140				15	68	83	0.27
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	0	0	0	
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	0	0	0	
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	0	0	0	
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	Untagged	727	AD	Acclimated Group	1	1	1	2	0.28
							2	0	0	0	
							3	0	0	0	
			Totals:	61,531				116	56	172	0.28

Appendix D. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Sawtooth Hatchery 4/25/1997	1996	Sawtooth A	105148	27,801	AD	Double Length Wire	1	32	24	56	0.27
							2	13	5	18	
							3	0	0	0	
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	0	0	0	
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	0	0	0	
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	0	0	0	
Totals:				75,946				122	108	230	0.3
Total 1-Ocean:						2,392					
Total 2-Ocean:						1,350					
Total 3-Ocean:						0					
Total Harvest Recoveries:						1,892					
Total Hatchery Recoveries:						1,850					
Total Releases:						1,145,919					
Total Recoveries:						3,742					

Appendix D. Table 3. Release and recovery data for brood year 1996 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, 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, b, 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 (%)
Sawtooth Hatchery 4/11/1997	1996	PAH A	Untagged	84,715	AD	Late eggs from Sawtooth	1	122	72	194	0.23
						Acclimated group	2	0	0	0	
						Trucked to SFH	3	0	0	0	
						Two weeks prior to rel					
Totals:				84,715				122	72	194	0.23
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	0	0	0	
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	0	0	0	
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	0	0	0	
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	0	0	0	
							Totals:				
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	0	0	0	
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	0	0	0	
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	0	0	0	

Appendix D. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
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	0	0	0	
							Totals:	134,311	545	190	
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	0	0	0	
							Totals:	19,407	19	19	
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	0	0	0	
							Totals:	9,505	0	9	
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	0	0	0	
							Totals:	240,530	226	235	
Salmon R @ McNabb Point 4/14/1997-4/15/1997	1996	PAH A	105212	14,694	AD	Contribution	1	19	16	35	0.29
							2	3	4	7	
							3	0	0	0	
							Totals:	14,694	19	16	
Salmon R @ McNabb Point 4/14/1997-4/15/1997	1996	PAH A	105210	17,401	AD	Contribution	1	12	19	31	0.25
							2	7	5	12	
							3	0	0	0	
							Totals:	17,401	12	19	
Salmon R @ McNabb Point 4/14/1997-4/15/1997	1996	PAH A	105211	17,574	AD	Contribution	1	22	20	42	0.36
							2	17	5	22	
							3	0	0	0	
							Totals:	17,574	22	20	
Salmon R @ McNabb Point 4/14/1997-4/15/1997	1996	PAH A	Untagged	104,802	AD	Contribution	1	112	118	230	0.3
							2	57	32	89	
							3	0	0	0	
							Totals:	154,471	249	219	
Slate Ck: U Salmon R 4/25/1997-5/1/1997	1996	DWOR B	105162	15,480	AD,LV	Contribution	1	0	0	0	0.01
							2	0	1	1	
							3	0	0	0	
							Totals:	15,480	0	1	
Slate Ck: U Salmon R 4/25/1997-5/1/1997	1996	DWOR B	105160	20,273	AD,LV	Contribution	1	0	0	0	0.03
							2	4	2	6	
							3	0	0	0	
							Totals:	20,273	4	2	

Appendix D. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Slate Ck: U Salmon R 4/25/1997-5/1/1997	1996	DWOR B	105161	21,448	AD,LV	Contribution	1	0	0	0	0.01
							2	0	2	2	
							3	0	0	0	
Slate Ck: U Salmon R 4/25/1997-5/1/1997	1996	DWOR B	Untagged	156,010	AD	Contribution	1	0	0	0	0.01
							2	11	11	22	
							3	0	0	0	
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	18	5	23	0.25
							2	13	2	15	
							3	0	0	0	
E Fk Salmon R Trap 4/22/1997-4/23/1997	1996	EAST FK B	105219	19,375	AD,LV	Contribution	1	10	4	14	0.13
							2	10	2	12	
							3	0	0	0	
E Fk Salmon R Trap 4/22/1997-4/23/1997	1996	EAST FK B	105220	20,667	AD,LV	Contribution	1	17	2	19	0.15
							2	13	0	13	
							3	0	0	0	
E Fk Salmon R Trap 4/22/1997-4/23/1997	1996	EAST FK B	Untagged	76,171	AD	Contribution	1	62	27	89	0.2
							2	50	10	60	
							3	0	0	0	
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	58	23	81	
							2	0	6	6	
							3	0	0	0	
Lemhi R: Salmon R 4/16/1997-4/18/1997	1996	PAH A	105214	20,628	AD	Contribution	1	36	23	59	0.39
							2	15	6	21	
							3	0	0	0	
Lemhi R: Salmon R 4/16/1997-4/18/1997	1996	PAH A	105215	15,226	AD	Contribution	1	27	17	44	0.34
							2	3	5	8	
							3	0	0	0	
Lemhi R: Salmon R 4/16/1997-4/18/1997	1996	PAH A	Untagged	185,096	AD	Contribution	1	397	208	605	0.39
							2	59	56	115	
							3	0	0	0	
Totals:				241,510			595	344	939	0.39	

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