



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

**Project Progress Report
October 1, 2003 — September 30, 2004**



Emmanuel Ziolkowski with a big steelhead; photo courtesy of Ken Cole

**Chris Harrington
Sr. Fisheries Research Biologist**

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

2004 Annual Report

By

Chris Harrington

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

To

**U.S. Fish and Wildlife Service
Lower Snake River Compensation Plan Office
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ABSTRACT

This annual report summarizes activities associated with Idaho-Lower Snake River Compensation Plan (LSRCP) hatcheries' activities from October 1, 2003 through September 30, 2004. Included in this report are all fall 2003 and spring 2004 adult steelhead *Oncorhynchus mykiss* returns, and all releases of juvenile steelhead made within the reporting period for LSRCP facilities. Information presented in this report supersedes that included in previous reports.

An estimated minimum of 25,267 adult LSRCP steelhead returned to Idaho in the fall of 2003 and spring of 2004. This return total consisted of 6,020 estimated to have returned from Hagerman National Fish Hatchery releases, 16,465 estimated to have returned from Magic Valley Fish Hatchery releases, and 2,782 estimated to have returned from Clearwater Fish Hatchery releases. Totals do not include returns of non-adipose clipped adults that could not be evaluated. The total number is slightly below the total LSRCP return goal of 39,260, and represents a decline from previous years.

In April and May 2004, the Idaho-LSRCP hatcheries released 4,204,058 steelhead smolts of brood year 2003. Clearwater Fish Hatchery released 1,053,328 Dworshak B-stock smolts. Hagerman National Fish Hatchery released 1,324,376 smolts that were a mix of Sawtooth A, Pahsimeroi A, and Dworshak B-stocks. Magic Valley Fish Hatchery released 1,826,354 smolts, which included a mixture of Sawtooth A, Pahsimeroi A, Dworshak B, Upper Salmon B, and East Fork Natural stocks.

The out-migration conditions in 2004 were worse than average, with total flow and spill at Lower Granite during the peak migration period being lower than past years. Nonetheless, PIT tag detections at the dams showed smolt survival to Lower Granite Dam was fairly good despite the low flows.

Author:

Chris Harrington
Sr. Fisheries Research Biologist

INTRODUCTION

The completion of the four hydroelectric dams on the lower section of the Snake River in Washington reduced the returns of anadromous salmonids to the Snake River drainage. The Water Resources Development Act of 1976 authorized the Lower Snake River Compensation Plan (LSRCP) to mitigate for the loss of fisheries and wild runs to the Upper Snake River basin in Idaho, Washington, and Oregon. Mitigation for anadromous fishery losses included improvements in smolt passage at the dams, as well as the construction and operation of fish hatcheries for stock augmentation in the affected region. The 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 HES activities and hatchery accomplishments for the LSRCP steelhead facilities in Idaho from October 1, 2001 through September 30, 2002.

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

METHODS

IDFG LSRCP Program Success Documentation

The success of the LSRCP mitigation goals was measured by comparing the estimated adult steelhead returns over Lower Granite Dam to the LSRCP goal of 39,260 adults. In addition to this, the individual contributions of Magic Valley, Clearwater, and Hagerman National fish hatcheries towards the overall mitigation goal was estimated using coded-wire tag 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, 2003 and September 30, 2004 are documented in this report. Any information relevant to the quality of the brood year 2003 smolts released in 2004, or relevant to the early rearing success of brood year 2004, is discussed. Information

concerning size at release, health, and dietary considerations was obtained through the Hatchery Brood Year and Run reports from each hatchery. Information on final numbers and mark information was obtained through the Release database maintained by the Idaho Coded-Wire Tag (CWT) Recovery Lab in Lewiston, Idaho.

Fish Marking

All production steelhead, which are steelhead available for angler harvest upon return to Idaho, released from LSRCP facilities in 2004 had their adipose fin removed. Coded-wire tags were put in representative groups of each stock being released in each Idaho river section to allow for the comparative evaluation of different release groups to harvest. Since there were several releases into each IDFG river section in the upper Salmon River, and all releases within each section were expected to perform equivalently, coded-wire tags were not included in each individual release but were included in one release per section. In past years, all steelhead that received coded-wire tags had their left ventral fin removed to provide an externally visible indicator of the presence of a tag. Beginning with brood year 2003 steelhead, all A-strain steelhead, as well as all B-strain steelhead associated with the Squaw Pond project, did not receive a ventral fin clip or any other externally visible indicator mark. This was done because all coded-wire tag sampling in the state of Idaho relied exclusively on electronic detection techniques.

In addition to these production fish, 318,593 steelhead from Clearwater Fish Hatchery and 159,340 steelhead from Magic Valley Fish Hatchery were released without adipose clips as parts of negotiated supplementation releases. Supplementation releases are unmarked steelhead which are not available for angler harvest and which are intended to supplement or establish a local population. The 31,638 supplementation steelhead released from Magic Valley Fish Hatchery at the East Fork Weir were the progeny of naturally produced steelhead trapped at the East Fork Satellite Facility, while all of the other supplementation steelhead were the progeny of established hatchery stocks.

Representative groups of steelhead from both production and supplementation groups received PIT tags to track juvenile survival and mean travel time to Lower Granite Dam. The numbers of PIT-tagged smolts released were insufficient to allow for meaningful evaluation of adult returns.

Migration Conditions

One of the important factors found to influence survival to adult of Idaho anadromous salmonids is the condition of the river corridor during 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 2003 and the spring of 2004. These adults were from the out-migrations in the springs of 2000, 2001, or 2002. Therefore, the flow conditions during the emigration period for these three years, as well as the flow conditions during the emigration period of 2004, are reported. Water flow data for these periods was obtained through the Columbia River DART (Data Access in Real Time) web site.

Petrosky (1991) defined two time periods that accounted for most of the Chinook migration past Lower Granite Dam. The peak period of emigration for Chinook smolts is from April 15 to May 5, and is the time period when approximately 50% of the yearling Chinook salmon reach Lower Granite Dam. The extended period is from April 20 to May 30, and encompasses the time when most of the wild and natural yearling Chinook salmon reach the dam. Hatchery raised steelhead in Idaho are generally released beginning in early to mid April, and all releases are finished by early May. 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 using PIT tags. Idaho Department of Fish and Game fish marking and HES personnel tagged hatchery steelhead about one month prior to release 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 PTAGIS, a computerized database managed by Pacific States Marine Fisheries Commission (PSMFC). Release information for tag groups was obtained from hatcheries and was submitted to PTAGIS by the HES tag coordinator.

PIT tags were interrogated at four dams on the Snake and Columbia rivers: Lower Granite, Little Goose, Lower Monumental, and McNary. Arrival timing and tag number data were collected for each interrogation site and linked to the release information found in the PTAGIS database. From this information, smolt migration timing to Lower Granite Dam and a smolt survival index through the system was obtained. The survival estimate was determined using the Survival Under Proportional Hazards (SURPH) program (Lady et al. 2001). This program is a platform that uses the Cormack-Jolly-Seber model for single release and multiple recapture events (Cormack 1964; Jolly 1965; Seber 1965). Mean travel time to Lower Granite Dam was calculated for each group using the PitPro v4.0 program, which converts data from PTAGIS into formats that are compatible with the SURPH program.

Adult Returns

The IDFG Harvest Monitoring Project estimated the number of LSRCP steelhead that returned to Idaho in the 2003-2004 return year (Hansen In Press). This estimate includes steelhead caught in the sport harvest, at hatchery racks, and in-river escapement for off-site released groups. Hansen's (In Press) 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 returning adults enumerated in Idaho 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 (NOAA) 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. 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.

Out-of-state Contribution

In addition to the estimated returns to the state of Idaho, an estimate of out-of-state contribution of adult steelhead was made for all marked steelhead released from LSRCP facilities. Since these steelhead did not return to Idaho, the count of out-of-state contribution was not included in calculating performance relative to the LSRCP adult return goals.

Coded-wire tag recovery information for out-of-state recoveries was obtained from the Regional Mark Information System (RMIS) database maintained by PSMFC. The data used in this report for out of state recoveries was obtained in January 2007 from the RMIS and does not reflect changes made to the database after that date.

Since coded-wire tags were not included in every release group and because the total number of recoveries reported to the RMIS were small, for the purpose of evaluation all releases which had fish returning to spawn in the spring of 2004 were lumped by IDFG river section (Figure 1) and stock in the Salmon River drainage. Similarly, all production releases from Clearwater Fish Hatchery were pooled, because there was no reason to assume that the various releases would have different return characteristics or susceptibility to downstream harvest. This consolidation of individual releases became the release section used for estimation.

The age of the fish was calculated by subtracting the brood year from the expected year of spawning. Since most recoveries outside of Idaho take place the year prior to when the fish would actually spawn, it was assumed that any adult steelhead recovered in the migration corridor from June through December would actually have spawned the following year. The age for ocean recoveries was determined using the same formula, even though fish recovered in the ocean were not necessarily returning to spawn. This was done to maintain consistency between the two categories.

Tag recoveries reported to the RMIS were expanded using the estimated number reported in the database. The estimated number is the number of un-sampled fish represented by a single sampled coded-wire tag. If the estimated number was either zero or had been left blank, an estimated number of one fish was used for that record. The estimated number was summed for all release sections for all ages that contributed to the 2002 return. A tagged to untagged ratio was also calculated for each release section by summing the total number of coded-wire-tagged steelhead released in the section and dividing that number by the total number of untagged steelhead plus the number of tagged steelhead that had shed their tags. The number of steelhead that shed their tags was estimated by sampling approximately 300 tagged steelhead prior to release to determine whether they had retained their tags for a minimum of three months. The total number of untagged recoveries for the section was determined by dividing the total estimated tag recoveries in each section by the tagged to untagged ratio for the section. The total recoveries of all steelhead for the section were then the sum of the estimated tagged recoveries and the estimated untagged recoveries for the section.

Recoveries outside of Idaho were broken into several categories. The main migration corridor consists of the Columbia and Snake rivers. Recoveries in the Columbia River were divided into sport fishery, tribal harvest, and hatchery weir recoveries. Since there is no significant tribal harvest reported to RMIS, recoveries in the Snake River were only divided into sport fishery and hatchery weir categories. In addition to these categories, recoveries in the Deschutes River were divided into sport fishery, hatchery weir, and tribal ceremonial and subsistence recoveries. The Deschutes River was separated from the other categories because

hatchery steelhead straying into the river are a problem of interest and represent a substantial number of steelhead that are removed from the population.

The final categories used for adult recoveries were the ocean harvest and other recoveries. Both of these categories cover very large areas, including all ocean zones and all tributaries to the Snake and Columbia rivers with the exception of the Deschutes. However, neither of these categories had sufficient recoveries to warrant further division.

Idaho Fisheries Contribution

Snouts from coded-wire-tagged steelhead recovered by creel clerks from angler harvested steelhead, were sent to the CWT Lab for processing. The HMP derived a harvest estimate by river section for the fishery through a phone survey of angler success (Hansen In Press). 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 In Press). Contribution to the fishery for each LSRCP group was calculated by dividing the number of tags of each code recovered by the sample rate for the river section and month where the tag was recovered.

Hatchery Weirs

Hatchery personnel documented the number of steelhead that returned to the East Fork Salmon River weir, Sawtooth Fish Hatchery weir, and two weirs operated by Clearwater Fish Hatchery. The Clearwater Fish Hatchery weirs are located on Crooked River and Red River, which are tributaries to the South Fork of the Clearwater River. All adult steelhead recovered at the traps were measured for length and sex and were scanned for the presence of coded-wire-tags. No subsampling of recovered adults took place at any of these weirs during the spring of 2004, so no expansion needed to be done on the tag group contribution. Snouts from steelhead containing a coded-wire tag were removed and sent to the Idaho CWT Lab for processing. The HMP used these data to estimate the total number of LSRCP-reared steelhead that returned to hatchery racks or escaped above the weir to spawn naturally.

Experimentation

Magic Valley Fish Hatchery

Squaw Pond—The Squaw Pond acclimation facility was put into operation for the first time in 1998. The facility was intended 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.

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 and late migrants were PIT tagged to measure out-migration survival and timing. The late migrant group was taken from among the last few thousand smolts remaining in the pond after the last dam board had been removed.

Following the protocol established in 2003, the fish released into Squaw Pond consisted of roughly equal numbers of both Dworshak and Upper Salmon B-stock smolts. All fish released into the pond had previously received coded-wire tags, and the two stocks were tagged with different codes, which allowed for a comparison of both pond retention as well as adult return performance. This was a departure from previous years where the Upper Salmon B-stock smolts had been released directly into the creek, and therefore could not be directly compared to the Dworshak B-stock smolts. One result of this release strategy was that it was impossible to be certain which stock received the PIT tags used for migration survival determinations. It had to be assumed that migration performance for the two stocks was comparable.

A sample of the smolts remaining in the pond at the time of PIT tagging was examined for internal signs of precocial development. Smolts were examined until 100 males had been sampled. Since the two stocks of fish in the pond had different tag codes, snouts were removed from fish sampled during the precocity study to determine whether the rate of retention in the pond or the rate of precocity of the males were different between the two stocks.

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 2003—A total of 1,545,221 Dworshak B-stock eyed steelhead eggs were received from Dworshak National Fish Hatchery (George et al. 2004). These eggs were all from fish spawned in the middle of the run, therefore, did not represent the entire run. It is common practice for steelhead eggs taken for the Clearwater Fish Hatchery to not represent the entire run, since the juveniles will not be expected to return to a hatchery weir and will not be part of a broodstock program. The eggs from brood year 2003 were received before they had been picked to remove unfertilized or dead eggs. Once these nonviable eggs had been removed, the total number of viable eyed eggs had been reduced to 1,481,444.

Survival from eyed-egg to smolt was reported to be 93.2% (George et al. 2004). This was the highest egg to smolt survival seen in several years and indicated both good hatchery practices as well as good quality eggs.

The brood year 2003 steelhead were ad clipped as they were moved to the final rearing raceways using the Mass Automated Tagging System (MATS) trailers. This was the second year that the MATS system, which is capable of marking fish without the use of anesthetic and with minimal handling stress on the fish, was used to mark steelhead. However, since the MATS trailer is incapable of clipping the ventral fins, all coded-wire-tagged steelhead, which received a left ventral clip to indicate the presence of a tag, had to be marked manually. Complete

information on marks applied, release sites, numbers released, and release timing can be found in Appendix A, Table 1.

Survival to Lower Granite Dam was very good for all release groups that received PIT tags. Survival ranged from a low of 75.6% in the Crooked River release to 85.2% in the Red House Hole release. This pattern of survival, with releases higher in the South Fork of the Clearwater River having lower survival than releases lower in the same river, has been seen before. However, for brood year 2003, the Lolo Creek release, which typically performs about the same as the Red House Hole release, had a survival of 78.5%. With survival percentages as high as this, it would be incorrect to read anything into the differences between these groups.

Brood Year 2004—A total of 1,249,961 Dworshak B-stock eyed steelhead eggs were received from Dworshak National Fish Hatchery (McGehee et al. 2005). 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. The eggs were received before they had been picked to remove unfertilized or dead eggs. Once these nonviable eggs had been removed, the total number of viable eyed eggs had been reduced to 1,161,957. This viable egg number was further culled down to 983,878, which was the number that Clearwater Fish Hatchery personnel expected would be needed to meet smolt production targets.

Survival from eyed-egg to ponding was reported to be 90.4% (McGehee et al. 2005). This survival percentage does not count the nonviable eggs picked out of the original lots shipped from Dworshak National Fish Hatchery, nor does it include the almost 200,000 viable eggs that were deliberately culled to reduce the anticipated surplus production. No disease incidence was reported for the brood year 2004 steelhead.

Hagerman National Fish Hatchery

Brood Year 2003—A total of 1,405,008 eyed steelhead eggs were received from Sawtooth Fish Hatchery and Clearwater Fish Hatchery (Hagerman National Fish Hatchery 2003). The eggs received from Sawtooth Fish Hatchery consisted of 939,025 Sawtooth A-stock and 218,749 Pahsimeroi A-stock, while the eggs received from Clearwater Fish Hatchery consisted of 247,234 Dworshak B-stock. The survival from egg to smolt was 100.1% for the Pahsimeroi stock, 96.8% for the Sawtooth stock, and 79.5% for the Dworshak B stock. The impossibly high percent survival for the Pahsimeroi A-stock was likely due to different egg enumeration techniques between Sawtooth and Hagerman National fish hatcheries, coupled with very low mortality in this group of fish. The lower survival for the Dworshak stock was typical for Hagerman National Fish Hatchery, though no specific cause for the increased mortality was identified.

The adipose fin was removed from all fish used in steelhead production releases during the end of September and the first half of October. Coincident with the fish clipping, representative portions of the releases received coded-wire tags. In late February, 1,500 of the coded-wire-tagged fish received PIT tags to measure run timing and juvenile out-migration success. Tagging in February allowed the fish at least a month to recover from the tagging operation. Complete information on release timing and marks on production steelhead can be found in Appendix A, Table 2.

Survival of the PIT-tagged fish to the dams was lower for Hagerman National Fish Hatchery releases than they were for the other two hatcheries (Table 1). The best performance, with an estimated survival of 85.7%, came from a group released in the Little Salmon River, but the rest of the groups had estimated survivals below 80% while the Yankee Fork release had an estimated survival of only 44.8%. There is no obvious reason why the survival for these groups would be lower than the survival for the other hatcheries, as steelhead produced by Hagerman National Fish Hatchery are usually comparable to Magic Valley Fish Hatchery. No significant disease events challenged any of these groups during hatchery rearing, so the fish were healthy at release.

Brood Year 2004—During late May and early June of 2004, a total of 1,365,952 eyed steelhead eggs were received from Sawtooth Fish Hatchery and Clearwater Fish Hatchery (Hagerman National Fish Hatchery 2004). These eggs consisted of 946,363 Sawtooth A-stock, 204,822 Pahsimeroi A-stock, and 214,767 Dworshak B-stock. Hatching success for all the three stocks was 98% (Hagerman National Fish Hatchery 2004).

Magic Valley Fish Hatchery

Brood Year 2003—During the latter part of April, all of May, and the first part of June, Magic Valley Fish Hatchery received five stocks of eyed steelhead eggs consisting of 932,191 Dworshak B, 78,006 Upper Salmon B, 854,718 Pahsimeroi A, 480,000 Sawtooth A, and 57,876 East Fork Natural eggs (Lowell et al. 2004). Survival to release for the Upper Salmon B, Pahsimeroi A, East Fork Natural, and Sawtooth A-stocks was 83.8%, 80.5%, 74.2%, and 72.5%, respectively. Survival to release for the Dworshak B-stock fish was 69.9%. Lower survival for the Dworshak B-stock is typical for Magic Valley Fish Hatchery; however, in this case, the Dworshak B-stock survival, while it was the lowest of all the stocks, was not appreciably lower than either the East Fork Natural or Sawtooth A-stocks. Furthermore, Lowell et al. (2004) reported that all of the other stocks had hatching survivals around 98%, while the Dworshak B-stock hatching survival was only 87%. This means that the survival from hatching to release for the Dworshak B-stock was 80.3%, which is just below the survival for the Pahsimeroi A stock and above the survival of either the Sawtooth A or East Fork Natural-stocks.

Fish marking on brood year 2003 steelhead happened in two distinct phases. During June and July, a crew hired by the hatchery removed the adipose fin from all steelhead except those that were going to receive coded-wire tags. This marking occurred as the fish were being transferred from the inside vats to the outside raceways and minimized the total stress on the fish by combining two stressful events. However, the fish were not at the right size to allow for coded-wire tagging that early in the year. Coded-wire tagging took place in September and October using the manual fish tagging trailer. The MATS system, which had been used to mark the steelhead at Clearwater Fish Hatchery, was not used for tagging steelhead at Magic Valley Fish Hatchery because of the large range of sizes in the raceways. Further information on release sites, mark numbers, and size at release can be found in Appendix A, Table 3.

In past years, an outbreak of Cold Water Disease *Flavobacterium psychrophilus* generally occurred in the fall coincident with the end of fin clipping (Lowell et al. 2003). However, the same symptoms and causative agent were identified in brood year 2003 steelhead, despite the fin clipping moving earlier in the year. This prompted hatchery personnel to conclude that fin clipping was not triggering the outbreak (R. Lowell and P. Moore, Idaho Department of Fish and Game, personal communications).

Survival to Lower Granite Dam for most groups of PIT-tagged fish was generally above 80%. The exceptions were the release in the Yankee Fork, which had a survival of 64.8%, and all of the tag groups associated with Squaw Creek (Table 1). The direct creek release, which was expected to have a survival most similar to the general releases, had a survival of only 67.7%. The early and late groups released from Squaw Pond both had considerably lower survival rates of 41.8% and 20.7%, respectively. The low survival of the late release group could indicate a large number of nonmigrant smolts; however, that cannot explain the poor survival of the early release group.

Mean travel time of the PIT-tagged groups of fish varied from 10 days to 36 days (Table 1), with no apparent pattern. The shortest mean travel time was for the release at the Red House Hole on the South Fork of the Clearwater, which has the shortest migration distance. However, the longest mean migration time was for the release in the Little Salmon River, which has one of the shortest migration distances of all of the release sites used by Magic Valley Fish Hatchery.

Brood Year 2004—From April to June of 2004, Magic Valley Fish Hatchery received 2,544,960 eyed steelhead eggs comprised of five stocks: 1,145,829 Dworshak B, 53,722 Upper Salmon B, 846,410 Pahsimeroi A, 483,081 Sawtooth A, and 15,918 East Fork Natural (Lowell et al. 2005). The Dworshak B-stock early survival was estimated to be somewhat lower than the other stocks but still around 90% (Rick Lowell, Idaho Department of Fish and Game, personal communication). This indicates that there were no severe problems during early rearing, which would have caused a noticeable increase in the mortality for one or more of the stocks.

Migration Conditions

Flows during 2004 were lower than any year in the last decade with the exception of 2001 (Table 2). However, there was a very small amount of spill during the migration window, which reflects the changes in hydrosystem management over the last several years. Furthermore, there was slightly increased flow during the extended time period when compared to the peak time period, which indicates that there was more flow towards the end of the migration window.

Migration Timing and Juvenile Survival

A total of 7,628 steelhead smolts were released with PIT tags in 2004. These included a mix of production and supplementation fish. The overall mean survival rate to Lower Granite Dam ranged from 44.8% to 88.7%, with most groups performing quite well (Table 1). There were two groups outside of that range, but both of them were the study groups released from Squaw Pond, and should not be used to represent the performance of any other releases in the system. Mean time to Lower Granite Dam varied from 9.6 days to 29.3 days and showed little discernible pattern. In general, smolts released closer to Lower Granite Dam arrived at the dam faster than those released further away, but in 2004, there were some notable exceptions to that pattern, with one of the releases in the Little Salmon River having one of the longer mean migration times. The fluctuations in mean time to Lower Granite Dam probably reflect short-term changes in flow conditions, time of release, distance traveled, and normal random variation.

Adult Returns

The HMP (Hansen In Press) estimated that Hagerman National, Magic Valley, and Clearwater fish hatcheries returned a minimum of 25,267 adult steelhead to Idaho waters in the fall of 2003 and spring of 2004 (Table 3). This estimate does not include in-stream prespawning mortalities, which includes those adults that failed to spawn successfully, nor does it include returns of those groups which were not marked and were, therefore, not accessible to either the fishery or a hatchery weir. Hansen (In Press) estimated that anglers harvested 12,363 steelhead, while 12,904 either returned to hatchery racks or escaped to spawn naturally.

The number of steelhead smolts released and the estimated number of adults that returned are compared to facility design production targets and projected adult return goals in Table 4. Figure 2 shows adult returns from steelhead released by each of the three LSRCP steelhead hatcheries as a percentage of their return goals for the last seven years. The 2003-2004 return year showed declining returns for all three LSRCP facilities, which probably indicated deteriorating ocean conditions, though it could also reflect worse migration conditions. The figure for Clearwater Fish Hatchery may be somewhat low, since few of the steelhead released from this facility are expected to return to a hatchery rack, which means that the entire estimate is based on creel recoveries and the few strays to other hatchery racks in the system. Furthermore, there was no estimate determined for the large numbers of unmarked hatchery-origin steelhead released throughout the system. None of these fish contributed to angler harvest, nor did any of them return to hatchery racks except as strays, though it is reasonable to assume that they would return at a rate similar to other hatchery releases.

The total return of adult steelhead from each LSRCP facility for the last ten brood years is shown in Table 10. Each brood year will return across at least two, and often three different return years. The contribution from each of the LSRCP facilities for the last ten return years is found in Table 11, which is roughly the same information as found in Figure 2, except that the figure shows only the most recent return years to highlight recent trends more distinctly.

Out-of-State Recoveries

The total number of out-of-state recoveries was estimated to be 1,868 adult steelhead (Table 12). The majority of the recoveries were in the Columbia River (90.8%), with the Deschutes River accounting for most of the remainder. Unfortunately, it is clear that not all of the out-of-state recoveries have been reported by other states. Most notably, there were no recoveries reported for the entire Snake River outside of Idaho, which is only possible if either the fisheries were not sampled or if the data has not yet been reported. The complete breakdown of out-of-state adult recoveries of steelhead by age and release section can be found in Table 12. A map of the river sections used in this breakdown can be found in Figure 1.

Fisheries Contribution

A phone survey was conducted by IDFG, which produced a total estimated angler harvest of 36,231 hatchery steelhead during the 2003-2004 steelhead season. Of these, 12,363 were produced by the three Idaho LSRCP facilities, according to Hansen (In Press), while Dworshak National Fish Hatchery, Niagara Springs Fish Hatchery, and hatcheries in Oregon and Washington produced the remainder.

Weir Operation

Sawtooth Fish Hatchery Weir— A total of 2,424 adult A-stock steelhead were trapped at the Sawtooth Fish Hatchery weir between March 24 and April 29, 2004 (Snider et al. 2005). This total consisted of 1,492 males (61.6%) and 932 females (38.4%) (Table 5). Of the 1,492 males, 1,481 were of hatchery-origin (99.3%), and 1,424 (96.1%) of those were 1-ocean fish. Of the 932 females, 925 were of hatchery-origin (99.2%) with 791 (85.5%) of those being 1-ocean fish.

All wild/natural fish were released directly above the weir for natural spawning (Snider et al. 2005). An additional 30 pairs of hatchery fish (30 males and 30 females) were released into weired off sections of Beaver Creek for IDFG supplementation studies (Byrne 2005), and 200 pair were released into the Yankee Fork for the Shoshone-Bannock Tribe supplementation program. A total of 175 hatchery-origin males were released at Torreys Hole to enhance angling opportunity.

A total of 405 pairs of hatchery-origin steelhead were spawned at the Sawtooth trap in 2004, yielding 2,639,117 green eggs (Snider et al. 2005). Survival to eye-up for these eggs was 85.3%, which resulted in 2,251,142 eyed eggs for distribution to Magic Valley and Hagerman National fish hatcheries. The complete disposition of all fish trapped can be found in Table 5.

East Fork Salmon River Weir— The East Fork Trap was operated from March 29 through April 25 in 2004, and a total of 27 adult steelhead were trapped during that time (Snider et al. 2005). These fish were primarily natural origin fish, and no adult hatchery-origin steelhead were expected to return to the trap in 2004. Of the 23 natural-origin fish recovered, 15 (65.2%) were male and 8 (34.8%) were female. All 15 of the natural-origin males and three of the natural-origin females (37.5) were classified as 1-ocean adults based on the length criteria used at the trap. All three of the hatchery-origin adult steelhead recovered at the weir in 2004 were 1-ocean males. The complete disposition of all fish trapped can be found in Table 6.

Crooked River Weir— Trapping at the Crooked River trap began on March 18, 2004 and continued through the Chinook salmon run later in the summer (Clearwater Fish Hatchery, Unpublished Run Report). During that time, 38 adult steelhead, of which 15 (39.5%) were natural-origin and 23 (60.5%) were hatchery-origin, were recovered at the trap.

Of the hatchery-origin steelhead recovered, 21 were male (91.3), while two were female (8.7%). One of the females and eight (38.1%) of the males were classified as 2-ocean adults. The remainder were all classified as 1-ocean. Of the natural-origin steelhead recovered, 13 were male (86.7%), while two were female (13.3%). Both of the females and six (46.2%) of the males were classified as 2-ocean adults. Since there were no length criteria to distinguish 2- and 3-ocean adults, it is possible that some of the 2-ocean adults were actually 3-ocean fish.

All natural-origin steelhead were released above the weir for spawning, while all hatchery-origin steelhead were returned to the river below the weir. No fish were spawned at the hatchery, and no eggs were taken. The complete breakdown of fish trapped and disposition can be found in Table 7.

Red River Weir—The Red River trap began operation on March 22 and continued through Chinook season (Clearwater Fish Hatchery, Unpublished Run Report). A single, male, 2-ocean, natural-origin, adult steelhead was trapped during that time. This steelhead was

released unharmed above the weir; however, since no females were trapped during this time, it is unlikely that the male was capable of spawning.

Squaw Creek Weir—All information for trapping at Squaw Creek can be found under the Squaw Creek portion of the Experimentation.

Smolt-to-Adult Return Rates

Clearwater Fish Hatchery

The 2004 return year completed the run of the brood year 1999 steelhead released from Clearwater Fish Hatchery in 2000. Only 103 3-ocean adult steelhead were recovered in the 2004 run year, which gave a total SAR for the adipose-clipped smolts of 1.39% (Appendix D Table 1). There were 239,993 unclipped smolts included in the release of brood year 1999 steelhead. An SAR was not calculated for these smolts. The 3-ocean adult returns in 2004 comprised 1.49% of the total adult returns of brood year 1999 steelhead.

A total of 2,388 2-ocean steelhead were estimated to have returned from the total brood year 2000 release of 786,654 (Appendix C Table 1). Of the total release, 342,509 fish did not receive an adipose clip, and no return estimate was derived for these groups. The SAR for the clipped smolts released from brood year 2000 after two years of adult returns was 0.63%.

Only 291 1-ocean steelhead were estimated to have returned from a total brood year 2001 release of 639,028 (Appendix B Table 1). However, this release number includes 330,607 smolts that were released without adipose clips and were not available to the fishery. If this number is removed from the SAR calculation, the SAR for the first year of returns of brood year 2001 is 0.09%. Since all of these fish were B-run, which return predominantly as 2-ocean adults, this number will rise considerably in the next year.

Hagerman National Fish Hatchery

There were no adult steelhead recovered in 2004 from a total brood year 1999 release of 1,174,883 (Appendix D, Table 2). This was not unexpected, since the entire brood year 1999 release from Hagerman National Fish Hatchery consisted of A-strain stocks that generally return as either 1- or 2-ocean adults. The total SAR for brood year 1999 was 2.10%, making brood year 1999 the most productive year on record for Hagerman National Fish Hatchery in well over a decade.

A total of 347 2-ocean adult steelhead returned in 2004 from a brood year 2000 release of 1,229,288 (Appendix C, Table 2). However, this total release included 521,454 smolts that did not receive an adipose clip and were not available to the fishery. No estimate of total returns from these unclipped groups could be determined. Once the unclipped smolt numbers were removed from the total numbers, the SAR for brood year 2000 releases was 0.64%, which is not likely to be significantly increased by returns in 2005. This represents a large decrease in SAR from the previous brood year.

The first year of returns for brood year 2001 fish looked promising when compared to brood year 2000. A total of 5,673 adult steelhead were recovered from a release of 1,318,660 (Appendix B Table 2). However, this total included 398,078 smolts that did not receive an

adipose clip. Once these fish had been removed from the total, the first-year SAR for brood year 2001 was 0.62%, which is almost as large as the brood year 2000 SAR reported above. This number will probably rise appreciably when the 2-ocean returns arrive in 2005.

Magic Valley Fish Hatchery

Sixty-three adult 3-ocean steelhead were recovered from a total release of 2,050,039 brood year 1999 smolts (Appendix D, Table 3). However, this total included 265,858 smolts that did not receive an adipose clip and could not be correctly evaluated. Once the unclipped fish had been removed, the total SAR for brood year 1999 smolts was 1.31%. The SAR for the Dworshak B-stock steelhead was 0.29%, while the SARs for the Upper Salmon B, Sawtooth A, Pahsimeroi A, and Hells Canyon A-stock steelhead were 0.04%, 2.22%, 2.24%, and 2.93%, respectively.

A total of 3,962 adult 2-ocean steelhead from brood year 2000 contributed to the 2004 return (Appendix C Table 3). This gave an overall SAR for brood year 2000 of 1.21%. The different stocks included in this return had markedly different SARs, with the Dworshak B stock having an SAR of only 0.14%, while the Pahsimeroi A-stock had an SAR of 1.62%, and the Sawtooth A-stock had an SAR of 1.20%. The Upper Salmon B-stock had an SAR of 0.69%. This picture will probably change a little once the return from brood year 2000 is complete in 2005.

The first year of adult recoveries for brood year 2001 steelhead was 12,440, which gives an SAR of 0.65% overall, though this includes 3,800 unmarked East Fork Natural smolts (Appendix B, Table 3). The Dworshak B-stock smolts, which would not be expected to return as 1-ocean adults, had an SAR of only 0.01%, while the East Fork B-stock smolts had an SAR of 0.11%. The A-run stocks, which return predominantly as 1-ocean adults, had a combined SAR of 1.10%.

Experimentation

Squaw Pond— Both the early and the late groups that were PIT tagged as they left the pond showed greatly reduced survival compared to the group that was released directly into the creek (Table 1). In fact, these two groups had the lowest estimated survival to Lower Granite Dam of all groups of PIT-tagged steelhead released in 2004. The early release group (41.8%) also had a considerably higher survival than did the late release group (20.7%). The creek released fish had an estimated survival rate (67.5%) that was also lower than most of the other groups released in 2004, though it was still fairly high.

A precocity sample taken from among the early fish leaving the pond on April 26, 2004 showed zero precocial males out of a total of 100 males sampled. The sex ratio for the fish sampled at this time was 109 females (52.2%) to 100 males (47.8%).

Of the 100 males sampled for precocity among the fish remaining in the pond at the end of the study, 48 (48.0%) were found to have any precocial development, which is the highest rate ever observed at Squaw Pond. The sex ratio was also skewed towards males, with 68% of the sampled fish being male, while only 32% were female. However, the heads of all precocial males were collected in 2004, because all smolts in the pond were supposed to have been coded-wire tagged. When these heads were scanned, it was determined that a substantial portion of them was not tagged. Since the creek release in 2004 occurred in the ditch

immediately below Squaw Pond, it is very likely that the elevated precocity seen in the pond was due to precocial males from the creek release moving up into the pond. Because of this, the true precocity rate of the retained fish cannot be accurately determined.

Throughout the adult trapping season, 83 adult steelhead were recovered at the Squaw Creek Trap. Of these adults, only 26 (two natural-origin, 24 hatchery-origin) were large enough to meet the size criteria used for B-run fish. A complete breakdown of the origin, gender, and size criteria of fish trapped at the Squaw Creek Trap can be found in Table 13. All of the hatchery-origin, B-size, adults were transported to the East Fork Trap facility to be held for spawning.

Nineteen adult females were spawned at the East Fork Trap yielding 120,105 green eggs (Snider et al. 2005). There is a discrepancy between the size of fish recorded at trapping and the number of males reported to have been spawned by Snider et al. (2005). This discrepancy probably has to do with multiple measurements taken on the fish, and the true number of males used for spawning is almost certainly the five reported by Snider et al. (2005), though this does mean that three of the males were barely large enough to make the criteria for B-run. The relatively small number of B-size males recovered at the trap meant that most males had to be spawned multiple times, which probably depressed fertilization. Only 54,337 eyed eggs were produced, which gives an eye-up percentage of only 45.2% for brood year 2004.

The heavy weir that had first been used in 2002 was used again in 2004, though no high water was encountered during trapping. The entrance to the trap box was greatly improved during 2004, which remedied the problem of adult steelhead escaping the trap box that had been observed in 2003. The improvements to the trap included lengthening the throat of the trap, while including baffles both at the trap entrance and within the trap such that the steelhead would not get a direct look at the mouth opening once they had entered the trap. This appeared to be a highly effective solution, as there was no further evidence of adults escaping the trap box once the improvements were in place. Unfortunately, these improvements were not made until about halfway through the trapping season, and some steelhead probably escaped the trap before that time.

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Table 1. Survival estimate and 95% confidence interval to Lower Granite Dam for PIT tagged steelhead smolts during the 2004 migration period. All data was generated from the SURPH program using data obtained from the PTAGIS web site.

Coord. ID	Release Site	Number Rel.	Release Date	LGR % Survival	95% CI	Mean Travel Time (days)	95% CI
Clearwater Fish Hatchery							
<i>Dworshak B-stock</i>							
DTV	Red House Hole	297	4/21/04	85.2	2.6	9.6	6.6
DTV	Crooked R Ponds (Marked)	299	4/20/04	83.6	2.6	17.3	6.5
DTV	Crooked River Ponds (No Mark)	300	4/20/04	75.6	2.7	18.9	6.7
DTV	Lolo Creek	297	4/27/04	78.5	2.8	10.5	5.1
Hagerman National Fish Hatchery							
<i>Sawtooth A</i>							
DTV	Sawtooth Fish Hatchery	296	4/16/04	71.3	3.3	24.7	11.8
DTV	Yankee Fork	296	5/10/04	44.8	3.0	19.9	17.3
<i>Pahsimeroi A</i>							
DTV	Little Salmon River	300	3/29/04	85.7	4.4	36.8	11.8
<i>Dworshak B</i>							
DTV	East Fork Salmon River	275	5/7/04	55.1	3.1	16.2	4.8
DTV	Little Salmon River	283	4/9/04	79.3	3.7	31.1	9.6
Magic Valley Fish Hatchery							
<i>Pahsimeroi A</i>							
DTV	Lemhi R @ St. Charles Bridge (Production)	299	4/16/04	88.7	2.2	21.1	7.7
DTV	Lemhi R @ St Charles Bridge (Unmarked)	300	4/16/04	84.6	2.4	21.1	8.2
DTV	Salmon R @ Colston Corner	297	4/13/04	86.3	2.6	25.0	8.6
DTV	Salmon R @ Hammer Creek	300	4/9/04	86.3	3.4	24.9	11.0
DTV	Salmon R @ McNabb Point	300		82.8	2.5	20.0	6.6
DTV	Salmon R @ Red Rock	291	4/12/04	77.7	3.2	26.1	8.4
<i>Sawtooth A</i>							
DTV	Yankee Fork	299	4/29/04	64.8	2.9	17.0	12.1
DTV	Valley Creek	299	4/28/04	84.8	2.2	16.9	6.2
<i>Dworshak B</i>							
DTV	Little Salmon R	300	4/7/04	80.6	2.8	32.6	9.2
DTV	Squaw Creek	500	4/5/04	67.5	2.3	39.3	7.4
<i>Dworshak B / Upper Salmon B</i>							
PKL	Squaw Pond (early group)	901	4/26/04	41.8	1.7	20.1	7.0
PKL	Squaw Pond (late group)	899	5/11/04	20.7	1.4	14.9	6.5

Table 2. Snake River mean daily outflow and spill (thousand cubic feet per second) for the Lower Granite Dam forebay in Washington from 1977-2004 during the peak and extended Chinook salmon smolt migration periods (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
2002	76.1	76.2	28.3	26.5
2003	72.4	86.3	20.5	26.9
2004	51.7	69.4	7.4	4.3

Table 3. Estimated number of LSRCP hatchery steelhead that returned to Idaho in 2003-2004. The adult returns in 2003-2004 included fish from three age classes. Steelhead were reared at Clearwater, Hagerman National, and Magic Valley fish hatcheries. These estimates were prepared by the Idaho Department of Fish and Game Harvest Monitoring Project and only include steelhead harvested in Idaho's sport fisheries, steelhead that returned to hatchery racks, and in-river escapement. These are minimum estimates and do not include all tributary and mainstem strays or in-river prespawning mortalities.

Hatchery	Brood Year	3-Ocean	2-Ocean	1-Ocean
Clearwater	1999	103	—	—
Clearwater	2000	—	2,388	—
Clearwater	2001	—	—	291
Estimated Fish Returned in 2003-2004			2,782	
Hagerman	1999	0	—	—
Hagerman	2000	—	347	—
Hagerman	2001	—	—	5,673
Estimated Fish Returned in 2003-2004			6,020	
Magic Valley	1999	63	—	—
Magic Valley	2000	—	3,962	—
Magic Valley	2001	—	—	12,440
Estimated Fish Returned in 2003-2004			16,465	
GRAND TOTAL			25,267	

Table 4. Steelhead smolts released from Magic Valley, Hagerman National, and Clearwater fish hatcheries that contributed to the 2003-2004 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.

Brood Year	Fish Hatchery	Number Released	Design Target	Percent of Target	2000-01 Adult Returns
1999	Clearwater	735,266	2,000,000	36.8%	103
1999	Hagerman National	1,174,883	2,400,000	49.0%	0
1999	Magic Valley	2,050,039	2,000,000	102.5%	63
	Total	3,960,188	6,150,000	64.4%	166
2000	Clearwater	786,654	2,000,000	39.3%	2,388
2000	Hagerman National	1,229,288	2,400,000	51.2%	347
2000	Magic Valley	2,022,018	2,000,000	101.1%	3,962
	Total	4,037,960	6,150,000	65.7%	6,697
2001	Clearwater	639,028	2,000,000	32.0%	291
2001	Hagerman National	1,318,660	2,400,000	54.9%	5,673
2001	Magic Valley	1,905,719	2,000,000	95.3%	12,440
	Total	3,863,407	6,150,000	62.8%	18,404
Mean annual release as percent of target:				64.3%	
Total adult return:^a					25,267
Adult return goal:					39,260
Percent of goal achieved:					64.4%

^a Does not include tributary strays and in-river prespawning mortalities.

Table 5. Summary of the 2004 A-stock steelhead return to the Sawtooth Fish Hatchery weir including 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 et al. (2005).

HATCHERY ORIGIN n = 2,406										
Age ^a	Males n = 1,481					Females n = 925				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	1,424	ND	ND	0	ND	791	ND	ND	0	ND
2-ocean	57	ND	ND	0	ND	134	ND	ND	0	ND
Total	1,481	405 ^b	576	0	500 ^c	925	230 ^b	576	0	119 ^c

NATURAL ORIGIN n = 18										
Age ^a	Males n = 11					Females n = 7				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	10	10	0	0	0	3	3	0	0	0
2-ocean	1	1	0	0	0	4	4	0	0	0
Total	11	11 ^d	0	0	0	7	7 ^d	0	0	0

Total Number Trapped	2,424	Green Egg Number	2,639,117
Trapping Period	3/24 4/29/04	Eyed Egg Number	2,251,142 ^e (85.3% 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 Of these fish, thirty pairs (30 male, 30 female) were released in Beaver Creek and 200 pair (200 male, 200 female) were released into the Yankee Fork for Shoshone-Bannock Tribe, natural production. A total of 175 males were released downriver at Torrys Hole to enhance angling opportunity.

^c Fish were killed but not used for spawning. Of these, 165 were donated to charitable organizations, while the rest were given away to anglers on spawn days.

^d Fish were released above the weir.

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

Table 6. Summary of the 2004 steelhead return to the East Fork Salmon River weir. Hatchery aging criteria based on length were used to determine age^a. ND indicates that the data were not available. Data are from Snider et al. (2005).

HATCHERY ORIGIN n = 4										
Age ^a	Males n = 4					Females n = 0				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	4	ND	ND	0	4	0	0	0	0	0
2-ocean	0	ND	ND	0	0	0	0	0	0	0
Total	4	0	0	0	4 ^c	0	0	0	0	0

NATURAL ORIGIN n = 23										
Age ^a	Males n = 15					Females n = 8				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	15	5	10	0	0	3	ND	ND	0	0
2-ocean	0	0	0	0	0	5	ND	ND	0	0
Total	15	5 ^b	10	0	0	8	2 ^b	6	0	0

Total Number Trapped	27	Green Egg Number	26,405
Trapping Period	3/29 – 4/25/04	Eyed Egg Number	15,918 ^d (60.2% 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 Fish were released above the weir

^c Fish were killed but not used for spawning.

^d Eyed-eggs were shipped to Magic Valley Fish Hatchery for rearing.

Table 7. Summary of the 2004 B-stock steelhead return to the Crooked River weir. Hatchery aging criteria based on length were used to determine age^a. Data are from the unpublished Clearwater Fish Hatchery Run Report.

HATCHERY ORIGIN n = 23										
Age ^a	Males n = 21					Females n = 2				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	13	13	0	0	0	1	1	0	0	0
2-ocean	8	8	0	0	0	1	1	0	0	0
Total	21	21 ^b	0	0	0	2	2 ^b	0	0	0

NATURAL ORIGIN n = 15										
Age ^a	Males n = 13					Females n = 2				
	Trapped	Released	Spawned	Morts	Other	Trapped	Released	Spawned	Morts	Other
1-ocean	7	7	0	0	0	0	0	0	0	0
2-ocean	6	6	0	0	0	2	2	0	0	0
Total	13	13 ^c	0	0	0	2	2 ^c	0	0	0

Total Number Trapped	38	Green Egg Number	0
Trapping Period	3/18 – 6/1/04	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 Fish were released above the weir

^c Fish were killed but not used for spawning.

^d Eyed-eggs were shipped to Magic Valley Fish Hatchery for rearing.

Table 8. Summary of the 2004 B-stock steelhead return to the Red River weir. Hatchery aging criteria based on length were used to determine age^a. Data are from the unpublished Clearwater Fish Hatchery Run Report.

HATCHERY ORIGIN n = 0											
Age ^a	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 = 1											
Age ^a	Males n = 1					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	1	1	0	0	0	0	0	0	0	0	
Total	1	1 ^c	0	0	0	0	0	0	0	0	
Total Number Trapped			1	Green Egg Number			0				
Trapping Period			3/22 – 6/1/04	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 Fish were released above the weir.

Table 9. Annual steelhead releases from each of the Idaho LSRCP steelhead hatcheries since 1990.

Brood Year	Clearwater	Hagerman	Magic Valley	Total
1990	NA	2,402,873	2,062,000	4,464,873
1991	NA	1,448,155	2,160,400	3,608,555
1992	326,300	1,496,737	1,925,700	3,748,737
1993	722,990	1,525,963	1,919,250	4,168,203
1994	773,589	1,149,677	1,731,355	3,654,621
1995	778,610	1,322,849	1,868,085	3,969,544
1996	654,107	1,145,918	1,643,201	3,443,226
1997	702,286	1,032,407	1,658,825	3,393,518
1998	595,998	1,133,825	1,941,405	3,671,228
1999	735,266	1,174,882	2,050,039	3,960,187
2000	786,654	1,229,288	2,022,017	4,037,959
2001	575,071	1,318,660	1,905,719	3,799,450
2002	901,066	1,265,418	1,970,121	4,136,605
2003	1,073,405	1,324,376	1,796,406	4,194,187

Table 10. Running total of returns from each brood year produced by Idaho LSRCP steelhead hatcheries since brood year 1990.

Brood Year	Clearwater	Hagerman	Magic Valley	Total
1990	NA	5,356	7,460	12,816
1991	NA	1,900	2,354	4,254
1992	2	4,562	3,043	7,607
1993	278	4,155	4,313	8,746
1994	633	6,812	7,109	14,554
1995	1,332	5,683	5,633	12,648
1996	1,061	3,742	4,012	8,815
1997	1,481	9,277	5,669	16,427
1998	4,624	13,980	11,059	29,663
1999	6,895	24,695	23,294	54,884
2000 ^a	2,794	4,533	24,421	31,748
2001 ^b	291	5,673	12,440	19,310

^a This year only includes 1- and 2-ocean adult returns, and may be incomplete.

^b This year only includes 1-ocean returns and is definitely incomplete.

Table 11. Annual contribution to adult steelhead returns in Idaho of each of the Idaho LSRCP steelhead hatcheries since return year 1993.

Return Year	Clearwater	Hagerman	Magic Valley	Total
1993	0	6,005	5,589	11,594
1994	0	3,088	4,446	7,534
1995	0	3,327	3,551	6,878
1996	2	4,732	3,434	8,168
1997	510	6,103	5,880	12,493
1998	373	6,031	7,359	13,763
1999	1,385	4,045	3,888	9,318
2000	1,028	8,279	5,559	14,866
2001	1,394	13,012	8,249	22,655
2002	5,133	21,860	22,283	49,276
2003	6,787	10,337	26,169	43,293
2004	2,782	6,020	16,465	25,267

Table 12. Out-of-state recoveries of LSRCP steelhead reported to RMIS by January 2007 for recovery year 2004 broken down by release, age, and recovery type. Releases are combined into Idaho river sections, and only rows that had data were included in this table. C & S refers to tribal ceremonial and subsistence fisheries. For a map showing river sections, see Figure 1.

River Section (Release)	Recovery Type and Location								
	Deschutes River			Columbia River		Snake River	Ocean		Total
	C & S	Sport	Weirs	Sport	Tribal	Sport	Harvest	Other	
11									
Age 4	0	0	5	63	10	ND	0	0	78
16									
Age 3	0	0	0	14	52	ND	0	0	66
Age 4	0	0	0	3	7	ND	0	0	10
17									
Age 4	0	0	5	0	14	ND	0	0	19
18									
Age 3	0	0	0	54	51	ND	0	0	105
Age 4	0	0	0	0	9	ND	0	0	9
Age 5	0	0	0	0	18	ND	0	0	18
19									
Age 3	0	25	23	23	209	ND	0	0	280
Age 4	0	0	16	0	0	ND	0	0	16
20 B-Stock									
Age 4	0	0	2	12	20	ND	0	0	34
Age 5	0	0	0	0	30	ND	0	0	30
Clearwater									
Age 4	0	0	5	25	200	ND	0	0	230
Squaw Cr.									
Age 4	0	0	6	6	21	ND	0	0	33
Age 5	0	0	0	0	22	ND	0	0	22
TOTAL	0	25	62	200	663	ND	0	0	950

Table 13. Adult steelhead recovered at Squaw Creek Trap during the spring of 2003. The number is the total number in each category with the number of natural-origin fish in parenthesis.

Size Class^a	Male	Female	Total
B	2(0)	24(2)	26(2)
A	46(5)	11(4)	57(9)
Total	48(5)	35(6)	83(11)

^a All males 79 cm and greater and all females 75 cm and greater were considered to be B size adults. All steelhead below these cutoffs were considered to be A-strain. No attempt was made to separate 1-ocean B-strain from 1-ocean A-strain.

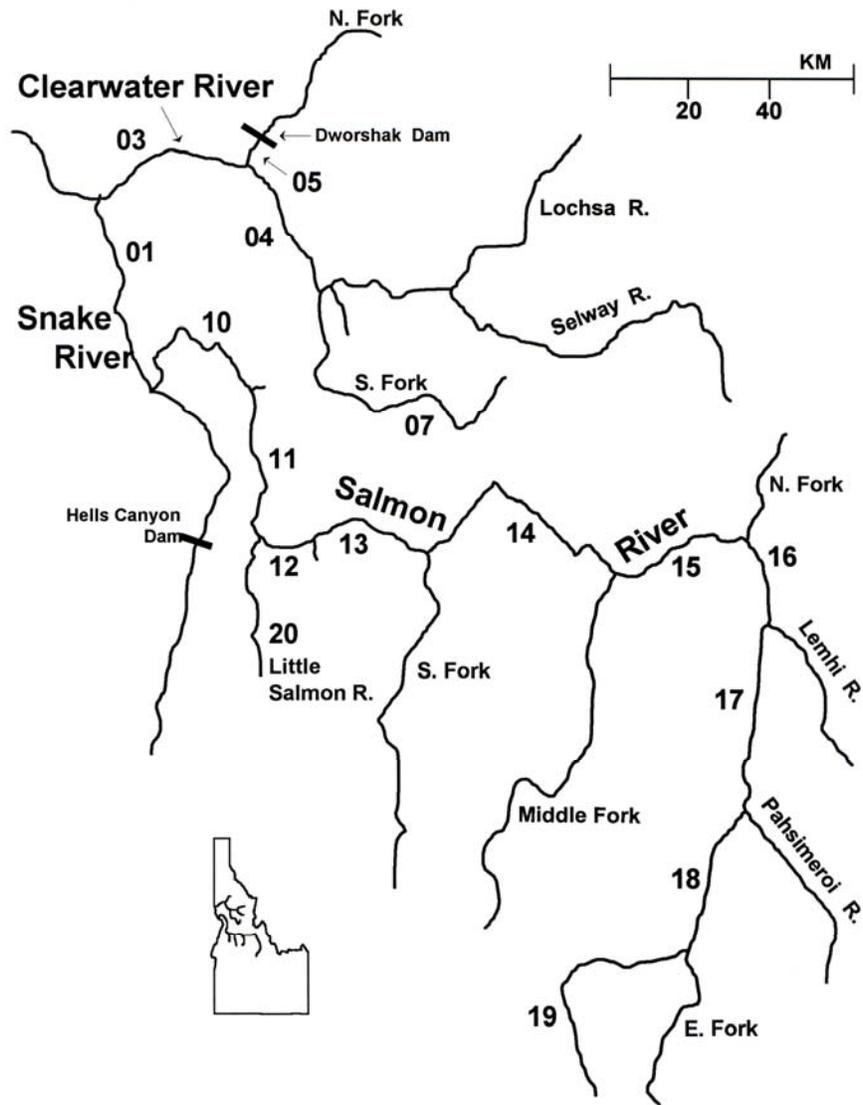


Figure 1. Map of river sections defined by Idaho Department of Fish and Game for all river sections that contain steelhead runs that are available to anglers.

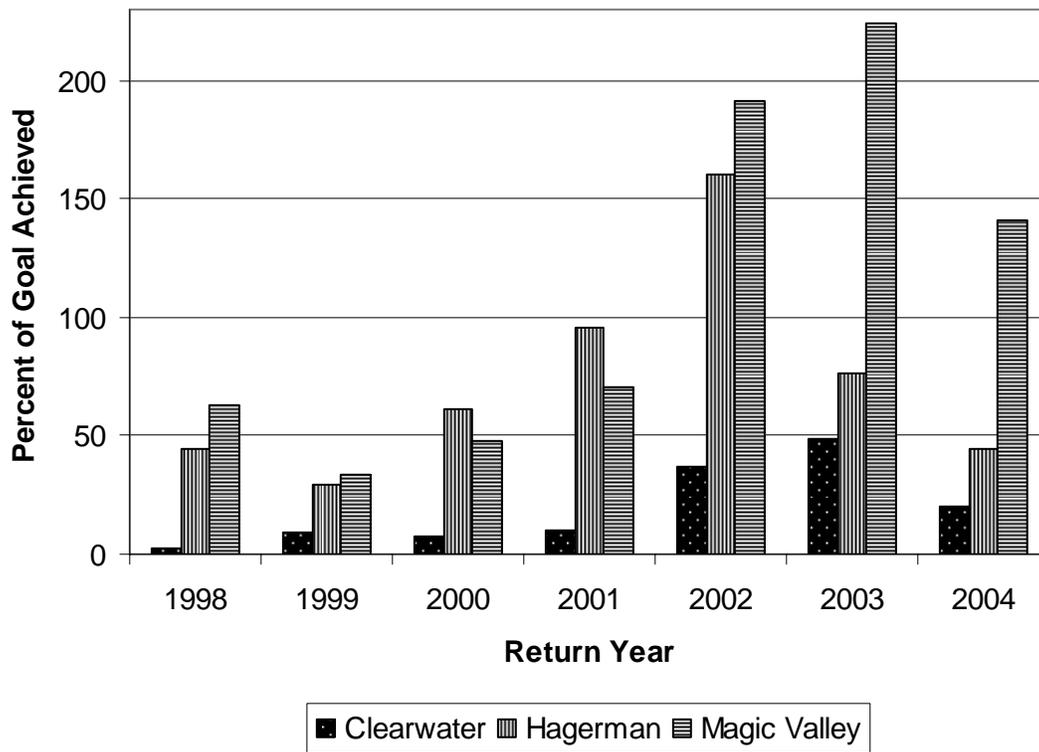


Figure 2. Percent of the adult steelhead return goal achieved by Clearwater, Hagerman National, and Magic Valley fish hatcheries between 1998 and 2004. Annual adult return goals for Clearwater, Hagerman National, and Magic Valley fish hatcheries were 14,000, 13,600, and 11,660, respectively.

APPENDICES

Appendix A. Table 1. Release data for all steelhead released from Clearwater Fish Hatchery during 2004. 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	Stock Name	Mark Type	CWT Code	Release Number	Marking Purpose
Crooked R: S Fk Clwtr 4/20 - 4/23/2004	DWOR B	CWT,NONE	107870	21,449	Supplementation
		NONE	Shed Tags	663	
		NONE,AD	Untagged	81,224	
		PIT		300	
Total:				103,336	
S Fk Clwtr@ Red House Hole 4/19 - 4/20/2004	DWOR B	CWT,AD,LV	103875	66,097	Production
		AD,LV	Shed Tags	2,045	
		AD	Untagged	246,821	
		PIT		297	
Total:				314,963	
Crooked R: S Fk Clwtr 4/20 - 4/23/2004	DWOR B	CWT,AD,LV	103775	65,120	Production
		AD,LV	Shed Tags	2,015	
		AD	Untagged	87,342	
		PIT		299	
Total:				154,477	
Lolo Cr 4/27 - 4/28/2004	DWOR B	NONE	Untagged	51,859	NPT Fall Agreement
		PIT		297	
		Total:		51,859	
S Fk Clwtr R@ Mill Cr 4/27 - 4/27/2004	DWOR B	Agency	Untagged	27,466	NPT Fall Agreement
		PIT		None	
		Total:		27,466	
Clear Cr: Clwtr R 4/21 - 4/21/2004	DWOR B	AD	Untagged	103,718	Production
		PIT		None	
		Total:		103,718	
S Fk Clwtr R@ Meadow Cr. 4/27 - 4/27/2004	DWOR B		Untagged	1,061	NPT Fall Agreement
		PIT		None	
		Total:		1,061	
Red River: S Fk Clwtr 4/16 - 4/28/2004	DWOR B	AD	Untagged	105,732	Production
		PIT		None	
		Total:		105,732	
Red River: S Fk Clwtr 4/16 - 4/28/2004	DWOR B	AD,NONE	Untagged	56,508	Supplementation Acclimated
		PIT		None	
		Total:		56,508	
Red River: S Fk Clwtr 4/16 - 4/28/2004	DWOR B	Elas, Agency	Untagged	53,851	Supplementation Acclimated Assessment
		PIT		None	
		Total:		53,851	

Appendix A. Table 1. Continued.

Release Site/Date	Stock Name	Mark Type	CWT Code	Release Number	Marking Purpose
Red River: S Fk Clwtr 4/26 - 4/26/2004	DWOR B	Elas, Agency PIT	Untagged	54,396 None	Supplementation Direct Assessment
		Total:		54,396	
Meadow Cr: Selway R 4/27 - 4/27/2004	DWOR B	Elas, Agency PIT	Untagged	25,961 None	NPT Fall Agreement
		Total:		25,961	
Total Release For Clearwater In 2004				1,053,328	

Appendix A. Table 2. Release data for all steelhead released from Hagerman National Fish Hatchery during 2004. 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	Stock Name	Mark Type	CWT Code	Release Number	Marking Purpose
Sawtooth Hatchery 4/16 - 5/6/2004	SAW A	CWT,AD	108570	21,610	Production
		CWT,AD	108670	21,013	
		CWT,AD	108770	21,592	
		CWT,AD	108870	21,441	
		AD	Untagged	671,064	Production
		PIT		296	
Total:				756,720	
E Fk Salmon R @ Dumpster 5/7 - 5/10/2004	DWOR B	AD	Untagged	96,073	Production
		PIT		275	
		Total:		96,073	
Lt Salmon R @ Stinky Springs 4/7 - 4/12/2004	DWOR B	AD	Untagged	100,494	Production
		PIT		283	
		Total:		100,494	
Hazard Cr: Lt Salmon R 4/7 - 4/7/2004	PAH A	NONE	Untagged	42,001	Unclipped
		PIT		None	
		Total:		42,001	
Lt Salmon R @ Stinky Springs 3/29 - 4/7/2004	PAH A	NONE	Untagged	177,094	Unclipped
		PIT		300	
		Total:		177,094	
Yankee Fk Dredge Ponds 5/11 - 5/13/2004	SAW A	NONE	Untagged	138,664	Shoshone- Bannock
		PIT		296	
		Total:		138,664	
Lemhi R: Salmon R 5/6 - 5/6/2004	SAW A	AD	Untagged	13,330	Production
		PIT		None	
		Total:		13,330	
Total Release For Hagerman NFH In 2004				1,324,376	

Appendix A. Table 3. Release data for all steelhead released from Magic Valley Fish Hatchery during 2004. 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	Stock Name	Mark Type	CWT Code	Release Number	Marking Purpose
Salmon R @ Red Rock 4/12 - 4/12/2004	PAH A	CWT,AD	100671	20,600	Production
		CWT,AD	100473	10,576	
		AD	Untagged	101,352	
		PIT		291	
		Total:		132,528	
Little Salmon R 4/6 - 4/7/2004	DWOR B	CWT,AD,LV	103575	66,580	Production
		AD,LV	Shed Tags	2,060	
		AD	Untagged	129,983	
		PIT		300	
		Total:		198,623	
Salmon R @ Colston Corner 4/13 - 4/14/2004	PAH A	CWT,AD	100571	20,581	Production
		CWT,AD	100373	10,569	
		AD	Untagged	91,765	
		PIT		297	
		Total:		122,915	
Squaw Cr Ponds 4/5 - 4/5/2004	DWOR B	CWT,AD	102275	31,761	Production
		CWT,AD	102375	31,134	
		AD	Shed Tags	1,945	Production
			Untagged	0	
		PIT		901	
Total:		64,840			
Pahsimeroi Hatchery 4/16 - 4/16/2004	PAH A	CWT,AD	102675	26,031	Production
		AD	Shed Tags	805	
			Untagged	0	
		PIT		None	
Total:		26,836			
Squaw Cr Ponds 4/6 - 4/6/2004	U SALMON B	CWT,AD	100171	20,353	Production
		CWT,AD	100271	18,298	
		CWT,AD	100371	17,974	
		AD	Shed Tags	1,752	Production
			Untagged	0	
PIT		899			
Total:		58,377			
Salmon R @ McNabb Point 4/16 - 4/19/2004	PAH A	CWT,AD	102575	32,299	Production
		AD	Untagged	50,499	Production
		PIT		None	
		Total:		82,798	

Appendix A. Table 3. Continued.

Release Site/Date	Stock Name	Mark Type	CWT Code	Release Number	Marking Purpose
Lemhi R @ St. Charles Bridge 4/15 - 4/16/2004	PAH A	CWT,AD	106873	28,235	Production
		AD	Shed Tags	873	
			Untagged	0	Production
		PIT		299	
		Total:		29,108	
E Fk Salmon R Trap 4/26 - 4/26/2004	EAST FK B	NONE	Untagged	31,638	Production
		PIT		None	
		Total:		31,638	
Valley Cr: U Salmon R 4/28 - 4/28/2004	SAW A	NONE	Untagged	24,156	Production
		PIT		299	
		Total:		24,156	
Lemhi R @ Hayden Cr 4/15 - 4/15/2004	PAH A	NONE	Untagged	18,600	Production
		PIT		None	
		Total:		18,600	
E Fk Salmon R Trap 4/26 - 4/26/2004	DWOR B	NONE	Untagged	11,315	Production
		PIT		None	
		Total:		11,315	
Squaw Cr 4/21 - 4/23/2004	DWOR B	AD	Untagged	19,200	Production
		PIT		500	
		Total:		19,200	
E Fk Salmon R @ Dumpster 4/21 - 4/23/2004	DWOR B	AD	Untagged	196,402	Production
		PIT		None	
		Total:		196,402	
Salmon R @ McNabb Point 4/16 - 4/19/2004	SAW A	AD	Untagged	44,942	Production
		PIT		300	
		Total:		44,942	
Hammer Cr: Salmon R 4/8 - 4/9/2004	PAH A	AD	Untagged	178,984	Production
		PIT		300	
		Total:		178,984	
Lemhi R: Salmon R 4/14 - 4/14/2004	PAH A	AD	Untagged	70,780	Production
		PIT		None	
		Total:		70,780	
Salmon R @ Tunnel Rock 4/19 - 4/20/2004	SAW A	AD	Untagged	57,800	Production
		PIT		None	
		Total:		57,800	
Yankee Fk @ 3rd Brdg Up 4/26 - 4/29/2004	SAW A	NONE	Untagged	25,800	Shoshone
		PIT		None	Bannock
		Total:		25,800	
Yankee Fk @ 3rd Brdg Up 4/26 - 4/29/2004	SAW A	CWT,AD	102475	32,809	Production
		AD	Untagged	6,015	
		PIT		299	
		Total:		38,824	

Appendix A. Table 3. Continued.

Release Site/Date	Stock Name	Mark Type	CWT Code	Release Number	Marking Purpose
Lemhi R @ St. Charles Brg 4/15 - 4/16/2004	PAH A	NONE PIT Total:	Untagged	59,146 300 59,146	Low Water Decision
Yankee Fk @ 3rd Brdg Up 4/26 - 4/29/2004	DWOR B	AD PIT Total:	Untagged	123,258 None 123,258	Production
Squaw Cr 4/20 - 4/21/2004	DWOR B	AD PIT Total:	Untagged	149,588 None 149,588	Squaw Creek Release
Squaw Cr 4/20 - 4/21/2004	DWOR B	RV,AD PIT Total:	Untagged	29,948 None 29,948	RV Evaluation
Total Release For Magic Valley In 2004				1,796,406	

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

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 Clwtr @ Ahsahka Ramp 9/30/2002	2002	DWOR B	Untagged	63,957	AD	Surplus Production	1	24	37	61	0.10
							2	ND	ND	ND	
							3	ND	ND	ND	
						Totals:			63,957		
S Fk Clwtr R@ Meadow Cr. 4/29/2002	2001	DWOR B	Untagged	26,460	NONE	NPT Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
						Totals:			26,460		
Clear Cr: Clwtr R 4/19/2002	2001	DWOR B	Untagged	40,499	AD	LSRCP Production	1	0	23	23	0.06
							2	ND	ND	ND	
							3	ND	ND	ND	
						Totals:			40,499		
Crooked R Ponds 4/29/2002	2001	DWOR B	106570	9,403	AD,LV	LSRCP Production	1	0	5	5	0.05
							2	ND	ND	ND	
							3	ND	ND	ND	
						Crooked R Ponds 4/29/2002	2001	DWOR B	106370	12,573	
2	ND	ND	ND								
3	ND	ND	ND								
Crooked R Ponds 4/29/2002	2001	DWOR B	Untagged	11,914	AD						LSRCP Production
						2	ND	ND	ND		
						3	ND	ND	ND		
						Totals:			33,890		25
Red River: S Fk Clwtr 4/25/2002	2001	DWOR B	Untagged	31,306	AD	LSRCP Production	1	12	18	30	0.10
							2	ND	ND	ND	
							3	ND	ND	ND	
						Totals:			31,306		
Red River: S Fk Clwtr 4/25/2002	2001	DWOR B	Untagged	150,010	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
						Totals:			150,010		
S Fk Clwtr@ Red House Hole 4/19/2002	2001	DWOR B	104812	22,629	AD,LV	LSRCP Production	1	16	13	29	0.13
							2	ND	ND	ND	
							3	ND	ND	ND	
						S Fk Clwtr@ Red House Hole 4/19/2002	2001	DWOR B	104811	22,326	
2	ND	ND	ND								
3	ND	ND	ND								
S Fk Clwtr@ Red House Hole 4/19/2002	2001	DWOR B	104810	21,104	AD,LV						LSRCP Production
						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 4/19/2002	2001	DWOR B	Untagged	72,710	AD	LSRCP Production	1	28	42	70	0.10	
							2	ND	ND	ND		
							3	ND	ND	ND		
Totals:				138,769				53	80	133		
Lolo Cr 4/29/2002	2001	DWOR B	Untagged	18,000	NONE	NPT Supplementation	1	ND	ND	ND		
							2	ND	ND	ND		
							3	ND	ND	ND		
Totals:				18,000				ND	ND	ND		
S Fk Clwtr R@ Mill Cr 4/29/2002	2001	DWOR B	Untagged	34,000	NONE	NPT Supplementation	1	ND	ND	ND		
							2	ND	ND	ND		
							3	ND	ND	ND		
Totals:				34,000				ND	ND	ND		
Crooked R Ponds 4/29/2002	2001	DWOR B	Untagged	19,918	BWT	Supplementation Blank Wire	1	ND	ND	ND		
							2	ND	ND	ND		
							3	ND	ND	ND		
Totals:				19,918				ND	ND	ND		
Crooked R Ponds 4/29/2002	2001	DWOR B	Untagged	82,219	NONE	Supplementation	1	ND	ND	ND		
							2	ND	ND	ND		
							3	ND	ND	ND		
Totals:				82,219				ND	ND	ND		
Total 1-Ocean:							291					
Total 2-Ocean:							ND					
Total 3-Ocean:							ND					
Total Harvest Recoveries:							114					
Total Hatchery Recoveries:							177					
Total Releases:							639,028					
Total Recoveries:							291					

Appendix B. Table 2. Release and recovery data for brood year 2001 steelhead released from Hagerman National Fish Hatchery. Only 1-ocean recoveries are available at this time. Data are 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 are from Hansen (In Press).

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Yankee Fk Dredge Ponds 5/2-5/6/2002	2001	SAW A	Untagged	139,445	AD	Production	1	359	290	649	0.47
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				139,445				359	290	649	0.47
Newsome Cr: S Fk Clwtr R 5/10-5/15/2002	2001	DWOR B	Untagged	85,722	NONE	NPT Agreement	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				85,722				ND	ND	ND	
American R: S Fk Clwtr R 4/30-5/8/2002	2001	DWOR B	Untagged	94,232	NONE	NPT Agreement	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				94,232				ND	ND	ND	
Lt Salmon R @ Hwy 95 Bridge 4/1-4/15/2002	2001	PAH A	Untagged	218,124	NONE	Production	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				218,124				ND	ND	ND	
Sawtooth Hatchery 4/3-4/29/2002	2001	SAW A	100772	43,087	AD,LV	Production	1	155	71	226	0.52
							2	ND	ND	ND	
							3	ND	ND	ND	
Sawtooth Hatchery 4/3-4/29/2002	2001	SAW A	Untagged	738,050	AD	Production	1	2,655	2,143	4,798	0.65
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				781,137				2,810	2,214	5,024	0.64
Total 1-Ocean:							5,673				
Total 2-Ocean:							ND				
Total 3-Ocean:							ND				
Total Harvest Recoveries:							3,169				
Total Hatchery Recoveries:							2,504				
Total Releases:							1,318,660				
Total Recoveries:							5,673				

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

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 @ Challis 4/24/2002	2001	SAW A	106770	21,504	AD, LV	Production	1	37	156	193	0.90
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Challis 4/24/2002	2001	SAW A	101172	10,943	AD, LV	Production	1	16	79	95	0.87
							2	ND	ND	ND	
							3	ND	ND	ND	
Salmon R @ Challis 4/24/2002	2001	SAW A	Untagged	25,153	AD	Production	1	41	182	223	0.89
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				57,600				94	417	511	0.89
Lemhi R @ St. Charles Bridge 5/3-5/7/2002	2001	PAH A	106870	21,328	AD, LV	Production	1	113	154	267	1.25
							2	ND	ND	ND	
							3	ND	ND	ND	
Lemhi R @ St. Charles Bridge 5/3-5/7/2002	2001	PAH A	101272	10,833	AD, LV	Production	1	56	78	134	1.24
							2	ND	ND	ND	
							3	ND	ND	ND	
Lemhi R @ St. Charles Bridge 5/3-5/7/2002	2001	PAH A	Untagged	118,915	AD	Production	1	625	861	1,486	1.25
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				151,076				794	1,093	1,887	1.25
Lemhi R @ St. Charles Bridge 5/6-5/7/2002	2001	PAH A	Untagged	72,442	AD	Production	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				72,442				ND	ND	ND	
Squaw Cr 4/24-4/25/2002	2001	UPPER SALMON B	106670	20,439	AD	Production Squaw Creek	1	26	1	27	0.13
							2	ND	ND	ND	
							3	ND	ND	ND	
Squaw Cr 4/24-4/25/2002	2001	UPPER SALMON B	101072	9,893	AD	Production Squaw Creek	1	7	1	8	0.08
							2	ND	ND	ND	
							3	ND	ND	ND	
Squaw Cr 4/24-4/25/2002	2001	UPPER SALMON B	Untagged	29,024	AD	Production Squaw Creek	1	32	1	33	0.11
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				59,356				65	3	68	0.11
Squaw Cr Ponds 4/8/2002	2001	DWOR B	Untagged	96,440	AD	Squaw Pond Study	1	0	1	1	0.00
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				96,440				0	1	1	0.00

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 (%)			
Hayden Cr Hatchery 5/3/2002	2001	PAH A	Untagged	37,500	AD	Production	1	197	272	469	1.25			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	37,500		197		272	469	1.25
Yankee Fk Dredge Ponds 5/2/2002	2001	SAW A	Untagged	99,738	AD	Production	1	359	290	649	0.65			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	99,738		359		290	649	0.65
Salmon R @ Eyehole 4/22/2002	2001	SAW A	Untagged	41,350	AD	Production	1	68	300	368	0.89			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	41,350		68		300	368	0.89
Salmon R @ Cottonwood Cg 4/22/2002	2001	SAW A	Untagged	62,048	AD	Production	1	101	449	550	0.89			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	62,048		101		449	550	0.89
Salmon R @ McNabb Point 4/23/2002	2001	SAW A	Untagged	70,590	AD	Production	1	115	511	626	0.89			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	70,590		115		511	626	0.89
Lt Salmon R @ Stinky Springs 4/12/2002	2001	PAH A	Untagged	54,000	AD	Production	1	270	391	661	1.22			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	54,000		270		391	661	1.22
Salmon R @ Colston Corner 4/12/2002	2001	PAH A	Untagged	39,005	AD	Production	1	195	283	478	1.23			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	39,005		195		283	478	1.23
Salmon R @ Wagonhammer 4/15/2002	2001	PAH A	Untagged	49,194	AD	Production	1	259	356	615	1.25			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	49,194		259		356	615	1.25
Salmon R @ Shoup Brdg 4/18/2002	2001	PAH A	Untagged	63,000	AD	Production	1	331	456	787	1.25			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	63,000		331		456	787	1.25
Salmon R 4/18-4/19/2002							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	84,608		445		613	1,058	1.25
Salmon R @ Lewis_Clark 4/15/2002	2001	PAH A	Untagged	43,415	AD	Production	1	228	314	542	1.25			
							2	ND	ND	ND				
							3	ND	ND	ND				
							Totals:	43,415		228		314	542	1.25

Appendix B. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Salmon R @ Red Rock 4/19/2002	2001	PAH A	Untagged	34,085	AD	Production	1	179	247	426	1.25
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				34,085				179	247	426	1.25
Salmon R @ Red Rock 4/19/2002	2001	SAW A	Untagged	7,353	AD	Production	1	12	53	65	0.88
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				7,353				12	53	65	0.88
Salmon R @ Tunnel Rock 4/23/2002	2001	SAW A	Untagged	49,800	AD	Production	1	81	361	442	0.89
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				49,800				81	361	442	0.89
E Fk Salmon R Trap 5/1/2002	2001	EAST FORK NATURAL	Untagged	3,800	NONE	E Fk Natural Program	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				3,800				ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/8-4/9/2002	2001	DWOR B	Untagged	105,167	AD	Production	1	0	0	0	0.00
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				105,167				0	0	0	
E Fk Salmon R @ Dumpster 4/29-5/1/2002	2001	DWOR B	Untagged	214,252	AD	Production	1	14	3	17	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				214,252				14	3	17	0.01
Salmon R @ Hammer Creek 4/10-4/11/2002	2001	PAH A	Untagged	179,722	AD	Production	1	899	1,302	2,201	1.22
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				179,722				899	1,302	2,201	1.22
Squaw Cr 4/25-5/1/2002	2001	DWOR B	109371	31,518	AD,LV	Production / Squaw Cr	1	2	1	3	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
Squaw Cr 4/25-5/1/2002	2001	DWOR B	Untagged	198,660	AD	Production / Squaw Cr	1	13	3	16	0.01
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				230,178				15	4	19	0.01
Total 1-Ocean:							12,440				
Total 2-Ocean:							ND				
Total 3-Ocean:							ND				
Total Harvest Recoveries:							4,721				
Total Hatchery Recoveries:							7,719				
Total Releases:							1,905,719				
Total Recoveries:							12,440				

Appendix C. Table 1. Release and recovery data for brood year 2000 steelhead released from Clearwater Fish Hatchery. Only 1- and 2-ocean recoveries are available at this time. Data are 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 are from Hansen (In Press).

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
S Fk Clwtr R@ Meadow Cr. 4/13/2001	2000	DWOR B	Untagged	23,459	NONE	Supplementation Late Eggs	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				23,459				ND	ND	ND	
S Fk Clwtr R@ Mill Cr 4/12/2001	2000	DWOR B	Untagged	24,549	NONE	Supplementation Late Eggs	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				24,549				ND	ND	ND	
Lolo Cr 4/16/2001	2000	DWOR B	Untagged	48,523	NONE	Supplementation Late Eggs	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				48,523				ND	ND	ND	
Clear Cr: Clwtr R 4/26/2001	2000	DWOR B	104802	21,439	AD,LV	Production	1	0	2	2	0.51
							2	79	28	107	
							3	ND	ND	ND	
Clear Cr: Clwtr R 4/26/2001	2000	DWOR B	Untagged	76,101	AD	Production	1	0	7	7	0.51
							2	280	99	379	
							3	ND	ND	ND	
Totals:				97,540			359	136	495	0.51	
S Fk Clwtr@ Red House Hole 4/19/2001	2000	DWOR B	104826	20,736	AD,LV	production	1	8	10	18	0.80
							2	90	58	148	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/19/2001	2000	DWOR B	104827	22,076	AD,LV	production	1	0	11	11	0.72
							2	88	61	149	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/19/2001	2000	DWOR B	104828	20,914	AD,LV	production	1	65	10	75	0.88
							2	51	58	109	
							3	ND	ND	ND	
S Fk Clwtr@ Red House Hole 4/19/2001	2000	DWOR B	Untagged	34,040	AD	production	1	39	17	56	0.80
							2	122	94	216	
							3	ND	ND	ND	
Totals:				97,766			463	319	782	0.80	
Red River: S Fk Clwtr 4/20/2001	2000	DWOR B	Untagged	23,220	NONE	Supplementation Late Eggs	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				23,220				ND	ND	ND	

Appendix C. Table 1. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Red River: S Fk Clwtr 4/26/2001	2000	DWOR B	Untagged	126,126	NONE	Supplementation Late Eggs	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				126,126				ND	ND	ND	
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B (No. PIT Tags: 300)	Untagged	96,632	BWT,NO NE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				96,632				ND	ND	ND	
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B	104825	21,977	AD,LV	Production	1	0	11	11	0.37
							2	10	61	71	
							3	ND	ND	ND	
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B	104823	22,679	AD,LV	Production	1	0	11	11	0.41
							2	20	63	83	
							3	ND	ND	ND	
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B	104824	22,011	AD,LV	Production	1	0	11	11	0.63
							2	67	61	128	
							3	ND	ND	ND	
Crooked R: S Fk Clwtr 4/26/2001	2000	DWOR B	Untagged	82,248	AD	Production	1	0	41	41	0.75
							2	228	348	576	
							3	ND	ND	ND	
Totals:				148,915				325	607	932	0.63
Red River: S Fk Clwtr 4/26/2001	2000	DWOR B	Untagged	99,924	AD	Production	1	114	49	163	0.59
							2	145	277	422	
							3	ND	ND	ND	
Totals:				99,924				259	326	585	0.59
Total 1-Ocean:							406				
Total 2-Ocean:							2,388				
Total 3-Ocean:							ND				
Total Harvest Recoveries:							1,406				
Total Hatchery Recoveries:							1,388				
Total Releases:							786,654				
Total Recoveries:							2,794				

Appendix C. Table 2. Release and recovery data for brood year 2000 steelhead released from Hagerman National Fish Hatchery. Only 1- and 2-ocean recoveries are available at this time. Data are 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 are from Hansen (In Press).

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Newsome Cr: S Fk Clwtr R 5/2-5/7/2001	2000	DWOR B	Untagged	86,441	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				86,441				ND	ND	ND	
American R: S Fk Clwtr R 4/27-5/2/2001	2000	DWOR B	Untagged	90,188	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				90,188				ND	ND	ND	
Hazard Cr: Lt Salmon R 4/6-4/9/2001	2000	PAH A	Untagged	50,557	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				50,557				ND	ND	ND	
Sawtooth Hatchery 4/11-4/24/2001	2000	SAW A	104806	20,278	AD,LV	Acclimated Production	1	202	15	217	1.12
							2	9	2	11	
							3	ND	ND	ND	
Sawtooth Hatchery 4/11-4/24/2001	2000	SAW A	104803	20,236	AD,LV	Acclimated Production	1	15	22	37	0.22
							2	4	4	8	
							3	ND	ND	ND	
Sawtooth Hatchery 4/11-4/24/2001	2000	SAW A	104805	18,445	AD,LV	Acclimated Production	1	0	3	3	0.02
							2	0	0	0	
							3	ND	ND	ND	
Sawtooth Hatchery 4/11-4/24/2001	2000	SAW A	Untagged	512,185	AD	Acclimated Production	1	1,885	1,216	3,101	0.66
							2	113	146	259	
							3	ND	ND	ND	
Totals:				571,144			2,228	1,408	3,636	0.64	
Sawtooth Hatchery 3/30-4/26/2001	2000	SAW A	Untagged	136,690	AD	Production Direct Release	1	503	325	828	0.66
							2	30	39	69	
							3	ND	ND	ND	
Totals:				136,690			533	364	897	0.66	
Total 1-Ocean:						4,186					
Total 2-Ocean:						347					
Total 3-Ocean:						ND					
Total Harvest Recoveries:						2,761					
Total Hatchery Recoveries:						1,772					
Total Releases:						1,229,288					
Total Recoveries:						4,533					

Appendix C. Table 3. Release and recovery data for brood year 2000 steelhead released from Magic Valley Fish Hatchery. Only 1- and 2-ocean recoveries are available at this time. Data are 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 are from Hansen (In Press).

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 4/26-4/27/2001	2000	SAW A	Untagged	84,389	AD	Production	1	380	427	807	1.35
							2	283	50	333	
							3	ND	ND	ND	
							Totals:	84,389		663	477
Salmon R @ Wagonhammer 4/26/2001	2000	SAW A	Untagged	67,950	AD	Production	1	408	344	752	1.29
							2	85	40	125	
							3	ND	ND	ND	
							Totals:	67,950		493	384
Salmon R @ Cottonwood Cg 4/25/2001	2000	SAW A	Untagged	77,790	AD	Production	1	350	394	744	1.35
							2	260	46	306	
							3	ND	ND	ND	
							Totals:	77,790		610	440
Salmon R @ Colston Corner 4/18/2001	2000	PAH A	Untagged	50,300	AD	Production	1	156	255	411	0.98
							2	53	30	83	
							3	ND	ND	ND	
							Totals:	50,300		209	285
Salmon R @ Challis 4/24/2001	2000	SAW A	Untagged	41,850	AD	Production	1	188	212	400	1.35
							2	140	25	165	
							3	ND	ND	ND	
							Totals:	41,850		328	237
Salmon R @ Lewis_Clark 4/23-4/24/2001	2000	SAW A	Untagged	76,182	AD	Production	1	458	386	844	1.29
							2	96	45	141	
							3	ND	ND	ND	
							Totals:	76,182		554	431
Sawtooth Hatchery 4/18/2001	2000	DWOR B	Untagged	1,145	AD	Squaw Pond Reference Group	1	0	0	0	0.09
							2	1	0	1	
							3	ND	ND	ND	
							Totals:	1,145		1	0
Hayden Cr @ Basin Cr 5/4/2001	2000	PAH A	Untagged	39,819	AD	Supplementation	1	239	202	441	1.19
							2	8	23	31	
							3	ND	ND	ND	
							Totals:	39,819		247	225
Hayden Cr Hatchery 5/4/2001	2000	PAH A	Untagged	40,044	AD	Production	1	241	203	444	1.19
							2	8	24	32	
							3	ND	ND	ND	
							Totals:	40,044		249	227

Appendix C. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Lemhi R @ Hayden Cr 5/7/2001	2000	PAH A	Untagged	34,052	AD	Supplementation	1	205	172	377	1.19
							2	7	20	27	
							3	ND	ND	ND	
Totals:				34,052				212	192	404	1.19
Salmon R @ Eyehole 4/23/2001	2000	SAW A	Untagged	45,270	AD	Production	1	140	229	369	0.98
							2	48	27	75	
							3	ND	ND	ND	
Totals:				45,270				188	256	444	0.98
Salmon R @ Hammer Creek 4/16-4/18/2001	2000	PAH A	105470	20,080	AD,LV	Production	1	201	102	303	1.62
							2	11	12	23	
							3	ND	ND	ND	
Salmon R @ Hammer Creek 4/16-4/18/2001	2000	PAH A	105670	21,969	AD,LV	Production	1	151	111	262	1.45
							2	43	13	56	
							3	ND	ND	ND	
Salmon R @ Hammer Creek 4/16-4/18/2001	2000	PAH A	105570	22,239	AD,LV	Production	1	101	113	214	1.30
							2	63	13	76	
							3	ND	ND	ND	
Salmon R @ Hammer Creek 4/16-4/18/2001	2000	PAH A	Untagged	111,098	AD	Production	1	783	563	1,346	1.45
							2	202	65	267	
							3	ND	ND	ND	
Totals:				175,386				1,555	992	2,547	1.45
Lt Salmon R @ Stinky Springs 4/9-4/16/2001	2000	DWOR B	105170	21,671	AD,LV	Production	1	0	10	10	0.23
							2	39	0	39	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/9-4/16/2001	2000	DWOR B	105370	13,350	AD,LV	Production	1	52	6	58	0.58
							2	20	0	20	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/9-4/16/2001	2000	DWOR B	105270	21,575	AD,LV	Production	1	17	10	27	0.32
							2	41	0	41	
							3	ND	ND	ND	
Lt Salmon R @ Stinky Springs 4/9-4/16/2001	2000	DWOR B	Untagged	1,750	AD,LV	Production	1	2	1	3	0.34
							2	3	0	3	
							3	ND	ND	ND	
Totals:				58,346				174	27	201	0.34
Salmon R @ Tunnel Rock 4/24-4/25/2001	2000	SAW A	104819	21,061	AD,LV	Production	1	48	107	155	1.68
							2	187	12	199	
							3	ND	ND	ND	
Salmon R @ Tunnel Rock 4/24-4/25/2001	2000	SAW A	104818	21,486	AD,LV	Production	1	205	109	314	1.62
							2	20	13	33	
							3	ND	ND	ND	
Salmon R @ Tunnel Rock 4/24-4/25/2001	2000	SAW A	104820	20,775	AD,LV	Production	1	32	105	137	0.74
							2	5	12	17	
							3	ND	ND	ND	
Salmon R @ Tunnel Rock 4/24-4/25/2001	2000	SAW A	Untagged	1,958	AD,LV	Production	1	9	10	19	1.38
							2	7	1	8	
							3	ND	ND	ND	
Totals:				65,280				513	369	882	1.35

Appendix C. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Lemhi R @ L6 Site 5/7/2001	2000	SAW A	105870	22,243	AD,LV	Production	1	293	113	406	1.89
							2	2	13	15	
							3	ND	ND	ND	
Lemhi R @ L6 Site 5/7/2001	2000	SAW A	105970	21,488	AD,LV	Production	1	32	109	141	0.76
							2	9	13	22	
							3	ND	ND	ND	
Lemhi R @ L6 Site 5/7/2001	2000	SAW A	105770	21,744	AD,LV	Production	1	48	110	158	0.80
							2	2	13	15	
							3	ND	ND	ND	
Lemhi R @ L6 Site 5/7/2001	2000	SAW A	Untagged	2,025	AD,LV	Production	1	12	10	22	1.09
							2	0	1	1	
							3	ND	ND	ND	
Totals:				67,500				398	382	780	1.15
Salmon R @ Red Rock 4/19/2001	2000	SAW A	106270	21,222	AD,LV	Production	1	230	107	337	1.77
							2	27	12	39	
							3	ND	ND	ND	
Red Rock 4/19/2001							2	40	13	53	
							3	ND	ND	ND	
Salmon R @ Red Rock 4/19/2001	2000	SAW A	106170	21,856	AD,LV	Production	1	69	111	180	0.95
							2	15	13	28	
							3	ND	ND	ND	
Salmon R @ Red Rock 4/19/2001	2000	SAW A	Untagged	2,022	AD,LV	Production	1	12	10	22	1.29
							2	3	1	4	
							3	ND	ND	ND	
Totals:				67,410				490	380	870	1.29
Squaw Cr 4/27-5/2/2001	2000	UPPER SALMON B	104816	17,551	AD	Production	1	70	8	78	0.68
							2	36	5	41	
							3	ND	ND	ND	
Squaw Cr 4/27-5/2/2001	2000	UPPER SALMON B	104815	19,332	AD	Production	1	112	9	121	0.70
							2	10	5	15	
							3	ND	ND	ND	
Squaw Cr 4/27-5/2/2001	2000	UPPER SALMON B	Untagged	1,141	AD	Production	1	6	1	7	0.70
							2	1	0	1	
							3	ND	ND	ND	
Totals:				38,024				235	28	263	0.69
Squaw Cr 4/27-5/2/2001	2000	DWOR B	104822	17,811	AD,LV	Production	1	0	0	0	0.03
							2	5	0	5	
							3	ND	ND	ND	
Squaw Cr 4/27-5/2/2001	2000	DWOR B	104821	18,729	AD,LV	Production	1	12	0	12	0.14
							2	15	0	15	
							3	ND	ND	ND	
Squaw Cr 4/27-5/2/2001	2000	DWOR B	Untagged	85,733	BWT,AD	Production	1	23	0	23	0.08
							2	47	2	49	
							3	ND	ND	ND	
Totals:				122,273				102	2	104	0.03
Salmon R @ Shoup Brdg 4/19-4/24/2001	2000	SAW A	104835	32,006	AD,LV	Production	1	99	162	261	0.67
							2	34	19	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 @ Shoup Brdg 4/19-4/24/2001	2000	SAW A	Untagged	28,986	AD	Production	1	90	147	237	0.64
							2	31	17	48	
							3	ND	ND	ND	
							Totals:	60,992	254	345	
Lemhi R: Salmon R 4/17-4/19/2001	2000	SAW A	104836	31,626	AD,LV	Production	1	190	160	350	1.32
							2	47	19	66	
							3	ND	ND	ND	
							Totals:	100,374	690	669	
Lemhi R: Salmon R 4/17-4/19/2001	2000	SAW A	Untagged	68,748	AD	Production	1	413	348	761	1.37
							2	40	142	182	
							3	ND	ND	ND	
							Totals:	100,374	690	669	
Lemhi R @ County Scale 5/3-5/4/2001	2000	PAH A	Untagged	20,448	AD	Supplementation	1	123	104	227	1.19
							2	4	12	16	
							3	ND	ND	ND	
							Totals:	20,448	127	116	
Squaw Cr Ponds 4/9-4/10/2001	2000	DWOR B	Untagged	75,912	AD	Production	1	20	0	20	0.08
							2	42	2	44	
							3	ND	ND	ND	
							Totals:	75,912	62	2	
Lemhi R @ L6 Site 5/7/2001	2000	PAH A	Untagged	1,269	AD	Supplementation	1	7	6	13	1.10
							2	0	1	1	
							3	ND	ND	ND	
							Totals:	1,269	7	7	
E Fk Salmon R @ Dumpster 4/27/2001	2000	DWOR B	Untagged	51,810	AD	Production	1	14	2	16	0.11
							2	28	14	42	
							3	ND	ND	ND	
							Totals:	51,810	42	16	
Lt Salmon R @ Stinky Springs 4/9-4/16/2001	2000	PAH A	Untagged	430,210	AD	Production	1	5,413	2,179	7,592	2.00
							2	783	253	1,036	
							3	ND	ND	ND	
							Totals:	430,210	6,196	2,432	
Yankee Fk @ 3rd Brdg Up 5/2-5/3/2001	2000	SAW A	Untagged	98,623	AD	Production	1	363	234	597	0.66
							2	22	28	50	
							3	ND	ND	ND	
							Totals:	98,623	385	262	
Lemhi R @ County Scale 5/3-5/4/2001	2000	SAW A	Untagged	21,206	AD	Supplementation	1	127	107	234	1.18
							2	4	12	16	
							3	ND	ND	ND	
							Totals:	21,206	131	119	
Squaw Cr 4/27-5/2/2001	2000	DWOR B	Untagged	8,164	BWT,AD	Precocity Study	1	0	0	0	0.05
							2	4	0	4	
							3	ND	ND	ND	
							Totals:	8,164	4	0	

Appendix C. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
				Total 1-Ocean:						20,459	
				Total 2-Ocean:						3,962	
				Total 3-Ocean:						ND	
				Total Harvest Recoveries:						15,119	
				Total Hatchery Recoveries:						9,302	
				Total Releases:						2,022,018	
				Total Recoveries:						24,421	

Appendix D. Table 1. Release and recovery data for brood year 1999 steelhead released from Clearwater Fish Hatchery. All returns are complete at this time. Data are 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 are from Hansen (In Press) and Harrington (2005).

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 Cr: Clwtr R 4/19-4/20/2000	1999	DWOR B	105419	43,375	AD,LV	Contribution	1	6	7	13	0.76
							2	255	61	316	
							3	0	0	0	
Clear Cr: Clwtr R 4/19-4/20/2000	1999	DWOR B	Untagged	140,482	AD	Contribution	1	19	23	42	0.76
							2	826	198	1,024	
							3	0	0	0	
Totals:				183,857				1,106	289	1,395	0.76
S Fk Clwtr@ Red House Hole 4/20-4/21/2000	1999	DWOR B	105408	31,197	AD,LV	Contribution	1	11	33	44	1.29
							2	232	113	345	
							3	12	0	12	
S Fk Clwtr@ Red House Hole 4/20-4/21/2000	1999	DWOR B	105426	32,101	AD,LV	Contribution	1	30	0	30	2.13
							2	535	116	651	
							3	4	0	4	
S Fk Clwtr@ Red House Hole 4/20-4/21/2000	1999	DWOR B	Untagged	248,118	AD	Contribution	1	161	264	425	1.78
							2	3,007	895	3,902	
							3	63	24	87	
Totals:				311,416				4,055	1,445	5,500	1.77
Red River Rearing Ponds 5/4/2000	1999	DWOR B	Untagged	139,662	NONE	NPT no mark release	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				139,662				ND	ND	ND	
Crooked R Ponds Ponds 5/4/2000	1999	DWOR B	Untagged	100,331	NONE	NPT no mark release	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:				100,331				ND	ND	ND	
Total 1-Ocean:							554				
Total 2-Ocean:							6,238				
Total 3-Ocean:							103				
Total Harvest Recoveries:							5,161				
Total Hatchery Recoveries:							1,734				
Total Releases:							735,266				
Total Recoveries:							6,895				

Appendix D. Table 2. Release and recovery data for brood year 1999 steelhead released from Hagerman National Fish Hatchery. All returns are complete at this time. Data are 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 are from Hansen (In Press), and Harrington (2005).

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 4/26/2000	1999	SAW A	105527	19,809	AD,LV	Late Egg Take, Direct Rel.	1	164	103	267	1.52
							2	15	19	34	
							3	0	0	0	
Sawtooth Hatchery 4/26/2000	1999	SAW A	105525	20,758	AD,LV	Late Egg Take, Direct Rel.	1	131	90	221	1.33
							2	41	15	56	
							3	0	0	0	
Sawtooth Hatchery 4/26/2000	1999	SAW A	105526	19,549	AD,LV	Late Egg Take, Direct Rel.	1	156	91	247	1.49
							2	34	11	45	
							3	0	0	0	
Sawtooth Hatchery 4/26/2000	1999	SAW A	Untagged	839	AD	Late Egg Take, Direct Rel.	1	6	4	10	1.43
							2	1	1	2	
							3	0	0	0	
Totals:				60,955				548	334	882	1.45
Hazard Cr: Lt Salmon R 4/7-4/28/2000	1999	HELLS CANYON A	Untagged	51,161	AD	Supplementation.	1	401	633	1,034	2.93
							2	378	85	463	
							3	0	0	0	
Totals:				51,161				779	718	1,497	2.93
Sawtooth Hatchery 4/26/2000	1999	SAW A	105522	19,563	AD,LV	Acclimation % Body Wt. Diet	1	116	92	208	1.32
							2	42	9	51	
							3	0	0	0	
Sawtooth Hatchery 4/26/2000	1999	SAW A	105519	19,441	AD,LV	Acclimation % Body Wt. Diet	1	153	99	252	1.48
							2	21	14	35	
							3	0	0	0	
Sawtooth Hatchery 4/26/2000	1999	SAW A	105520	19,999	AD,LV	Acclimation % Body Wt. Diet	1	222	79	301	1.68
							2	23	12	35	
							3	0	0	0	
Sawtooth Hatchery 4/26/2000	1999	SAW A	Untagged	486,823	AD	Acclimation % Body Wt. Diet	1	4,051	2,090	6,141	1.54
							2	710	658	1,368	
							3	0	0	0	
Totals:				545,826				5,338	3,053	8,391	1.54
Sawtooth Hatchery 4/26/2000	1999	SAW A	105518	19,670	AD,LV	Early Egg Take, Direct Rel.	1	179	125	304	2.15
							2	98	20	118	
							3	0	0	0	
Sawtooth Hatchery 4/26/2000	1999	SAW A	105516	17,726	AD,LV	Early Egg Take, Direct Rel.	1	196	132	328	2.32
							2	73	11	84	
							3	0	0	0	
Sawtooth Hatchery 4/26/2000	1999	SAW A	105517	20,187	AD,LV	Early Egg Take, Direct Rel.	1	217	112	329	1.94
							2	44	18	62	
							3	0	0	0	

Appendix D. Table 2. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Sawtooth Hatchery 4/26/2000	1999	SAW A	Untagged	1,606	AD	Early Egg Take, Direct Rel.	1	17	10	27	2.24
							2	6	3	9	
							3	0	0	0	
							Totals:				
Sawtooth Hatchery 4/26/2000	1999	SAW A	105524	20,170	AD,LV	Feed/Fast, Acclimated	1	168	92	260	1.43
							2	19	10	29	
							3	0	0	0	
							Totals:				
Sawtooth Hatchery 4/26/2000	1999	SAW A	105521	19,312	AD,LV	Feed/Fast, Acclimated	1	194	106	300	1.80
							2	24	23	47	
							3	0	0	0	
							Totals:				
Sawtooth Hatchery 4/26/2000	1999	SAW A	105523	18,153	AD,LV	Feed/Fast, Acclimated	1	178	112	290	2.02
							2	60	17	77	
							3	0	0	0	
							Totals:				
Lt Salmon R @ Stinky Springs 4/3-5/8/2000	1999	HELLS CANYON A	Untagged	395,924	AD	Contribution	1	3,101	4,901	8,002	2.93
							2	2,926	658	3,584	
							3	0	0	0	
							Totals:				
Total 1-Ocean:							18,581				
Total 2-Ocean:							6,114				
Total 3-Ocean:							0				
Total Harvest Recoveries:							14,211				
Total Hatchery Recoveries:							10,484				
Total Releases:							1,174,883				
Total Recoveries:							24,695				

Appendix D. Table 3. Release and recovery data for brood year 1999 steelhead released from Magic Valley Fish Hatchery. All returns are complete at this time. Data are 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 are from Hansen (In Press), and Harrington (2005).

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 @ Tunnel Rock 4/20-4/21/2000	1999	SAW A	105415	50,301	AD, LV	Contribution	1	380	623	1,003	2.07
							2	30	2	32	
							3	6	0	6	
Salmon R @ Tunnel Rock 4/20-4/21/2000	1999	SAW A	104829	11,153	AD, LV	Contribution	1	112	138	250	2.37
							2	14	0	14	
							3	0	0	0	
Salmon R @ Tunnel Rock 4/20-4/21/2000	1999	SAW A	Untagged	47,219	AD	Contribution	1	378	584	962	2.39
							2	87	78	165	
							3	0	0	0	
Totals:				108,673				1,007	1,425	2,432	2.24
Salmon R @ Shoup Brdg 4/14/2000	1999	PAH A	105414	46,865	AD, LV	Contribution	1	313	580	893	2.18
							2	45	78	123	
							3	4	0	4	
Salmon R @ Shoup Brdg 4/14/2000	1999	PAH A	104648	7,663	AD, LV	Contribution	1	48	95	143	2.04
							2	0	13	13	
							3	0	0	0	
Salmon R @ Shoup Brdg 4/14/2000	1999	PAH A	Untagged	13,400	AD	Contribution	1	99	166	265	2.22
							2	11	22	33	
							3	0	0	0	
Totals:				67,928				520	954	1,474	2.17
E Fk Salmon R @ Dumpster 4/27-5/2/2000	1999	DWOR B	Untagged	239,981	AD	Production	1	35	4	39	0.38
							2	853	11	864	
							3	20	0	20	
Totals:				239,981				908	15	923	0.38
Salmon R @ Kilpatrick 4/18/2000	1999	SAW A	Untagged	21,500	AD	Production	1	159	266	425	2.23
							2	18	36	54	
							3	0	0	0	
Totals:				21,500				177	302	479	2.23
Salmon R @ Eyehole 4/18/2000	1999	SAW A	Untagged	21,500	AD	Production	1	159	266	425	2.23
							2	18	36	54	
							3	0	0	0	
Totals:				21,500				177	302	479	2.23
Salmon R @ McNabb Point 4/18-4/21/2000	1999	SAW A	Untagged	105,578	AD	Production	1	651	1307	1958	2.20
							2	194	175	369	
							3	0	0	0	
Totals:				105,578				845	1,482	2,327	2.20

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 (%)
S Fk Clwtr R@ Mill Cr 5/2/2000	1999	DWOR B	Untagged	19,556	NONE	Supplementation	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:								ND	ND	ND	
Red River: S Fk Clwtr 5/10/2000	1999	DWOR B	Untagged	30,480	NONE	Supplementation Late Eggs	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:								ND	ND	ND	
American R: S Fk Clwtr R 5/5-5/9/2000	1999	DWOR B	Untagged	96,187	NONE	Supplementation Late Eggs	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:								ND	ND	ND	
Newsome Cr: S Fk Clwtr R 5/4-5/9/2000	1999	DWOR B	Untagged	100,078	NONE	Supplementation Late Eggs	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:								ND	ND	ND	
S Fk Clwtr R@ Meadow Cr. 5/2/2000	1999	DWOR B	Untagged	19,557	NONE	Supplementation Late Eggs	1	ND	ND	ND	
							2	ND	ND	ND	
							3	ND	ND	ND	
Totals:								ND	ND	ND	
Squaw Cr 4/24-6/5/2000	1999	DWOR B	104647	10,523	AD,LV	Contribution	1	0	0	0	0.65
							2	63	0	63	
							3	5	0	5	
Squaw Cr 4/24-6/5/2000	1999	DWOR B	105413	50,819	AD,LV	Contribution	1	9	0	9	0.32
							2	155	0	155	
							3	0	0	0	
Squaw Cr 4/24-6/5/2000	1999	DWOR B	Untagged	132,294	BWT,AD	Contribution	1	19	2	21	0.38
							2	469	6	475	
							3	11	0	11	
Totals:								731	8	739	0.38
Squaw Cr Ponds 4/10-4/11/2000	1999	DWOR B	Untagged	106,135	AD	Production	1	15	2	17	0.38
							2	377	5	382	
							3	9	0	9	
Totals:								401	7	408	0.38
Squaw Cr 4/20-4/21/2000	1999	UPPER SALMON B	Untagged	51,866	AD	Production	1	8	1	9	0.38
							2	184	2	186	
							3	4	0	4	
Totals:								196	3	199	0.38
Salmon R @ Cottonwood Cg 4/14-4/21/2000	1999	SAW A	Untagged	45,753	AD	Production	1	282	566	848	2.20
							2	84	76	160	
							3	0	0	0	
Totals:								366	642	1,008	2.20
Lemhi R: Salmon R 4/12-4/21/2000	1999	PAH A	103606	62,081	AD,LV	Contribution	1	500	768	1,268	2.32
							2	68	103	171	
							3	4	0	4	

Appendix D. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Lemhi R: Salmon R 4/12-4/21/2000	1999	PAH A	Untagged	51,286	AD	Contribution	1	379	635	1,014	2.25
							2	56	85	141	
							3	0	0	0	
							Totals:	113,367		1,007	1,591
Lt Salmon R @ Stinky Springs 4/11-4/27/2000	1999	DWOR B	103605	63,244	AD,LV	Production	1	0	1	1	0.11
							2	65	3	68	
							3	0	0	0	
							Totals:	295,884		304	18
Lt Salmon R @ Stinky Springs 4/11-4/27/2000	1999	DWOR B	Untagged	232,640	AD,BWT	Production	1	0	4	4	0.11
							2	239	10	249	
							3	0	0	0	
							Totals:	4,639		5	0
Lt Salmon R @ Stinky Springs 4/11-4/27/2000	1999	HELLS CANYON A	Untagged	115,423	AD	Stinky HC-A Contribution	1	904	1,429	2,333	2.84
							2	853	192	1,045	
							3	0	0	0	
							Totals:	115,423		1,757	1,621
Salmon R @ Red Rock 4/12/2000	1999	PAH A	Untagged	62,670	AD	Contribution	1	463	776	1,239	2.25
							2	69	104	173	
							3	0	0	0	
							Totals:	61,732		524	867
Salmon R @ Lewis Clark 4/17/2000	1999	PAH A	Untagged	61,732	AD	Contribution	1	456	764	1,220	2.25
							2	68	103	171	
							3	0	0	0	
							Totals:	36,419		292	512
Salmon R @ Cottonwood Cg 4/14-4/21/2000	1999	PAH A	Untagged	36,419	AD	Production	1	225	451	676	2.21
							2	67	61	128	
							3	0	0	0	
							Totals:	11,533		95	162
Salmon R @ Colston Corner 4/18/2000	1999	SAW A	Untagged	11,533	AD	Production	1	85	143	228	2.23
							2	10	19	29	
							3	0	0	0	
							Totals:	9,092		75	128
Salmon R @ Colston Corner 4/18/2000	1999	PAH A	Untagged	9,092	AD	Production	1	67	113	180	2.23
							2	8	15	23	
							3	0	0	0	
							Totals:	24,491		176	344
Salmon R @ Challis 4/13-4/24/2000	1999	SAW A	Untagged	24,491	AD	Production	1	131	303	434	2.12
							2	45	41	86	
							3	0	0	0	
							Totals:	24,491		176	344

Appendix D. Table 3. Continued.

Release Site/Date	Brood Year	Stock Name	CWT Code	Tagged Release	Other Marks	Marking Purpose	Ocean Age	Harvest Returns	Hatchery Returns	Total Returns	SAR (%)
Salmon R @ Challis 4/13-4/24/2000	1999	PAH A	Untagged	21,250	AD	Production	1	131	263	394	2.20
							2	39	35	74	
							3	0	0	0	
Totals:				21,250				170	298	468	2.20
Salmon R @ Wagonhammer 4/17/2000	1999	SAW A	Untagged	1,845	AD	Production	1	14	23	37	2.27
							2	2	3	5	
							3	0	0	0	
Totals:				1,845				16	26	42	2.27
Salmon R @ Wagonhammer 4/17/2000	1999	PAH A	Untagged	39,246	AD	Production	1	290	486	776	2.25
							2	43	65	108	
							3	0	0	0	
Totals:				39,246				333	551	884	2.25
Lemhi R: Salmon R 4/12-4/21/2000	1999	SAW A	Untagged	24,040	AD	Production	1	178	298	476	2.25
							2	26	40	66	
							3	0	0	0	
Totals:				24,040				204	338	542	2.25
Total 1-Ocean:							17,547				
Total 2-Ocean:							5,684				
Total 3-Ocean:							63				
Total Harvest Recoveries:							10,818				
Total Hatchery Recoveries:							12,476				
Total Releases:							2,050,039				
Total Recoveries:							23,294				

Prepared by:

Chris Harrington
Sr. Fisheries Research Biologist

Approved by:

IDAHO DEPARTMENT OF FISH AND GAME

Steve Yundt, Chief
Bureau of Fisheries

Daniel J. Schill
Fisheries Research Manager