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IDAHO ANADROMOUS FISH-MARKING PROGRAM

Report to:
Idaho Department of Fish and Game
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Introduction

In April 2009 IDFG contracted all anadromous fish-marking in the state of Idaho to PSMFC. In 2012 all fish-marking personnel were employees of PSMFC. The marking program was based out of Lewiston, Idaho and consisted of one Tagging Coordinator, six Trailer Operators, one Trailer Operator/Trailer Assistant, eight Trailer Assistants, and a varying number of temporary Trailer Assistants as needed for the 2012 marking season. This report summarizes all fish marked by the Idaho Anadromous Fish-Marking Program in the year 2012. The program was responsible for the marking of anadromous fish at the following nine fish hatcheries: Clearwater, Rapid River, Oxbow, McCall, Sawtooth, Pahsimeroi, Niagara Springs, Magic Valley, and Hagerman National. While at these fish hatcheries a variety of different marks and tags were applied including adipose fin-clips, coded-wire tags (CWT), and passive integrated transponder (PIT) tags to steelhead (*Oncorhynchus mykiss*), Sockeye salmon (*Oncorhynchus nerka*), and Chinook salmon (*Oncorhynchus tshawytscha*).

The IDFG research division develops a mark plan that indicates the number of fish at each hatchery that are to receive specific marks. Coded-wire tags were implanted from April through the last week of September. The adipose fin-clipping took place from April through the last week of September. PIT-tags were implanted from January through April, and again in November, and provide a unique alphanumeric code to each individual fish.

The overall objectives of the Idaho Anadromous Fish-Marking Program are as follows:

Objective 1: Provide technical and administrative services associated with performing and completing the work identified in the 2012 Fish Marking Contract. Technical and administrative tasks may include: project management, budgeting, scheduling, coordination, crew supervision, report preparation, grant management, invoicing, equipment maintenance and data collection, storage and analysis, and all other tasks that may be necessary to complete the scope of work specified in the 2012 contract.

Objective 2: Purchase supplies as per the contracted budget, hire and supervise project personnel for marking and tagging operations specified in the contract. Operate IDFG owned marking and tagging trailers, vehicles and associated equipment.

Objective 3: Conduct quality control studies for each fin-clipped and coded-wire tagged release group and report to the IDFG Project Manager. Coordinate all project activities and share all project data with IDFG hatchery staff.

Objective 4: Coordinate with IDFG to ensure marking and tagging information is uploaded to IDFG's data storage location. Information will be accurate and timely and conform to the established formatting protocols established by IDFG.

Objective 5: Prepare and submit an annual report to the IDFG Project Manager in electronic form no later than December 31 of the current contract period. Each report shall detail work accomplished, numbers of fish marked and tagged, results of tag retention studies, a discussion of any problems

encountered and recommendations to correct challenges or problems encountered during the year. Additionally, PSMFC will provide monthly financial reports as well as preliminary data reports that summarize numbers of fish handled, numbers and types of marks and tags applied, and hatcheries where work was performed.

Methods

The Idaho marking program used three state-of-the-art automated tagging trailers. One of these automated trailers is 53 feet long with six automated lines, and the other two are 48 feet long with five automated lines each. These trailers incorporate the latest advanced technology for adipose fin-clipping and coded-wire tagging fish. These automated trailers have the capacity to mark and implant coded-wire tags very rapidly without the use of anesthetic or human contact. These systems have been in use for many years in the Pacific Northwest and in Idaho since 2002. A 16-person manual marking trailer was also used at McCall Hatchery. Steelhead and Chinook salmon were PIT-tagged using either a four-station, or three-station, manual PIT-tagging trailer.

The automated trailers are able to process fish that are a minimum of 57mm in total length and a maximum of 142mm in total length. This size restriction means that timing at each facility is critical to maximize efficiency and productivity. At many facilities the fish were processed through the automated trailers when the hatcheries were ready to move the fish from inside rearing vats to outside rearing ponds or raceways, making timing of the mark event even more critical to ensure that the density limits of the inside rearing containers were not exceeded. Double shifts were typically used to maximize efficiency and output of the automated trailers. Trailers were moved as needed between hatcheries relative to fish reaching appropriate marking size.

Fish were delivered to the automated trailers by means of a forklift mounted live fish transfer tank or electric Matsusaka fish pumps. The forklifts were operated by hatchery personnel and the two fish pumps were operated by members of the fish-marking crew. Once inside the trailers fish were pumped via an internal fish lift system into the sorter. The sorter takes an image of each individual fish and records the total length of the fish (within .1mm) and then diverts the fish to the appropriate line. Each of the automated lines is set up to run a specific size range of fish. Once the fish have reached the automated line they travel down a channel and are separated by a series of gates that ensure one fish at a time arrive at the clamping mechanism. Once the clamps come together on the fish a camera takes an image of the back of the fish and locates the adipose fin. The computer relays the exact X and Y coordinates of the adipose fin in relation to the back of the fish to a clipping mechanism that excises the adipose fin. Once the clipping is complete the camera takes a second image to ensure that the fin-clip was successful. At the moment the clamps come together to hold the fish for imaging the coded-wire tag is inserted into the snout of the fish via a MK IV tag injector that is positioned at the end of each channel. After the fish has been clipped and/or tagged it is released from the clamps and travels through a Quality Control Device (QCD) that checks for the presence of a coded-wire tag. If the fish

passes the clip quality check and tag detection, it is then delivered from the trailer to the proper raceway or pond via four-inch discharge pipe. If the fish fails either the tag detection or clip quality check, it is diverted into a reject container and will be processed manually in the back of the trailer by a Trailer Assistant.

In the manual section of the trailer fish that were either too large or too small to be processed through the automated lines, or were rejected by the automated lines, were anesthetized and clipped and/or tagged manually.

At most facilities tag retention studies were conducted to determine the coded-wire tag shed rate for each specific tag code and/or raceway. A minimum of 300 fish were checked 21 days post tagging to check for the presence of a coded-wire tag and examined for adipose fin-clip quality. For the purpose of this report all fish with an intact adipose fin (no clip), and those fish with a partial adipose fin-clip were determined to be unsuccessful clips. All other clips were considered to be successful, including those with deep clips, due to the ability to visually identify the fish as having an adipose fin-clip when it returns as an adult. It is worth noting that a percentage of the fish with partial adipose fin-clips that survive and return as adults will still be identifiable as hatchery origin by evidence of a healed scar.

Upon completion of marking operations at each facility all trailers and equipment were disinfected prior to being transported off the hatchery compound following the Idaho Trailer Disinfection Protocol. The first step in this process was to scrub all inside surfaces with diluted liquid Lysol. A large water trough was then used to create a closed water circulating system and a bleach solution (350ppm) was run through the trailer for a minimum of 45 minutes. Upon completion of the disinfection process Sodium Thiosulfate was used to neutralize the bleach and the water was then emptied out of the trailer according to hatchery protocol. Upon arrival at the next facility the entire trailer was extensively flushed with fresh hatchery water before exposing fish to the trailer.

The numbers in this report reflect the fish handled and type of mark that the Idaho Anadromous Fish-Marking Crew applied at each of the respective hatcheries at the time of marking. This information is not intended to be used for release numbers or information regarding release.

Results

The Marking Program performed the adipose fin-clipping and coded-wire tagging according to the 2012 Mark Plan. A total of 17,962,423 marks were applied to 15,023,220 fish in 2012 (Table 1).

Tag retention studies indicated very high rates of tag/mark retention; our program wide goal is to achieve 99% or better tag retention on all groups of tagged fish. Adipose fin-clip rates were only checked on those groups of fish that also received a coded-wire tag. Tag retention rates ranged as follows:

- Clearwater Fish Hatchery: 98.33 – 100.00% with an average of 99.39%
- Pahsimeroi Fish Hatchery: 99.67 – 100.00% with an average of 99.92%
- Rapid River Fish Hatchery: 99.00 – 100.00% with an average of 99.56%
- McCall Fish Hatchery: 99.67 – 100.00% with an average of 99.95%
- Magic Valley Fish Hatchery: 98.33 – 100.00% with an average of 99.26%
- Hagerman National Fish Hatchery: 88.00 – 98.67% with an average of 95.95%
- Niagara Springs Fish Hatchery: 97.00 – 100.00% with an average of 98.59%
- Sawtooth Fish Hatchery: 96.33-99.33% with an average of 98.00%

Note: No retention studies were conducted at Oxbow Fish Hatchery due to fall-run Chinook being released prior to the 21 day retention period. Tag code and raceway specific tag retention rates can be seen in Tables 2 – 14 for each facility.

Table 1: Mark Year 2012 Summary of Total Marks

| HATCHERY | # OF FISH MARKED | AD/CWT | CWT ONLY | AD ONLY | TOTAL MARKS |
|-------------------------------|-------------------|------------------|------------------|-------------------|-------------------|
| CLEARWATER SPRING-RUN CHINOOK | 2,543,351 | 560,340 | 269,006 | 1,714,005 | 3,103,691 |
| CLEARWATER SUMMER-RUN CHINOOK | 210,539 | 0 | 210,539 | 0 | 210,539 |
| CLEARWATER STEELHEAD | 768,943 | 147,000 | 153,467 | 468,476 | 915,943 |
| HAGERMAN NATIONAL STEELHEAD | 1,301,176 | 274,103 | 136,691 | 890,382 | 1,575,279 |
| MAGIC VALLEY STEELHEAD | 1,378,479 | 513,036 | 192,733 | 672,710 | 1,891,515 |
| MC CALL SUMMER-RUN CHINOOK | 1,208,599 | 120,250 | 384,874 | 703,475 | 1,328,849 |
| NIAGARA SPRINGS STEELHEAD | 1,857,092 | 278,381 | 0 | 1,578,711 | 2,135,473 |
| OXBOW FALL-RUN CHINOOK | 202,523 | 187,540 | 0 | 14,983 | 390,063 |
| PAHSIMEROI SUMMER-RUN CHINOOK | 1,025,340 | 125,303 | 164,397 | 735,640 | 1,150,643 |
| RAPID RIVER SPING-RUN CHINOOK | 3,125,715 | 120,803 | 0 | 3,004,912 | 3,246,518 |
| SAWTOOTH SPRING-RUN CHINOOK | 789,016 | 0 | 134,410 | 654,606 | 789,016 |
| SAWTOOTH SUMMER-RUN CHINOOK | 440,475 | 440,475 | 0 | 0 | 880,950 |
| SAWTOOTH SOCKEYE | 171,972 | 171,972 | 0 | 0 | 343,944 |
| MARK YEAR 2012 TOTALS | 15,023,220 | 2,939,203 | 1,646,117 | 10,437,900 | 17,962,423 |

Note: The 14,983 Ad only fish at Oxbow Hatchery were PIT-tagged after receiving the adipose fin-clip.

In addition to the coded-wire tags and adipose fin-clips, 361,755 fish were PIT-tagged by the Marking Program in 2012 (Table 1A).

Table 1A: Mark Year 2012 Summary of PIT-Tags

| Table 1A: PIT-Tag Summary | |
|----------------------------------|-----------------|
| HATCHERY | # TAGGED |
| CLEARWATER SPRING-RUN CHINOOK | 93,841 |
| CLEARWATER STEELHEAD | 9,501 |
| HAGERMAN NATIONAL STEELHEAD | 31,355 |
| MAGIC VALLEY STEELHEAD | 32,991 |
| MC CALL SUMMER-RUN CHINOOK | 54,000 |
| NIAGARA SPRINGS STEELHEAD | 28,270 |
| OXBOW FALL-RUN CHINOOK | 14,983 |
| PAHSIMEROI SUMMER-RUN CHINOOK | 22,379 |
| RAPID RIVER SPRING-RUN CHINOOK | 51,966 |
| SAWTOOTH SPRING-RUN CHINOOK | 22,469 |
| TOTAL PIT TAGS | 361,755 |

Figure 1: Hatchery Locations for the 2022 Idaho Anadromous Fish-Marking Program



Oxbow Fish Hatchery



The Idaho Anadromous Fish-Marking Program processed Brood Year (BY) 2011 fall-run Chinook salmon at Oxbow Fish Hatchery during the third week of April (Table 2). A total of 187,540 fish were adipose fin-clipped and coded-wire tagged; 14,983 fish were adipose fin-clipped and PIT-tagged. The three-station PIT-tagging trailer was used for the PIT-tagging operation; while a five-line automated marking trailer was used to process the fish that received a coded-wire tag and adipose fin-clip. Fish were supplied to the automated marking trailer by an electric Matsusaka fish-transfer pump. Fish were supplied to the PIT-tag trailer by manually netting them out of the raceways and transporting them in five-gallon buckets into the main trough of the trailer. After marking, fish were returned to raceways via four-inch aluminum discharge pipe (automated marking trailer), or three-inch discharge hose (PIT-tagging trailer). The fall-run Chinook salmon at Oxbow Hatchery are released approximately two weeks post tagging, therefore a 21 day tag retention study was not possible for this group of fish.

Table 2: Raceway and Mark Totals for Oxbow Fish Hatchery BY 2011 Fall-Run Chinook

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|--------|--------|------------|-----------|--------------|
| 1 | 4/19/2012 | M3 | AD/CWT | 10-02-01 | 78,480 | 12,046 | 90,526 | | HELLS CANYON |
| 2 | 4/20/2012 | M3 | AD/CWT | 10-02-01 | 85,596 | 11,418 | 97,014 | | HELLS CANYON |
| 1 | 4/19/2012 | P2 | AD/PIT | N/A | 0 | 7,496 | 7,496 | 98,022 | HELLS CANYON |
| 2 | 4/20/2012 | P2 | AD/PIT | N/A | 0 | 7,494 | 7,494 | 104,508 | HELLS CANYON |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-02-01 | 175K | 187,540 |

| | |
|---------------------|---------|
| TOTAL AD/CWT | 187,540 |
| TOTAL AD/PIT | 14,983 |
| TOTAL MARKED | 202,523 |

Table 2A: Oxbow Fish Hatchery PIT-Tag Brood Year 2011 Fall-Run Chinook

| DATE | POND # | # OF FISH TAGGED | POND TOTAL |
|-----------|--------|--------------------------|---------------|
| 4/18/2012 | 1 | 7,490 | 7,490 |
| 4/19/2012 | 2 | 7,493 | 7,493 |
| | | TOTAL FISH TAGGED | 14,983 |

Clearwater Fish Hatchery



Clearwater Fish Hatchery Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2011 spring-run Chinook salmon at Clearwater Fish Hatchery on two separate occasions. The first trip occurred April 30th through May 10th; the second mark event was June 6th through June 12th (Table 3). A total of 2,543,351 spring-run Chinook salmon were coded-wire tagged and/or adipose fin-clipped. One six-line and two five-line automated marking trailers were used to process fish that received a coded-wire tag and/or adipose fin-clip. Fish were loaded into the main trough of the trailers by hatchery personnel utilizing a forklift mounted live fish transfer tank. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

A total of 93,841 BY 2010 spring-run Chinook salmon were PIT-tagged at Clearwater Fish Hatchery from February 21st through February 28th using the four-station manual PIT-tagging trailer (Table 3A). Fish were loaded into the main trough of the trailer by hatchery personnel utilizing a forklift mounted live fish transfer tank. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 3: Raceway and Mark Totals Clearwater Fish Hatchery BY 2011 Spring-Run Chinook

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|---------|--------|------------|-----------|----------------|
| 1A | 4/30/2012 | M2 | CWT ONLY | 10-02-40 | 63,982 | 0 | 63,982 | | POWELL |
| 1A | 4/30/2012 | M2 | CWT ONLY | 10-65-71 | 0 | 11,024 | 11,024 | 75,006 | POWELL |
| 1B | 4/30/2012 | M1 | CWT ONLY | 10-02-40 | 53,527 | 6,473 | 60,000 | | POWELL |
| 1B | 4/30/2012 | M1 | AD ONLY | N/A | 10,565 | 4,435 | 15,000 | 75,000 | POWELL |
| 2A | 5/1/2012 | M2 | AD/CWT | 10-02-30 | 65,864 | 9,121 | 74,985 | 74,985 | POWELL |
| 2B | 5/1/2012 | M1 | AD/CWT | 10-57-71 | 20,420 | 0 | 20,420 | | POWELL |
| 2B | 5/1/2012 | M2 | AD/CWT | 10-02-30 | 20,047 | 4,542 | 24,589 | | POWELL |
| 2B | 5/1/2012 | M1 | AD ONLY | N/A | 22,461 | 7,584 | 30,045 | 75,054 | POWELL |
| 3A | 5/2/2012 | M2 | AD ONLY | N/A | 54,784 | 15,974 | 70,758 | 70,758 | POWELL |
| 3B | 5/2/2012 | M1 | AD ONLY | N/A | 46,490 | 15,731 | 62,221 | 62,221 | POWELL |
| 4A | 5/2/2012 | M2 | AD ONLY | N/A | 60,858 | 19,143 | 80,001 | 80,001 | POWELL |
| 4B | 5/2/2012 | M1 | AD/CWT | 10-02-37 | 36,424 | 3,576 | 40,000 | | POWELL |
| 4B | 5/2/2012 | M1 | AD ONLY | N/A | 30,200 | 9,803 | 40,003 | 80,003 | POWELL |
| 5A | 5/3/2012 | M1 | AD/CWT | 10-02-37 | 50,333 | 8,888 | 59,221 | | POWELL |
| 5A | 5/3/2012 | M2 | AD/CWT | 10-58-71 | 20,212 | 566 | 20,778 | 79,999 | POWELL |
| 5B | 5/3/2012 | M1 | AD ONLY | N/A | 62,408 | 17,597 | 80,005 | 80,005 | POWELL |
| 6B | 5/3/2012 | M1 | AD ONLY | N/A | 48,591 | 13,536 | 62,127 | 62,127 | POWELL |
| 8A | 5/4/2012 | M2 | AD ONLY | N/A | 9,500 | 3,600 | 13,100 | | POWELL |
| 8A | 5/8/2012 | M2 | AD ONLY | N/A | 48,801 | 10,100 | 58,901 | 72,001 | POWELL |
| 8B | 5/3/2012 | M1 | AD ONLY | N/A | 16,589 | 5,157 | 21,746 | | POWELL |
| 8B | 5/8/2012 | M1 | AD ONLY | N/A | 39,356 | 10,898 | 50,254 | 72,000 | POWELL |
| 9A | 5/9/2012 | M2 | AD ONLY | N/A | 52,146 | 19,854 | 72,000 | 72,000 | POWELL |
| 9B | 5/8/2012 | M1 | AD/CWT | 10-02-29 | 62,082 | 8,904 | 70,986 | 70,986 | POWELL |
| 10A | 5/9/2012 | M1 | AD/CWT | 10-02-29 | 26,056 | 5,523 | 31,579 | | POWELL |
| 10A | 5/9/2012 | M1 | AD/CWT | 10-60-71 | 19,016 | 0 | 19,016 | | POWELL |
| 10A | 5/9/2012 | M2 | AD ONLY | N/A | 9,926 | 5,921 | 15,847 | 66,442 | POWELL |
| 10B | 5/9/2012 | M1 | AD ONLY | N/A | 51,626 | 12,115 | 63,741 | 63,741 | POWELL |
| 11A | 5/10/2012 | M1/M2 | AD ONLY | N/A | 22,828 | 4,675 | 27,503 | | S F CLEARWATER |
| 11A | 5/9/2012 | M1 | AD ONLY | N/A | 10,599 | 4,336 | 14,935 | | S F CLEARWATER |
| 11A | 5/10/2012 | M1 | AD ONLY | N/A | 23,986 | 6,844 | 30,830 | 73,268 | S F CLEARWATER |
| 11B | 5/10/2012 | M1 | AD ONLY | N/A | 58,890 | 16,341 | 75,231 | 75,231 | S F CLEARWATER |
| E1 | 6/7/2012 | M1 | CWT ONLY | 22-01-33 | 119,421 | 14,579 | 134,000 | | POWELL |
| E1 | 6/8/2012 | M1 | AD/CWT | 22-01-33 | 68,659 | 10,089 | 78,748 | 212,748 | POWELL |
| E2 | 6/6/2012 | M1 | AD ONLY | N/A | 39,827 | 11,359 | 51,186 | | S F CLEARWATER |
| E2 | 6/6/2012 | M3 | AD ONLY | N/A | 46,319 | 14,060 | 60,379 | 111,565 | S F CLEARWATER |
| E3 | 6/6/2012 | M3 | AD/CWT | 10-01-95 | 32,829 | 7,173 | 40,002 | | S F CLEARWATER |
| E3 | 6/7/2012 | M3 | AD ONLY | N/A | 59,079 | 18,539 | 77,618 | 117,620 | S F CLEARWATER |
| E4 | 6/11/2012 | M1 | AD/CWT | 10-59-71 | 21,528 | 0 | 21,528 | | S F CLEARWATER |
| E4 | 6/11/2012 | M1 | AD/CWT | 10-01-95 | 15,742 | 2,745 | 18,487 | | S F CLEARWATER |

Table 3: Raceway and Mark Totals Clearwater Fish Hatchery Brood Year 2011 Spring-Run Chinook

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|--------|--------|------------|-----------|----------------|
| E4 | 6/11/2012 | M1 | AD ONLY | N/A | 65,836 | 26,601 | 92,437 | 132,452 | S F CLEARWATER |
| E5 | 6/12/2012 | M1 | AD ONLY | N/A | 95,174 | 26,740 | 121,914 | | S F CLEARWATER |
| E5 | 6/12/2012 | M3 | AD ONLY | N/A | 6,166 | 3,826 | 9,992 | 131,906 | S F CLEARWATER |
| W2 | 6/8/2012 | M3 | AD ONLY | N/A | 71,924 | 28,076 | 100,000 | 100,000 | S F CLEARWATER |
| W3 | 6/8/2012 | M1 | AD/CWT | 10-01-95 | 35,313 | 4,688 | 40,001 | | S F CLEARWATER |
| W3 | 6/8/2012 | M1 | AD ONLY | N/A | 5,986 | 3,450 | 9,436 | | S F CLEARWATER |
| W3 | 6/8/2012 | M3 | AD ONLY | N/A | 46,682 | 15,829 | 62,511 | 111,948 | S F CLEARWATER |
| W4 | 6/11/2012 | M3 | AD ONLY | N/A | 92,621 | 29,636 | 122,257 | 122,257 | S F CLEARWATER |
| W5 | 6/12/2012 | M3 | AD ONLY | N/A | 93,527 | 28,500 | 122,027 | 122,027 | S F CLEARWATER |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-60-71 | 20k | 19,016 |
| 10-02-29 | 90k | 102,565 |
| 10-65-71 | 20k | 11,024 |
| 10-02-37 | 90k | 99,221 |
| 10-02-30 | 90k | 99,574 |
| 10-57-71 | 20k | 20,420 |
| 10-02-40 | 115k | 123,982 |
| 10-58-71 | 20k | 20,778 |
| 22-01-33 | 200k | 212,748 |
| 10-59-71 | 20k | 21,528 |
| 10-01-95 | 90k | 98,490 |

| | |
|-----------------------|-----------|
| TOTAL AD/CWT | 560,340 |
| TOTAL CWT ONLY | 269,006 |
| TOTAL AD ONLY | 1,714,005 |
| TOTAL MARKED | 2,543,351 |

| CWT RETENTION | | | |
|---------------|-----------|----------|--------------|
| RACEWAY | # CHECKED | # TAGGED | % SUCCESSFUL |
| RWY 1A | 300 | 300 | 100.00% |
| RWY 2A | 300 | 295 | 98.33% |
| RWY 5A | 299 | 297 | 99.33% |
| RWY 1B | 300 | 296 | 98.67% |
| RWY 2B | 309 | 309 | 100.00% |
| RWY 4B | 305 | 304 | 99.67% |
| RWY 9B | 300 | 297 | 99.00% |
| RWY 10A | 287 | 286 | 99.65% |
| RWY 1E | 300 | 299 | 99.67% |
| RWY 3E | 304 | 303 | 99.67% |
| RWY 3W | 301 | 301 | 100.00% |
| RWY 4E | 301 | 300 | 99.67% |

| | |
|--------------------------|---------|
| AVERAGE RETENTION | 99.50% |
| MINIMUM RETENTION | 98.33% |
| MAXIMUM RETENTION | 100.00% |

| CLEARWATER ADIPOSE FIN-CLIP RATE | | | | | | |
|----------------------------------|-----------|---------|--------------|-----------|--------------|---------------|
| RWY | # SAMPLED | NO CLIP | PARTIAL CLIP | DEEP CLIP | # GOOD CLIPS | % SUCCESSFUL |
| 2A | 300 | 0 | 1 | 2 | 297 | 99.67% |
| 5A | 299 | 3 | 0 | 1 | 295 | 99.00% |
| 1B | 300 | 0 | 0 | 0 | 300 | 100.00% |
| 2B | 309 | 0 | 0 | 0 | 309 | 100.00% |
| 4B | 305 | 0 | 0 | 0 | 305 | 100.00% |
| 9B | 300 | 1 | 1 | 2 | 296 | 99.33% |
| 10A | 287 | 0 | 2 | 0 | 285 | 99.30% |
| | | | | | AVG | 99.62% |

| Table 3A: Clearwater Fish Hatchery PIT-Tag BY 2010 Spring-Run Chinook | | | |
|---|-----|--------------------------|---------------|
| DATE | RWY | # OF FISH TAGGED | RWY TOTAL |
| 2/21/2012 | 1B | 3,997 | 3,997 |
| 2/21/2012 | 3B | 5,094 | 5,094 |
| 2/21/2012 | 4A | 3,995 | 3,995 |
| 2/21/2012 | 7B | 3,992 | 3,992 |
| 2/22/2012 | 10B | 5,997 | 5,997 |
| 2/22/2012 | 9A | 5,097 | 5,097 |
| 2/22/2012 | 11A | 6,097 | 6,097 |
| 2/22/2012 | E2 | 5,994 | 5,994 |
| 2/23/2012 | E3 | 4,998 | 4,998 |
| 2/23/2012 | E4 | 5,993 | 5,993 |
| 2/23/2012 | W2 | 12,502 | 12,502 |
| 2/27/2012 | W3 | 12,992 | 12,992 |
| 2/27/2012 | W4 | 8,593 | 8,593 |
| 2/28/2012 | W5 | 8,500 | 8,500 |
| | | TOTAL FISH TAGGED | 93,841 |

While at Clearwater Hatchery for the second round of Chinook marking a total of 210,539 BY 2011 summer-run Chinook salmon were coded-wire tagged in addition to the spring-run Chinook salmon (Table 4).

Table 4: Raceway and Mark Totals Clearwater Fish Hatchery BY 2011 Summer-Run Chinook

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | RWY TOTAL | STOCK |
|-----|----------|---------|-----------|----------|--------|--------|------------|-----------|------------|
| 6A | 5/3/2012 | M2 | CWT ONLY | 10-02-41 | 63,342 | 13,576 | 76,918 | 76,918 | S F SALMON |
| 7A | 5/4/2012 | M2 | CWT ONLY | 10-02-41 | 52,970 | 11,153 | 64,123 | 64,123 | S F SALMON |
| 7B | 5/4/2012 | M2 | CWT ONLY | 10-02-41 | 44,546 | 7,699 | 52,245 | | S F SALMON |
| 7B | 5/4/2012 | M1 | CWT ONLY | 10-69-71 | 17,253 | 0 | 17,253 | 69,498 | S F SALMON |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-02-41 | 180k | 193,286 |
| 10-69-71 | 20k | 17,253 |

| | |
|----------------|---------|
| TOTAL AD/CWT | 0 |
| TOTAL CWT ONLY | 210,539 |
| TOTAL AD ONLY | 0 |
| TOTAL MARKED | 210,539 |

| CWT RETENTION | | | |
|---------------|-----------|----------|--------------|
| RACEWAY | # CHECKED | # TAGGED | % SUCCESSFUL |
| RWY 6A | 300 | 298 | 99.33% |
| RWY 7B | 300 | 296 | 98.67% |
| RWY 7A | 300 | 300 | 100.00% |

| | |
|-------------------|---------|
| AVERAGE RETENTION | 99.33% |
| MINIMUM RETENTION | 98.67% |
| MAXIMUM RETENTION | 100.00% |

Clearwater Fish Hatchery Steelhead

The Idaho Anadromous Fish-Marking Crew processed BY 2012 summer-run steelhead at Clearwater Fish Hatchery July 30th through August 7th (Table 5). A total of 768,943 fish were coded-wire tagged and/or adipose fin-clipped. One five-line automated marking trailer was used to process fish that received a coded-wire tag and/or adipose fin-clip. Fish were loaded into the main trough of the trailer by hatchery personnel utilizing a forklift mounted live fish transfer tank. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

A total of 9,501 BY 2011 summer-run steelhead were PIT-tagged at Clearwater Fish Hatchery on February 28th and March 6th using the four-station manual PIT-tagging trailer (Table 5A). Fish were loaded into the main trough of the trailer by hatchery personnel utilizing a forklift mounted live fish transfer tank. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe. We were unable to PIT-tag the remainder of the steelhead due to high level of stress when the fish were crowded in the raceways.

Table 5: Raceway and Mark Totals Clearwater Fish Hatchery BY 2012 Steelhead

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|--------|--------|------------|-----------|---------------|
| 6E | 8/7/2012 | | AD ONLY | | 43,245 | 17,055 | 60,300 | 60,300 | DWORSHAK B |
| 8E | 7/30/2012 | M3 | AD ONLY | | 54,702 | 18,200 | 72,902 | 72,902 | DWORSHAK B |
| 9E | 7/31/2012 | M3 | AD/CWT | 10-02-08 | 55,639 | 0 | 55,639 | | DWORSHAK B |
| 9E | 7/31/2012 | M3 | AD/CWT | 10-64-71 | 9,315 | 7,943 | 17,258 | 72,897 | DWORSHAK B |
| 10E | 7/31/2012 | | AD ONLY | | 44,690 | 19,401 | 64,091 | 64,091 | DWORSHAK B |
| 11E | 8/1/2012 | | AD ONLY | | 57,623 | 15,000 | 72,623 | 72,623 | DWORSHAK B |
| 6W | 8/7/2012 | | AD ONLY | | 44,667 | 15,334 | 60,001 | 60,001 | DWORSHAK B |
| 8W | 8/6/2012 | M3 | CWT ONLY | 10-02-21 | 62,497 | 12,970 | 75,467 | 75,467 | SF CLEARWATER |
| 9W | 8/6/2012 | M3 | CWT ONLY | 10-02-20 | 64,047 | 13,953 | 78,000 | 78,000 | SF CLEARWATER |
| 10W | 8/6/2012 | | AD ONLY | | 50,875 | 20,307 | 71,182 | 71,182 | SF CLEARWATER |
| 11W | 8/2/2012 | M3 | AD/CWT | 10-63-71 | 8,480 | 8,766 | 17,246 | | SF CLEARWATER |
| 11W | 8/2/2012 | M3 | AD/CWT | 10-02-09 | 56,857 | 0 | 56,857 | 74,103 | SF CLEARWATER |
| 12W | 8/1/2012 | | AD ONLY | | 48,741 | 18,636 | 67,377 | 67,377 | DWORSHAK B |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-64-71 | 20K | 17,258 |
| 10-02-08 | 50K | 55,639 |
| 10-02-20 | 70K | 78,000 |
| 10-02-21 | 70K | 75,467 |
| 10-02-09 | 50K | 56,857 |
| 10-63-71 | 20K | 17,246 |

| | |
|-----------------------|---------|
| TOTAL AD/CWT | 147,000 |
| TOTAL CWT ONLY | 153,467 |
| TOTAL AD ONLY | 468,476 |
| TOTAL MARKED | 768,943 |

| CWT RETENTION | | | |
|---------------|-----------|----------|--------------|
| RACEWAY | # CHECKED | # TAGGED | % SUCCESSFUL |
| RWY 9E | 300 | 294 | 98.00% |
| RWY 11W | 300 | 299 | 99.67% |
| RWY 9W | 300 | 300 | 100.00% |
| RWY 8W | 300 | 299 | 99.67% |

| | |
|--------------------------|---------|
| AVERAGE RETENTION | 99.33% |
| MINIMUM RETENTION | 98.00% |
| MAXIMUM RETENTION | 100.00% |

| ADIPOSE FIN-CLIP RATE | | | | | | |
|-----------------------|-----------|---------|---------|------|------------|----------------|
| RWY | # SAMPLED | NO CLIP | PARTIAL | DEEP | # GOOD | % SUCCESSFUL |
| 9E | 300 | 0 | 0 | 0 | 300 | 100.00% |
| 11W | 300 | 0 | 0 | 3 | 297 | 100.00% |
| | | | | | AVG | 100.00% |

| Table 5A: Clearwater Fish Hatchery PIT-Tag BY 2011 Steelhead | | | |
|---|------------|--------------------------|------------------|
| DATE | RWY | # OF FISH TAGGED | RWY TOTAL |
| 2/28/2012 | W7 | 2,270 | 2,270 |
| 3/6/2012 | W12 | 2,600 | 2,600 |
| 3/6/2012 | W10 | 3,999 | 3,999 |
| 3/6/2012 | W9 | 632 | 632 |
| | | TOTAL FISH TAGGED | 9,501 |

Pahsimeroi Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2011 summer-run Chinook salmon at Pahsimeroi Fish Hatchery May 16th through May 19th (Table 6). A total of 1,025,340 fish were coded-wire tagged and/or adipose-fin-clipped. Two five-line automated marking trailers were used to process fish that received a coded-wire tag and/or adipose fin-clip. Fish were loaded into the main trough of the two trailers by two electric Matsusaka fish transfer pumps. After marking, fish were distributed to ponds via four-inch aluminum discharge pipe.

A total of 22,379 BY 2010 summer-run Chinook salmon were PIT-tagged at Pahsimeroi Fish Hatchery from March 15th through March 16th using the three-station manual PIT-tagging trailer (Table 6A). Fish were loaded into the main trough of the trailer by manually netting the fish out of the pond and transporting them in five-gallon buckets. After marking, fish were distributed back to the ponds via three-inch discharge hose.

Table 6: Raceway and Mark Totals Pahsimeroi Fish Hatchery BY 2011 Summer-Run Chinook

| POND | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | RWY TOTAL | STOCK |
|------|-----------|---------|-----------|----------|---------|--------|------------|-----------|-------|
| 1 | 5/16/2012 | M2 | CWT ONLY | 10-01-99 | 144,889 | 19,508 | 164,397 | | PAH |
| 1 | 5/16/2012 | M2 | AD/CWT | 10-67-71 | 0 | 5,232 | 5,232 | | PAH |
| 1 | 5/18/2012 | M3 | AD/CWT | 10-01-96 | 33,877 | 6,123 | 40,000 | | PAH |
| 1 | 5/18/2012 | M3 | AD ONLY | N/A | 124,160 | 46,909 | 171,069 | | PAH |
| 1 | 5/19/2012 | M2 | AD ONLY | N/A | 87,210 | 39,163 | 126,373 | 507,071 | PAH |
| 2 | 5/19/2012 | M3 | AD/CWT | 10-01-96 | 54,060 | 7,654 | 61,714 | | PAH |
| 2 | 5/19/2012 | M2 | AD/CWT | 10-61-71 | 17,728 | 629 | 18,357 | | PAH |
| 2 | 5/19/2012 | M2 | AD ONLY | N/A | 116,843 | 43,981 | 160,824 | | PAH |
| 2 | 5/19/2012 | M3 | AD ONLY | N/A | 198,552 | 78,822 | 277,374 | 518,269 | PAH |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-01-99 | 145K | 164,397 |
| 10-67-71 | 20K | 5,232 |
| 10-01-96 | 90K | 101,714 |
| 10-61-71 | 20K | 18,357 |

| | |
|-----------------------|-----------|
| TOTAL AD/CWT | 125,303 |
| TOTAL CWT ONLY | 164,397 |
| TOTAL AD ONLY | 735,640 |
| TOTAL MARKED | 1,025,340 |

| CWT RETENTION | | | |
|---------------|-----------|----------|--------------|
| RACEWAY | # CHECKED | # TAGGED | % SUCCESSFUL |
| VAT 18A | 594 | 592 | 99.67% |
| VAT 18B | 204 | 204 | 100.00% |
| VAT 18C | 297 | 297 | 100.00% |
| VAT 18D | 310 | 310 | 100.00% |

| | |
|--------------------------|---------|
| AVERAGE RETENTION | 99.92% |
| MINIMUM RETENTION | 99.67% |
| MAXIMUM RETENTION | 100.00% |

| PAHSIMEROI APIPOSE FIN-CLIP RATE | | | | | | |
|----------------------------------|-----------|---------|---------|------|--------|----------------|
| RWY | # SAMPLED | NO CLIP | PARTIAL | DEEP | # GOOD | % SUCCESSFUL |
| VAT 18B | 204 | 0 | 0 | 0 | 204 | 100.00% |
| VAT 18C | 297 | 0 | 0 | 0 | 297 | 100.00% |
| VAT 18D | 310 | 0 | 0 | 0 | 310 | 100.00% |
| AVG | | | | | | 100.00% |

| Table 6A: Pahsimeroi Fish Hatchery PIT-Tag BY 2010 Summer-Run Chinook | | | |
|--|---------------|--------------------------|-------------------|
| DATE | POND # | # OF FISH TAGGED | POND TOTAL |
| 3/15/2012 | 2 INT | 1,000 | 1,000 |
| 3/16/2012 | 2 SEG | 21,379 | 21,379 |
| | | TOTAL FISH TAGGED | 22,379 |

Sawtooth Fish Hatchery



Sawtooth Fish Hatchery Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2011 spring-run and summer-run Chinook salmon at Sawtooth Fish Hatchery on three separate occasions. The first trip occurred July 10th through July 13th; the second mark event was September 5th through September 8th; the third trip was on September 28th while we were at Sawtooth Hatchery marking Sockeye salmon. A total of 789,016 spring-run Chinook salmon were coded-wire tagged or adipose fin-clipped during the first two trips (Table 7). A total of 440,475 summer-run Chinook salmon were coded-wire tagged and adipose fin-clipped during the three trips (Table 8). One six-line and two five-line automated marking trailers were used to process fish that received a coded-wire tag and/or adipose fin-clip. Fish were loaded into the main trough of the trailers by two electric Matsusaka fish-transfer pumps. After marking, fish were distributed to either vats or raceways via four-inch aluminum discharge pipe.

A total of 22,469 BY 2010 spring-run Chinook salmon were PIT-tagged at Sawtooth Fish Hatchery from March 17th through March 18th using the three-station manual PIT-tagging trailer (Table 7A). Fish were loaded into the main trough of the trailer by manually netting the fish out of the raceway and transporting them in five-gallon buckets. After marking, fish were distributed back to the raceways via three-inch discharge hose.

Table 7: Raceway and Mark Totals Sawtooth Fish Hatchery BY 2011 Spring-Run Chinook

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|---------|--------|-----------|----------|
| 7 | 7/10/2012 | M1/M2 | AD ONLY | N/A | 81,223 | 28,777 | 110,000 | SALMON R |
| 8 | 7/11/2012 | M1/M2 | AD ONLY | N/A | 85,563 | 24,930 | 110,493 | SALMON R |
| 9 | 7/12/2012 | M1/M2 | AD ONLY | N/A | 78,370 | 31,633 | 110,003 | SALMON R |
| 10 | 7/13/2012 | M1/M2 | AD ONLY | N/A | 85,166 | 24,876 | 110,042 | SALMON R |
| 11 | 7/13/2012 | M1/M2 | AD ONLY | N/A | 76,310 | 24,960 | 101,270 | SALMON R |
| 12 | 9/5/2012 | M1 | AD ONLY | N/A | 79,615 | 33,183 | 112,798 | SALMON R |
| 13 | 9/7/2012 | M1 | CWT ONLY | 10-02-39 | 101,006 | 18,414 | | SALMON R |
| 13 | 9/7/2012 | M1 | CWT ONLY | 10-68-71 | 14,990 | 0 | 134,410 | SALMON R |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-02-39 | 105k | 119,420 |
| 10-68-71 | 20k | 14,990 |

| | |
|-----------------------|---------|
| TOTAL CWT ONLY | 134,410 |
| TOTAL AD ONLY | 654,606 |
| TOTAL MARKED | 789,016 |

| CWT RETENTION | | | |
|---------------|-----------|----------|--------------|
| RACEWAY | # CHECKED | # TAGGED | % SUCCESSFUL |
| RWY 13 | 300 | 299 | 99.67% |

| | |
|--------------------------|--------|
| AVERAGE RETENTION | 99.67% |
| MINIMUM RETENTION | 99.67% |
| MAXIMUM RETENTION | 99.67% |

Table 7A: Sawtooth Fish Hatchery PIT-Tag BY 2010 Spring-Run Chinook

| DATE | RWY | # OF FISH TAGGED | RWY TOTAL |
|--------------------------|-----|------------------|---------------|
| 3/17/2012 | 6 | 998 | 998 |
| 3/17/2012 | 7 | 5,992 | 5,992 |
| 3/17/2012 | 9 | 6,098 | 6,098 |
| 3/18/2012 | 11 | 5,990 | 5,990 |
| 3/18/2012 | 12A | 1,693 | 1,693 |
| 3/18/2012 | 12B | 1,698 | 1,698 |
| TOTAL FISH TAGGED | | | 22,469 |

Table 8: Raceway and Mark Totals Sawtooth Fish Hatchery BY 2011 Summer-Run Chinook

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|---------|--------|-----------|-------|
| 4 | 7/12/2012 | M3 | AD/CWT | 10-02-43 | 112,940 | 20,540 | | PAH |
| 4 | 9/28/2012 | M3 | AD/CWT | 10-70-71 | 2,388 | 695 | 136,563 | PAH |
| 5 | 7/13/2012 | M3 | AD/CWT | 10-02-43 | 104,886 | 20,221 | | PAH |
| 5 | 9/28/2012 | M3 | AD/CWT | 10-70-71 | 9,123 | 1,996 | 136,226 | PAH |
| 6 | 9/8/2012 | M1 | AD/CWT | 10-02-43 | 110,380 | 17,112 | | PAH |
| 6 | 9/8/2012 | M1 | AD/CWT | 10-31-73 | 20,240 | 1,592 | | PAH |
| 6 | 9/8/2012 | M1 | AD/CWT | 10-32-73 | 16,934 | 1,428 | 167,686 | PAH |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-02-43 | 345k | 386,079 |
| 10-70-71 | 20k | 14,202 |
| 10-31-73 | 20k | 21,832 |
| 10-32-73 | 20k | 18,362 |

| | |
|---------------------|---------|
| TOTAL AD/CWT | 440,475 |
| TOTAL MARKED | 440,475 |

| CWT RETENTION | | | |
|---------------|-----|-----|--------|
| RWY | 300 | 295 | 98.33% |
| RWY 4 | 300 | 295 | 98.33% |
| RWY 5 | 300 | 289 | 96.33% |
| RWY 6 | 300 | 298 | 99.33% |

| | |
|--------------------------|--------|
| AVERAGE RETENTION | 98.00% |
| MINIMUM RETENTION | 96.33% |
| MAXIMUM RETENTION | 99.33% |

| SAWTOOTH ADIPOSE FIN-CLIP RATE | | | | | | |
|--------------------------------|-----------|---------|--------------|-----------|-------------|---------------|
| RWY | # SAMPLED | NO CLIP | PARTIAL CLIP | DEEP CLIP | # GOOD CLIP | % SUCCESSFUL |
| 4 | 300 | 0 | 5 | 0 | 295 | 98.33% |
| 5 | 300 | 0 | 2 | 0 | 298 | 99.33% |
| 6 | 300 | 0 | 6 | 0 | 294 | 98.00% |
| AVG | | | | | | 98.55% |

Sawtooth Fish Hatchery Sockeye

The Marking Crew processed BY 2011 Sockeye salmon at Sawtooth Fish Hatchery September 26th through September 28th (Table 9). A total of 171,972 fish were coded-wire tagged and adipose fin-clipped. One six-line automated marking trailer was used to process fish that received a coded-wire tag and adipose fin-clip. Fish were loaded into the main trough of the trailer via the Matsusaka fish-transfer pump. After marking, fish were distributed to either vats or raceways via four-inch aluminum discharge pipe.

Table 9: Raceway and Mark Totals Sawtooth Fish Hatchery BY 2011 Sockeye

| VAT | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|--------|--------|-----------|----------|
| 2 | 9/28/2012 | M1 | AD/CWT | 10-12-75 | 3,854 | 3,652 | | RED FISH |
| 2 | 9/28/2012 | M1 | AD/CWT | 10-13-75 | 4,466 | 0 | 11,972 | RED FISH |
| 3 | 9/28/2012 | M1 | AD/CWT | 10-12-75 | 7,787 | 2,968 | | RED FISH |
| 3 | 9/28/2012 | M1 | AD/CWT | 10-13-75 | 9,245 | 0 | 20,000 | RED FISH |
| 4 | 9/27/2012 | M1 | AD/CWT | 10-01-49 | 4,200 | 423 | | RED FISH |
| 4 | 9/27/2012 | M1 | AD/CWT | 10-12-75 | 4,800 | 3,173 | | RED FISH |
| 4 | 9/27/2012 | M1 | AD/CWT | 10-13-75 | 7,404 | 0 | 20,000 | RED FISH |
| 5 | 9/27/2012 | M1 | AD/CWT | 10-01-49 | 16,488 | 3,512 | 20,000 | RED FISH |
| 6 | 9/27/2012 | M1 | AD/CWT | 10-01-49 | 17,819 | 2,181 | 20,000 | RED FISH |
| 7 | 9/27/2012 | M1 | AD/CWT | 10-01-49 | 16,901 | 3,099 | 20,000 | RED FISH |
| 8 | 9/26/2012 | M1 | AD/CWT | 10-01-49 | 16,471 | 3,529 | 20,000 | RED FISH |
| 9 | 9/26/2012 | M1 | AD/CWT | 10-01-49 | 16,600 | 3,400 | 20,000 | RED FISH |
| 10 | 9/26/2012 | M1 | AD/CWT | 10-01-49 | 17,313 | 2,687 | 20,000 | RED FISH |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-12-75 | 25k | 26,234 |
| 10-13-75 | 25k | 21,115 |
| 10-01-49 | 110k | 124,623 |

| | |
|---------------------|---------|
| TOTAL AD/CWT | 171,972 |
| TOTAL MARKED | 171,972 |

Note: Tag retention and clip quality checks will be completed by IDFG personnel just prior to release of Sockeye salmon.

Rapid River Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2011 spring-run Chinook salmon at Rapid River Fish Hatchery June 18th through June 29th (Table 10). A total of 3,125,715 fish were coded-wire tagged and/or adipose fin-clipped. One six-line and two five-line automated marking trailers were used to process fish that received a coded-wire tag and/or adipose fin-clip. Fish were loaded into the main trough of the trailers by two electric Matsusaka fish-transfer pumps. After marking, fish were distributed to the rearing ponds via four-inch aluminum discharge pipe. Due to the long distances between marking trailers and rearing ponds much of the discharge pipe is provided by Rapid River Hatchery and is stored on site at the hatchery.

A total of 51,966 BY 2010 spring-run Chinook salmon were PIT-tagged at Rapid River Fish Hatchery from February 13th through February 15th using the four-station manual PIT-tagging trailer (Table 10A). Fish were loaded into the main trough of the trailer by manually netting the fish out of the pond and transporting them in five-gallon buckets. After marking, fish were distributed back to the pond via four-inch aluminum discharge pipe.

Table 10: Raceway and Mark Totals Rapid River Fish Hatchery BY 2011 Spring-Run Chinook

| POND | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | POND TOTAL | STOCK |
|------|--------------|---------|-----------|----------|---------|---------|------------|------------|---------|
| 1A | 6/18-26/2012 | M1 | AD/CWT | 10-01-97 | 34,114 | 6,144 | 40,258 | | RAPID R |
| 1A | 6/18-29/2012 | M1 | AD ONLY | N/A | 437,663 | 117,306 | 554,969 | 595,227 | RAPID R |
| 1B | 6/20-27/2012 | M1 | AD/CWT | 10-01-97 | 36,502 | 3,831 | 40,333 | | RAPID R |
| 1B | 6/19-29/2012 | M1 | AD ONLY | N/A | 429,231 | 126,262 | 555,493 | 595,826 | RAPID R |
| 2A | 6/22/2012 | M2 | AD/CWT | 10-01-97 | 18,623 | 1,589 | | | RAPID R |
| 2A | 6/28/2012 | M2 | AD/CWT | 10-62-71 | 17,907 | 2,093 | 40,212 | | RAPID R |
| 2A | 6/18-28/2012 | M2 | AD ONLY | N/A | 358,382 | 107,008 | 465,390 | 505,602 | RAPID R |
| 2B | 6/18-27/2012 | M3 | AD ONLY | N/A | 359,751 | 102,355 | 462,106 | 462,106 | RAPID R |
| 2C | 6/19-27/2012 | M3 | AD ONLY | N/A | 345,490 | 113,752 | 459,242 | 459,242 | RAPID R |
| 2D | 6/19-28/2012 | M2/M3 | AD ONLY | N/A | 389,590 | 118,122 | 507,712 | 507,712 | RAPID R |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-01-97 | 90k | 100,803 |
| 10-62-71 | 20k | 20,000 |

| | |
|----------------------|-----------|
| TOTAL AD/CWT | 120,803 |
| TOTAL AD ONLY | 3,004,912 |
| TOTAL MARKED | 3,125,715 |

| CWT RETENTION | | | |
|---------------|-----------|----------|--------------|
| RACEWAY | # CHECKED | # TAGGED | % SUCCESSFUL |
| RWY 1A | 310 | 310 | 100.00% |
| RWY 1A | 303 | 302 | 99.67% |
| RWY 1A | 297 | 294 | 99.00% |

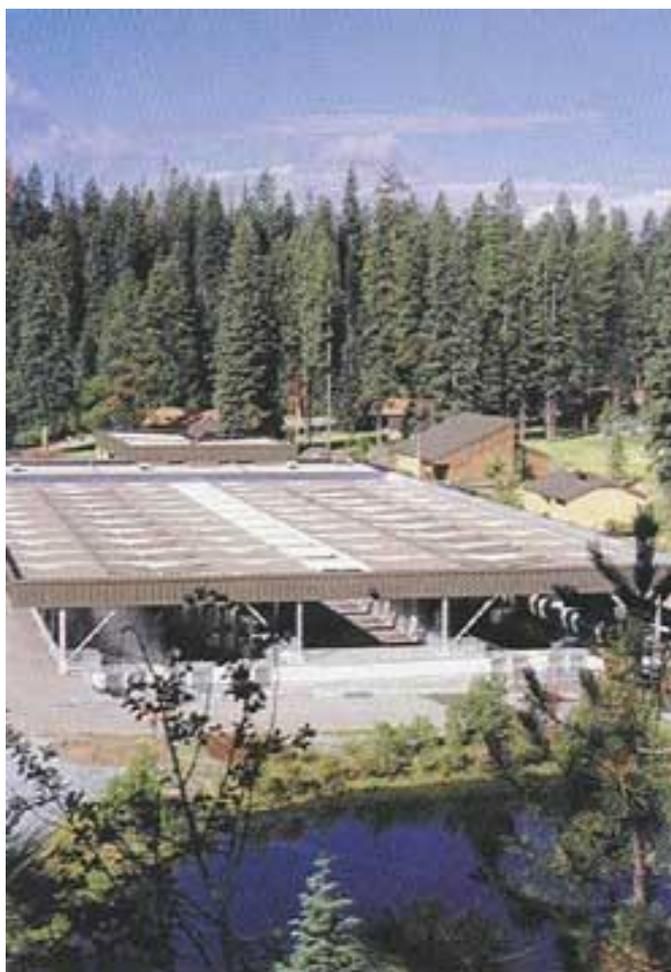
| | |
|--------------------------|---------|
| AVERAGE RETENTION | 99.56% |
| MINIMUM RETENTION | 99.00% |
| MAXIMUM RETENTION | 100.00% |

| RAPID RIVER ADIPOSE FIN-CLIP RATE | | | | | | |
|-----------------------------------|-----------|---------|--------------|-----------|-------------|---------------|
| RWY | # SAMPLED | NO CLIP | PARTIAL CLIP | DEEP CLIP | # GOOD CLIP | % SUCCESSFUL |
| 1A | 310 | 0 | 1 | 2 | 307 | 99.68% |
| 1A | 303 | 0 | 1 | 0 | 302 | 99.67% |
| 1A | 297 | 0 | 3 | 0 | 294 | 98.99% |
| | | | | | AVG | 99.45% |

Table 10A: Rapid River Fish Hatchery PIT-Tag BY 2010 Spring-Run Chinook

| DATE | POND | # OF FISH TAGGED | RWY TOTAL |
|--------------|------------|--------------------------|---------------|
| 2/13-15/2012 | 2A into 2B | 51,966 | 51,966 |
| | | TOTAL FISH TAGGED | 51,966 |

McCall Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2011 summer-run Chinook salmon at McCall Fish Hatchery on two separate occasions (Table 11). A total of 1,208,599 fish were coded-wire tagged and/or adipose fin-clipped. The first mark event occurred May 29th through June 5th; one 16-person manual marking trailer was used to adipose fin-clip and move fish to outside rearing ponds in order to reduce fish densities in the indoor vats. The second mark event occurred July 16th through July 19th; two five-line automated marking trailers were used to process fish that received an adipose fin-clip and/or coded-wire tag. Fish were loaded into the main trough of the two trailers by two electric Matsusaka fish-transfer pumps. After marking, fish were distributed to ponds via four-inch aluminum discharge pipe.

A total of 51,981 BY 2010 summer-run Chinook salmon were PIT-tagged at McCall Fish Hatchery from February 6th through February 8th using the four-station manual PIT-tagging trailer (Table 11A). Fish were loaded into the main trough of the trailer by manually netting the fish out of the pond and transporting them in five-gallon buckets. After marking, fish were sent back to the pond via four-inch aluminum discharge pipe. An additional 2,019 BY 2011 summer-run Chinook salmon were PIT-tagged at

McCall Fish Hatchery on October 5th. Fish were manually netted out of the pond and allowed to recover in five-gallon buckets before being manually poured back into the pond.

Table 11: Raceway and Mark Totals McCall Fish Hatchery BY 2011 Summer-Run Chinook

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | RWY TOTAL | STOCK |
|--------|-----------|---------|-----------|----------|---------|---------|------------|-----------|------------|
| VAT 3 | 7/18/2012 | M3 | CWT ONLY | 22-01-25 | 27,708 | 5,409 | 33,117 | 33,117 | JOHNSON CK |
| VAT 1 | 7/19/2012 | M3 | CWT ONLY | 22-01-25 | 27,240 | 6,595 | 33,835 | 33,835 | JOHNSON CK |
| VAT 4 | 7/19/2012 | M3 | CWT ONLY | 22-01-26 | 28,324 | 3,788 | 32,112 | 32,112 | JOHNSON CK |
| VAT 2 | 7/19/2012 | M3 | CWT ONLY | 22-01-26 | 26,364 | 5,290 | 31,654 | 31,654 | JOHNSON CK |
| POND 1 | 7/19/2012 | M2 | AD/CWT | 10-56-71 | 20,558 | 0 | 20,558 | | S F SALMON |
| POND 2 | 7/17/2012 | M2 | AD/CWT | 10-02-28 | 33,924 | 6,079 | 40,003 | | S F SALMON |
| POND 1 | 7/19/2012 | M2 | AD/CWT | 10-02-28 | 45,879 | 13,810 | 59,689 | | S F SALMON |
| POND 2 | 7/18/2012 | M3 | CWT ONLY | 10-02-42 | 174,479 | 38,927 | 213,406 | | S F SALMON |
| POND 2 | 7/19/2012 | M2 | CWT ONLY | 10-02-42 | 17,418 | 5,219 | 22,637 | | S F SALMON |
| POND 2 | 7/19/2012 | M2 | CWT ONLY | 10-55-71 | 17,308 | 805 | 18,113 | | S F SALMON |
| POND 2 | 7/16/2012 | M3 | AD ONLY | N/A | 11,378 | 12,602 | 23,980 | | S F SALMON |
| POND 2 | 7/19/2012 | M2 | AD ONLY | N/A | 131,405 | 77,710 | 209,115 | 527,254 | S F SALMON |
| POND 1 | 7/19/2012 | M2 | AD ONLY | N/A | 43,670 | 24,184 | 67,854 | | S F SALMON |
| POND 1 | 6/5/2012 | AD 1 | AD ONLY | N/A | 0 | 402,526 | 402,526 | 550,627 | S F SALMON |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 22-01-25 | 60k | 66,952 |
| 22-01-26 | 60k | 63,766 |
| 10-56-71 | 20k | 20,558 |
| 10-02-28 | 90k | 99,692 |
| 10-02-42 | 205k | 236,043 |
| 10-55-71 | 20K | 18,113 |

| | |
|-----------------------|-----------|
| TOTAL AD/CWT | 120,250 |
| TOTAL CWT ONLY | 384,874 |
| TOTAL AD ONLY | 703,475 |
| TOTAL MARKED | 1,208,599 |

| CWT RETENTION | | | |
|---------------|-----------|----------|--------------|
| RACEWAY | # CHECKED | # TAGGED | % SUCCESSFUL |
| VAT 1,3 | 300 | 299 | 99.67% |
| VAT 2,4 | 300 | 300 | 100.00% |
| UPPER 11 | 304 | 304 | 100.00% |
| LOWER 11 | 298 | 298 | 100.00% |
| UPPER 12 | 299 | 299 | 100.00% |
| LOWER 12 | 295 | 295 | 100.00% |

| | |
|--------------------------|---------|
| AVERAGE RETENTION | 99.94% |
| MINIMUM RETENTION | 99.67% |
| MAXIMUM RETENTION | 100.00% |

| MCCALL ADIPOSE FIN-CLIP RATE | | | | | | |
|-------------------------------------|------------------|----------------|----------------|-------------|---------------|---------------------|
| RWY | # SAMPLED | NO CLIP | PARTIAL | DEEP | # GOOD | % SUCCESSFUL |
| UPPER 12 | 299 | 0 | 3 | 0 | 296 | 99.00% |
| LOWER 12 | 295 | 0 | 2 | 1 | 292 | 99.32% |
| | | | | | AVG | 99.16% |

| Table 11A: McCall Fish Hatchery PIT-Tag BY 2010 Summer-Run Chinook | | | |
|---|-------------|--------------------------|------------------|
| DATE | POND | # OF FISH TAGGED | RWY TOTAL |
| 2/6-7/2012 | 1 | 25,987 | 25,987 |
| 2/7-8/2012 | 2 | 25,994 | 25,994 |
| | | TOTAL FISH TAGGED | 51,981 |

| Table 11B: McCall Fish Hatchery PIT-Tag BY 2011 Summer-Run Chinook | | | |
|---|-------------|--------------------------|------------------|
| DATE | POND | # OF FISH TAGGED | RWY TOTAL |
| 10/5/2012 | 2 | 2,019 | 2,019 |
| | | TOTAL FISH TAGGED | 2,019 |

Magic Valley Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2012 summer-run steelhead at Magic Valley Fish Hatchery on two separate occasions (Table 12). The first trip occurred July 26th through August 1st; the second mark event was August 9th through August 13th. A total of 1,378,479 fish were coded-wire tagged and/or adipose fin-clipped using one five-line and one six-line automated marking trailer. Fish were loaded into the main trough of the two trailers by hatchery personnel utilizing a forklift mounted live fish transfer tank. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

A total of 32,991 BY 2011 summer-run steelhead were PIT-tagged at Magic Valley Fish Hatchery from January 5th through January 6th using the four-station manual PIT-tagging trailer (Table 12A). Fish were loaded into the main trough of the trailer by hatchery personnel utilizing a forklift mounted live fish transfer tank. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 12: Raceway and Mark Totals Magic Valley Fish Hatchery BY 2012 Steelhead

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | RWY TOTAL | STOCK |
|------|-----------|---------|-----------|----------|--------|--------|------------|-----------|----------------|
| E1A | 8/10/2012 | M1 | CWT ONLY | 10-26-73 | 11,081 | 4,400 | 15,481 | | UPPER SALMON B |
| E1A | 8/10/2012 | M2 | CWT ONLY | 10-15-83 | 3,191 | 699 | 3,890 | | UPPER SALMON B |
| E1A | 8/10/2012 | M2 | CWT ONLY | 10-25-73 | 10,017 | 2,629 | 12,646 | 32,017 | DWORSHAK B |
| E1B | 7/26/2012 | M2 | AD & CWT | 10-46-71 | 0 | 2,260 | 2,260 | | DWORSHAK B |
| E1B | 7/26/2012 | M2 | AD & CWT | 10-02-24 | 26,023 | 3,734 | 29,757 | 32,017 | DWORSHAK B |
| E2A | 7/27/2012 | M2 | AD & CWT | 10-46-71 | 13,718 | 140 | 13,858 | | DWORSHAK B |
| E2A | 7/28/2012 | M2 | AD & CWT | 10-02-24 | 11,525 | 6,668 | 18,193 | 32,051 | DWORSHAK B |
| E2B | 7/28/2012 | M2 | AD ONLY | N/A | 21,822 | 10,193 | 32,015 | 32,015 | DWORSHAK B |
| E3A | 7/28/2012 | M2 | AD ONLY | N/A | 22,000 | 10,000 | 32,000 | 32,000 | DWORSHAK B |
| E3B | 7/27/2012 | M2 | AD & CWT | 10-02-24 | 26,325 | 5,680 | 32,005 | 32,005 | DWORSHAK B |
| E4A | 7/26/2012 | M2 | AD ONLY | N/A | 21,500 | 10,500 | 32,000 | 32,000 | DWORSHAK B |
| E4B | 7/26/2012 | M2 | AD ONLY | N/A | 18,569 | 13,717 | 32,286 | 32,286 | DWORSHAK B |
| E5A | 8/12/2012 | M2 | AD & CWT | 10-21-73 | 11,051 | 7,000 | 18,051 | | PAHSIMEROI |
| E5A | 8/12/2012 | M2 | AD & CWT | 10-02-25 | 13,977 | 0 | 13,977 | 32,028 | PAHSIMEROI |
| E5B | 8/13/2012 | M2 | AD ONLY | N/A | 18,358 | 13,642 | 32,000 | 32,000 | PAHSIMEROI |
| E6A | 8/12/2012 | M2 | AD & CWT | 10-02-25 | 26,735 | 5,275 | 32,010 | 32,010 | PAHSIMEROI |
| E6B | 8/11/2012 | M2 | AD ONLY | N/A | 19,012 | 13,024 | 32,036 | 32,036 | PAHSIMEROI |
| E7A | 8/11/2012 | M2 | AD ONLY | N/A | 20,503 | 11,513 | 32,016 | 32,016 | PAHSIMEROI |
| E7B | 8/11/2012 | M2 | AD & CWT | 10-02-25 | 25,953 | 6,074 | 32,027 | 32,027 | PAHSIMEROI |
| E10A | 8/10/2012 | M2 | AD ONLY | N/A | 20,507 | 11,506 | 32,013 | 32,013 | PAHSIMEROI |
| E10B | 7/29/2012 | M2 | AD & CWT | 10-02-12 | 28,232 | 3,789 | 32,021 | 32,021 | PAHSIMEROI |
| E11A | 7/30/2012 | M2 | AD & CWT | 10-02-02 | 25,348 | 6,103 | 31,451 | | PAHSIMEROI |
| E11A | 7/30/2012 | M2 | AD & CWT | 10-02-12 | 799 | 0 | 799 | 32,250 | PAHSIMEROI |
| E11B | 7/29/2012 | M2 | AD & CWT | 10-02-12 | 26,170 | 5,887 | 32,057 | 32,057 | PAHSIMEROI |
| E12A | 7/31/2012 | M2 | AD ONLY | N/A | 19,900 | 12,100 | 32,000 | 32,000 | PAHSIMEROI |
| E12B | 8/1/2012 | M2 | AD ONLY | N/A | 22,008 | 10,025 | 32,033 | 32,033 | PAHSIMEROI |
| E13A | 7/31/2012 | M2 | AD ONLY | N/A | 19,501 | 12,500 | 32,001 | 32,001 | PAHSIMEROI |
| E13B | 7/31/2012 | M2 | AD & CWT | 10-66-71 | 16,524 | 0 | 16,524 | | PAHSIMEROI |
| E13B | 7/31/2012 | M2 | AD & CWT | 10-02-26 | 9,490 | 6,153 | 15,643 | 32,167 | PAHSIMEROI |
| E14A | 7/31/2012 | M2 | AD & CWT | 10-02-26 | 25,195 | 5,447 | 30,642 | | PAHSIMEROI |
| E14A | 7/31/2012 | M2 | AD & CWT | 10-66-71 | 1,392 | 0 | 1,392 | 32,034 | PAHSIMEROI |
| E14B | 7/30/2012 | M2 | AD & CWT | 10-02-26 | 27,858 | 4,143 | 32,001 | 32,001 | PAHSIMEROI |
| W1A | 8/9/2012 | M1 | CWT ONLY | 10-02-27 | 26,516 | 5,499 | 32,015 | 32,015 | UPPER SALMON B |
| W1B | 8/9/2012 | M1 | CWT ONLY | 10-02-27 | 27,847 | 4,154 | 32,001 | 32,001 | UPPER SALMON B |
| W2A | 7/28/2012 | M1 | CWT ONLY | 10-02-04 | 28,725 | 3,958 | 32,683 | 32,683 | UPPER SALMON B |
| W2B | 8/9/2012 | M1 | CWT ONLY | 10-02-27 | 21,137 | 5,467 | 26,604 | | UPPER SALMON B |
| W2B | 8/9/2012 | M1 | CWT ONLY | 10-26-73 | 5,413 | 0 | 5,413 | 32,017 | UPPER SALMON B |
| W3A | 7/28/2012 | M1 | AD & CWT | 10-02-15 | 26,544 | 5,758 | 32,302 | 32,302 | DWORSHAK B |
| W3B | 7/28/2012 | M1 | CWT ONLY | 10-01-91 | 26,106 | 5,894 | 32,000 | 32,000 | DWORSHAK B |

Table 12: Raceway and Mark Totals Magic Valley Fish Hatchery BY 2012 Steelhead

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | MARK TOTAL | RWY TOTAL | STOCK |
|------|-----------|---------|-----------|----------|--------|--------|------------|-----------|------------|
| W4A | 7/27/2012 | M1 | AD ONLY | N/A | 23,618 | 8,382 | 32,000 | 32,000 | DWORSHAK B |
| W4B | 7/27/2012 | M1 | AD ONLY | N/A | 26,331 | 5,700 | 32,031 | 32,031 | DWORSHAK B |
| W5A | 7/26/2012 | M1 | AD ONLY | N/A | 24,211 | 7,800 | 32,011 | 32,011 | DWORSHAK B |
| W5B | 7/27/2012 | M1 | AD & CWT | 10-02-15 | 28,016 | 3,984 | 32,000 | 32,000 | DWORSHAK B |
| W6B | 7/26/2012 | M1 | AD ONLY | N/A | 25,700 | 6,301 | 32,001 | 32,001 | DWORSHAK B |
| W11A | 7/31/2012 | M1 | AD ONLY | N/A | 26,601 | 5,399 | 32,000 | 32,000 | DWORSHAK B |
| W11B | 7/31/2012 | M1 | AD ONLY | N/A | 27,700 | 4,300 | 32,000 | 32,000 | DWORSHAK B |
| W12A | 7/30/2012 | M1 | AD ONLY | N/A | 26,999 | 5,001 | 32,000 | 32,000 | DWORSHAK B |
| W12B | 7/29/2012 | M1 | AD & CWT | 10-02-19 | 28,471 | 3,593 | 32,064 | 32,064 | DWORSHAK B |
| W13A | 7/30/2012 | M1 | AD & CWT | 10-02-19 | 27,938 | 4,064 | 32,002 | 32,002 | DWORSHAK B |
| W13B | 7/29/2012 | M1 | AD ONLY | N/A | 24,687 | 7,558 | 32,245 | 32,245 | DWORSHAK B |
| W14A | 7/31/2012 | M1 | AD ONLY | N/A | 26,239 | 5,761 | 32,000 | 32,000 | DWORSHAK B |
| W14B | 7/30/2012 | M1 | AD ONLY | N/A | 27,822 | 4,200 | 32,022 | 32,022 | DWORSHAK B |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-02-27 | 80K | 90,620 |
| 10-15-83 | 10K | 3,890 |
| 10-26-73 | 20K | 20,894 |
| 10-25-73 | 20K | 12,646 |
| 10-02-25 | 70K | 78,014 |
| 10-21-73 | 20K | 18,051 |
| 10-02-15 | 60K | 64,302 |
| 10-02-04 | 30K | 32,683 |
| 10-01-91 | 30K | 32,000 |
| 10-02-19 | 60K | 64,066 |
| 10-02-24 | 70K | 79,955 |
| 10-46-71 | 20K | 16,118 |
| 10-02-02 | 30K | 31,451 |
| 10-02-12 | 60K | 64,877 |
| 10-66-71 | 20K | 17,916 |
| 10-02-26 | 70K | 78,286 |

| | |
|-----------------------|-----------|
| TOTAL AD/CWT | 513,036 |
| TOTAL CWT ONLY | 192,733 |
| TOTAL AD ONLY | 672,710 |
| TOTAL MARKED | 1,378,479 |

| CWT RETENTION | | | |
|----------------------|------------------|-----------------|---------------------|
| RACEWAY | # CHECKED | # TAGGED | % SUCCESSFUL |
| W1A | 300 | 295 | 98.33% |
| W1B | 300 | 297 | 99.00% |
| W2A | 300 | 300 | 100.00% |
| W2B | 310 | 309 | 99.68% |
| W3A | 319 | 317 | 99.37% |
| W3B | 300 | 295 | 98.33% |
| W5B | 300 | 299 | 99.67% |
| W12B | 300 | 298 | 99.33% |
| W13A | 300 | 300 | 100.00% |
| E1A | 357 | 355 | 99.44% |
| E1B | 300 | 297 | 99.00% |
| E2A | 300 | 298 | 99.33% |
| E3B | 300 | 297 | 99.00% |
| E5A | 300 | 295 | 98.33% |
| E6A | 300 | 296 | 98.67% |
| E7B | 300 | 297 | 99.00% |
| E10B | 300 | 300 | 100.00% |
| E11A | 300 | 297 | 99.00% |
| E11B | 301 | 300 | 99.67% |
| E13B | 300 | 300 | 100.00% |
| E14A | 304 | 302 | 99.34% |
| E14B | 300 | 298 | 99.33% |

| | |
|--------------------------|---------|
| AVERAGE RETENTION | 99.27% |
| MINIMUM RETENTION | 98.33% |
| MAXIMUM RETENTION | 100.00% |

| MAGIC VALLEY ADIPOSE FIN-CLIP RATE | | | | | | |
|------------------------------------|-----------|---------|---------|------|------------|---------------|
| RWY | # SAMPLED | NO CLIP | PARTIAL | DEEP | # GOOD | % SUCCESSFUL |
| W3A | 319 | 3 | 1 | 0 | 315 | 98.75% |
| W5B | 300 | 2 | 0 | 0 | 298 | 99.33% |
| W12B | 300 | 1 | 1 | 0 | 298 | 99.33% |
| W13A | 300 | 0 | 2 | 0 | 298 | 99.33% |
| E1B | 300 | 3 | 1 | 0 | 296 | 98.67% |
| E2A | 300 | 0 | 3 | 0 | 297 | 99.00% |
| E3B | 300 | 1 | 2 | 0 | 297 | 99.00% |
| E5A | 300 | 2 | 1 | 0 | 297 | 99.00% |
| E6A | 300 | 2 | 4 | 0 | 294 | 98.00% |
| E7B | 300 | 0 | 0 | 2 | 298 | 100.00% |
| E10B | 300 | 2 | 2 | 0 | 296 | 98.67% |
| E11A | 300 | 0 | 4 | 0 | 296 | 98.67% |
| E11B | 301 | 4 | 4 | 0 | 293 | 97.34% |
| E13B | 300 | 1 | 3 | 0 | 296 | 98.67% |
| E14A | 304 | 5 | 0 | 0 | 299 | 98.36% |
| E14B | 300 | 6 | 1 | 0 | 293 | 97.67% |
| | | | | | AVG | 98.74% |

| Table 12A: Magic Valley Fish Hatchery PIT-Tag BY 2011 Steelhead | | | |
|--|------------|--------------------------|------------------|
| DATE | RWY | # OF FISH TAGGED | RWY TOTAL |
| 1/5/2012 | W14A | 3,624 | 3,624 |
| 1/5/2012 | W14B | 3,595 | 3,595 |
| 1/5/2012 | W11A | 1,699 | 1,699 |
| 1/5/2012 | W7B | 1,697 | 1,697 |
| 1/5/2012 | W6A | 1,695 | 1,695 |
| 1/5/2012 | W4A | 1,698 | 1,698 |
| 1/5/2012 | W3A | 1,697 | 1,697 |
| 1/5/2012 | W1A | 1,697 | 1,697 |
| 1/6/2012 | E1B | 1,399 | 1,399 |
| 1/6/2012 | E2B | 1,300 | 1,300 |
| 1/6/2012 | E3A | 1,200 | 1,200 |
| 1/6/2012 | E5A | 996 | 996 |
| 1/6/2012 | E5B | 1,199 | 1,199 |
| 1/6/2012 | E7A | 1,296 | 1,296 |
| 1/6/2012 | E7B | 1,100 | 1,100 |
| 1/6/2012 | E11A | 1,100 | 1,100 |
| 1/6/2012 | E11B | 1,100 | 1,100 |
| 1/6/2012 | E12B | 1,100 | 1,100 |
| 1/6/2012 | E14A | 1,699 | 1,699 |
| 1/6/2012 | E15A | 1,000 | 1,000 |
| 1/6/2012 | E114B | 1,100 | 1,100 |
| | | TOTAL FISH TAGGED | 32,991 |

Hagerman National Fish Hatchery



Photo Credit: Hagerman National Fish Hatchery, USFWS

The Idaho Anadromous Fish-Marking Crew processed BY 2012 summer-run steelhead at Hagerman National Fish Hatchery on two separate occasions (Table 13). The first trip occurred August 16th through August 24th; the second mark event was September 5th through September 7th. A total of 1,301,176 fish were coded-wire tagged and/or adipose fin-clipped using one five-line and one six-line automated marking trailer. Fish were loaded into the main trough of the two trailers by hatchery personnel utilizing a forklift mounted live fish transfer tank. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

A total of 31,355 BY 2011 summer-run steelhead were PIT-tagged at Hagerman National Fish Hatchery from November 1st through November 3rd using the four-station manual PIT-tagging trailer (Table 13A). Fish were loaded into the main trough of the trailer by hatchery personnel utilizing a forklift mounted live fish transfer tank. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 13: Raceway and Mark Totals Hagerman National Fish Hatchery BY 2012 Steelhead

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|--------|--------|-----------|-------------|
| 37 | 8/16/2012 | M3 | AD/CWT | 10-02-22 | 12,918 | 2,150 | | SAWTH |
| 37 | 8/16/2012 | M3 | AD/CWT | 10-22-73 | 8,558 | 0 | 23,626 | SAWTH |
| 38 | 8/17/2012 | M3 | AD ONLY | N/A | 17,965 | 6,069 | 24,034 | SAWTH |
| 39 | 8/16/2012 | M3 | AD/CWT | 10-02-22 | 13,054 | 3,361 | | SAWTH |
| 39 | 8/16/2012 | M3 | AD/CWT | 10-22-73 | 7,839 | 0 | 24,254 | SAWTH |
| 40 | 8/17/2012 | M3 | AD ONLY | N/A | 20,220 | 3,400 | 23,620 | SAWTH |
| 41 | 8/17/2012 | M3 | AD ONLY | N/A | 18,193 | 5,510 | 23,703 | SAWTH |
| 42 | 8/18/2012 | M3 | AD ONLY | N/A | 19,004 | 4,596 | 23,600 | SAWTH |
| 43 | 8/18/2012 | M3 | AD ONLY | N/A | 18,461 | 5,139 | 23,600 | SAWTH |
| 44 | 8/18/2012 | M3 | AD ONLY | N/A | 16,974 | 6,668 | 23,642 | SAWTH |
| 45 | 8/18/2012 | M3 | AD ONLY | N/A | 17,711 | 5,922 | 23,633 | SAWTH |
| 46 | 8/19/2012 | M3 | AD ONLY | N/A | 17,424 | 6,183 | 23,607 | SAWTH |
| 47 | 8/19/2012 | M3 | AD ONLY | N/A | 19,478 | 4,130 | 23,608 | SAWTH |
| 48 | 8/19/2012 | M3 | AD/CWT | 10-01-94 | 20,601 | 3,115 | 23,716 | SAWTH |
| 49 | 8/20/2012 | M3 | AD ONLY | N/A | 16,995 | 6,605 | 23,600 | SAWTH |
| 50 | 8/20/2012 | M3 | AD ONLY | N/A | 18,320 | 5,285 | 23,605 | SAWTH |
| 51 | 9/5/2012 | M3 | AD ONLY | N/A | 14,050 | 9,675 | 23,725 | SAWTH |
| 52 | 9/5/2012 | M3 | AD ONLY | N/A | 4,003 | 3,091 | 7,094 | SAWTH |
| 53 | 8/20/2012 | M3 | AD ONLY | N/A | 16,921 | 6,786 | 23,707 | SAWTH |
| 54 | 8/21/2012 | M3 | AD/CWT | 10-02-23 | 18,421 | 0 | | SAWTH |
| 54 | 8/21/2012 | M3 | AD/CWT | 10-35-71 | 0 | 5,494 | 23,915 | SAWTH |
| 55 | 8/21/2012 | M3 | AD ONLY | N/A | 15,567 | 8,037 | 23,604 | SAWTH |
| 56 | 8/21/2012 | M3 | AD/CWT | 10-02-23 | 17,773 | 0 | | SAWTH |
| 56 | 8/21/2012 | M3 | AD/CWT | 10-35-71 | 0 | 5,891 | 23,664 | SAWTH |
| 57 | 8/22/2012 | M3 | AD ONLY | N/A | 14,609 | 8,992 | 23,601 | SAWTH |
| 59 | 8/22/2012 | M1 | AD ONLY | N/A | 15,256 | 7,472 | 22,728 | SAWTH |
| 60 | 8/22/2012 | M1 | AD ONLY | N/A | 15,890 | 6,810 | 22,700 | SAWTH |
| 61 | 8/22/2012 | M1 | AD ONLY | N/A | 13,219 | 9,501 | 22,720 | SAWTH |
| 62 | 8/22/2012 | M1 | AD ONLY | N/A | 13,424 | 9,300 | 22,724 | SAWTH |
| 63 | 8/23/2012 | M1 | AD ONLY | N/A | 14,563 | 8,137 | 22,700 | SAWTH |
| 64 | 8/23/2012 | M1 | AD ONLY | N/A | 18,000 | 4,700 | 22,700 | SAWTH |
| 65 | 8/23/2012 | M1 | AD ONLY | N/A | 17,211 | 5,489 | 22,700 | SAWTH |
| 66 | 8/24/2012 | M1 | AD/CWT | 10-74-71 | 17,853 | 0 | | SAWTH |
| 66 | 8/24/2012 | M1 | AD/CWT | 10-01-94 | 0 | 4,891 | 22,744 | SAWTH |
| 67 | 8/24/2012 | M1 | AD ONLY | N/A | 12,816 | 6,703 | 19,519 | SAWTH |
| 68 | 8/24/2012 | M1 | AD ONLY | N/A | 12,255 | 7,363 | 19,618 | SAWTH |
| 69 | 8/24/2012 | M3 | AD ONLY | N/A | 13,297 | 4,550 | 17,847 | SAWTH |
| 70 | 8/23/2012 | M3 | AD ONLY | N/A | 16,348 | 6,501 | 22,849 | SAWTH |
| 71 | 8/23/2012 | M3 | CWT ONLY | 10-02-38 | 21,091 | 5,254 | 26,345 | E.F.NATURAL |
| 72 | 8/23/2012 | M3 | CWT ONLY | 10-02-38 | 15,358 | 4,028 | 19,386 | E.F.NATURAL |

Table 13: Raceway and Mark Totals Hagerman National Fish Hatchery BY 2012 Steelhead

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|--------|--------|-----------|-------------|
| 73 | 9/6/2012 | M3 | CWT ONLY | 10-02-38 | 16,536 | 5,488 | 22,024 | E.F.NATURAL |
| 74 | 9/6/2012 | M3 | CWT ONLY | 10-02-38 | 11,291 | 2,722 | 14,013 | E.F.NATURAL |
| 75 | 8/22/2012 | M3 | AD ONLY | N/A | 16,300 | 5,700 | 22,000 | SAWTH |
| 76 | 8/22/2012 | M3 | AD/CWT | 10-35-71 | 0 | 4,139 | | SAWTH |
| 76 | 8/22/2012 | M3 | AD/CWT | 10-02-23 | 17,861 | 0 | 22,000 | SAWTH |
| 77 | 9/5/2012 | M3 | AD ONLY | N/A | 14,820 | 7,175 | 21,995 | SAWTH |
| 78 | 9/5/2012 | M3 | AD/CWT | 10-35-71 | 0 | 3,255 | | SAWTH |
| 78 | 9/5/2012 | M3 | AD/CWT | 10-02-23 | 18,754 | 0 | 22,009 | SAWTH |
| 79 | 9/5/2012 | M3 | AD ONLY | N/A | 6,874 | 3,582 | 10,456 | SAWTH |
| 81 | 8/17/2012 | M3 | AD/CWT | 10-02-22 | 13,183 | 3,167 | | SAWTH |
| 81 | 8/17/2012 | M3 | AD/CWT | 10-22-73 | 5,653 | 0 | 22,003 | SAWTH |
| 82 | 8/17/2012 | M1 | AD ONLY | N/A | 6,809 | 4,954 | 11,763 | SAWTH |
| 83 | 8/17/2012 | M3 | AD/CWT | 10-02-22 | 17,451 | 3,505 | | SAWTH |
| 83 | 8/17/2012 | M3 | AD/CWT | 10-22-73 | 1,088 | 0 | 22,044 | SAWTH |
| 84 | 8/16/2012 | M1 | AD ONLY | N/A | 16,758 | 5,274 | 22,032 | SAWTH |
| 85 | 8/16/2012 | M1 | AD ONLY | N/A | 16,508 | 5,500 | 22,008 | SAWTH |
| 86 | 8/17/2012 | M1 | AD/CWT | 10-01-94 | 16,838 | 5,300 | 22,138 | SAWTH |
| 87 | 8/17/2012 | M1 | AD ONLY | N/A | 17,397 | 4,320 | 21,717 | SAWTH |
| 88 | 8/18/2012 | M1 | AD ONLY | N/A | 18,112 | 3,962 | 22,074 | SAWTH |
| 89 | 8/18/2012 | M1 | AD ONLY | N/A | 16,931 | 5,100 | 22,031 | SAWTH |
| 90 | 8/18/2012 | M1 | AD ONLY | N/A | 17,768 | 4,300 | 22,068 | SAWTH |
| 91 | 8/19/2012 | M1 | AD ONLY | N/A | 14,521 | 7,504 | 22,025 | SAWTH |
| 92 | 8/19/2012 | M1 | AD/CWT | 10-01-94 | 19,095 | 2,895 | 21,990 | SAWTH |
| 93 | 8/19/2012 | M1 | AD ONLY | N/A | 14,006 | 8,099 | 22,105 | SAWTH |
| 94 | 8/20/2012 | M1 | AD ONLY | N/A | 16,624 | 5,385 | 22,009 | SAWTH |
| 95 | 8/20/2012 | M1 | AD ONLY | N/A | 18,903 | 5,626 | 24,529 | SAWTH |
| 96 | 8/20/2012 | M1 | AD ONLY | N/A | 18,701 | 5,701 | 24,402 | SAWTH |
| 97 | 9/6/2012 | M3 | CWT ONLY | 10-02-38 | 16,467 | 4,040 | 20,507 | E.F.NATURAL |
| 98 | 9/6/2012 | M3 | CWT ONLY | 10-02-38 | 0 | 5,611 | 0 | E.F.NATURAL |
| 98 | 9/6/2012 | M3 | CWT ONLY | 10-02-10 | 14,889 | 0 | 20,500 | E.F.NATURAL |
| 99 | 9/7/2012 | M3 | CWT ONLY | 10-02-38 | 0 | 3,548 | | E.F.NATURAL |
| 99 | 9/7/2012 | M3 | CWT ONLY | 10-02-10 | 17,026 | 0 | 20,574 | E.F.NATURAL |
| 100 | 9/7/2012 | M3 | CWT ONLY | 10-02-38 | 0 | 2,017 | | E.F.NATURAL |
| 100 | 9/7/2012 | M3 | CWT ONLY | 10-02-10 | 9,850 | 1,982 | 13,849 | E.F.NATURAL |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-02-22 | 70k | 68,789 |
| 10-22-73 | 20k | 23,138 |
| 10-01-94 | 70k | 72,735 |
| 10-02-23 | 70k | 72,809 |
| 10-35-71 | 20k | 18,779 |
| 10-74-71 | 20k | 17,853 |
| 10-02-38 | 100k | 113,451 |
| 10-02-10 | 60k | 43,747 |

| | |
|-----------------------|-----------|
| TOTAL AD/CWT | 274,103 |
| TOTAL CWT ONLY | 136,691 |
| TOTAL AD ONLY | 890,382 |
| TOTAL MARKED | 1,301,176 |

| CWT RETENTION | | | |
|---------------|-----------|----------|--------------|
| RACEWAY | # CHECKED | # TAGGED | % SUCCESSFUL |
| RWY 37 | 300 | 286 | 95.33% |
| RWY 39 | 300 | 289 | 96.33% |
| RWY 48 | 300 | 294 | 98.00% |
| RWY 54 | 300 | 295 | 98.33% |
| RWY 56 | 300 | 294 | 98.00% |
| RWY 81 | 300 | 294 | 98.00% |
| RWY 83 | 300 | 296 | 98.67% |
| RWY 86 | 300 | 291 | 97.00% |
| RWY 92 | 300 | 292 | 97.33% |
| RWY 78 | 300 | 284 | 94.67% |
| RWY 76 | 300 | 292 | 97.33% |
| RWY 66 | 300 | 296 | 98.67% |
| RWY 72 | 300 | 294 | 98.00% |
| RWY 73 | 300 | 286 | 95.33% |
| RWY 74 | 300 | 290 | 96.67% |
| RWY 97 | 300 | 277 | 92.33% |
| RWY 98 | 300 | 290 | 96.67% |
| RWY 99 | 300 | 265 | 88.33% |
| RWY 100 | 300 | 264 | 88.00% |

| | |
|--------------------------|--------|
| AVERAGE RETENTION | 99.95% |
| MINIMUM RETENTION | 88.00% |
| MAXIMUM RETENTION | 98.67% |

| HAGERMAN NATIONAL ADIPOSE FIN-CLIP RATE | | | | | | |
|--|------------------|----------------|---------------------|------------------|--------------------|---------------------|
| RWY | # SAMPLED | NO CLIP | PARTIAL CLIP | DEEP CLIP | # GOOD CLIP | % SUCCESSFUL |
| 37 | 300 | 3 | 6 | 0 | 291 | 97.00% |
| 39 | 300 | 1 | 8 | 0 | 291 | 97.00% |
| 48 | 300 | 2 | 8 | 0 | 290 | 96.67% |
| 54 | 300 | 3 | 4 | 0 | 293 | 97.67% |
| 56 | 300 | 0 | 6 | 0 | 294 | 98.00% |
| 81 | 300 | 1 | 8 | 0 | 291 | 97.00% |
| 83 | 300 | 7 | 10 | 0 | 283 | 94.33% |
| 86 | 300 | 4 | 9 | 0 | 287 | 95.67% |
| 92 | 300 | 3 | 8 | 0 | 289 | 96.33% |
| 78 | 300 | 4 | 3 | 0 | 293 | 97.67% |
| 76 | 300 | 6 | 7 | 0 | 287 | 95.67% |
| 66 | 300 | 3 | 9 | 0 | 288 | 96.00% |
| | | | | | AVG | 96.58% |

| Table 13A: Hagerman National Fish Hatchery PIT-Tag BY 2011 Steelhead | | | |
|---|------------|--------------------------|------------------|
| DATE | RWY | # OF FISH TAGGED | RWY TOTAL |
| 11/6/2012 | 37 | 797 | 797 |
| 11/6/2012 | 39 | 699 | 699 |
| 11/6/2012 | 41 | 1,483 | 1,483 |
| 11/6/2012 | 44 | 1,499 | 1,499 |
| 11/6/2012 | 50 | 1,599 | 1,599 |
| 11/6/2012 | 55 | 999 | 999 |
| 11/6/2012 | 56 | 999 | 999 |
| 11/6/2012 | 60 | 1,499 | 1,499 |
| 11/6/2012 | 63 | 1,497 | 1,497 |
| 11/6/2012 | 66 | 1,499 | 1,499 |
| 11/7/2012 | 71 | 999 | 999 |
| 11/7/2012 | 73 | 1,798 | 1,798 |
| 11/7/2012 | 74 | 1,798 | 1,798 |
| 11/7/2012 | 76 | 999 | 999 |
| 11/7/2012 | 79 | 1,000 | 1,000 |
| 11/7/2012 | 82 | 700 | 700 |
| 11/7/2012 | 84 | 1,598 | 1,598 |
| 11/7/2012 | 88 | 1,500 | 1,500 |
| 11/7/2012 | 91 | 1,596 | 1,596 |
| 11/7/2012 | 94 | 1,599 | 1,599 |
| 11/8/2012 | 97 | 1,798 | 1,798 |
| 11/8/2012 | 98 | 1,700 | 1,700 |
| 11/8/2012 | 100 | 1,700 | 1,700 |
| | | TOTAL FISH TAGGED | 31,355 |

Niagara Springs Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2012 summer-run steelhead at Niagara Springs Fish Hatchery August 25th through August 31st (Table 14). A total of 1,857,092 fish were coded-wire tagged and/or adipose fin-clipped. Two five-line and one six-line automated marking trailers were used to process fish that received a coded-wire tag and/or adipose fin-clip. Fish were loaded into the main trough of the trailers by two electric Matsusaka fish transfer pumps and a hydraulic fish transfer pump that was borrowed from Magic Valley. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

A total of 28,270 BY 2011 summer-run steelhead were PIT-tagged at Niagara Springs Fish Hatchery from January 7th through January 9th using the four-station manual PIT-tagging trailer (Table 14A). Fish were loaded into the main trough of the trailer by an electric Matsusaka fish transfer pump. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 14: Raceway and Mark Totals Niagara Springs Fish Hatchery BY 2012 Steelhead

| RWY | DATE | TRAILER | MARK TYPE | TAG CODE | MATS | MANUAL | RWY TOTAL | STOCK |
|-----|-----------|---------|-----------|----------|--------|--------|-----------|-------|
| 1A | 8/25/2012 | M3 | AD/CWT | 10-02-11 | 24,775 | 5,512 | 30,287 | OXBOW |
| 1B | 8/26/2012 | M3 | AD ONLY | N/A | 51,548 | 15,871 | 67,419 | OXBOW |
| 2 | 8/27/2012 | M3 | AD ONLY | N/A | 75,069 | 22,185 | 97,254 | OXBOW |
| 3A | 8/27/2012 | M3 | AD/CWT | 10-02-11 | 25,601 | 4,295 | 29,896 | OXBOW |
| 3B | 8/31/2012 | M3/M2 | AD ONLY | N/A | 54,754 | 16,057 | 70,811 | OXBOW |
| 4 | 8/28/2012 | M3 | AD ONLY | N/A | 73,384 | 23,628 | 97,012 | PAH |
| 5A | 8/29/2012 | M3 | AD/CWT | 10-02-03 | 25,147 | 4,960 | 30,107 | PAH |
| 5B | 8/29/2012 | M3 | AD ONLY | N/A | 54,343 | 18,847 | 73,190 | PAH |
| 6A | 8/30/2012 | M3 | AD ONLY | N/A | 38,200 | 15,100 | 53,300 | PAH |
| 6B | 8/30/2012 | M3 | AD ONLY | N/A | 33,206 | 13,443 | 46,649 | PAH |
| 7A | 8/30/2012 | M3 | AD/CWT | 10-73-71 | 20,435 | 0 | | PAH |
| 7A | 8/30/2012 | M3 | AD/CWT | 10-01-93 | 6,067 | 3,500 | 30,002 | PAH |
| 7B | 8/31/2012 | M3 | AD ONLY | N/A | 55,487 | 17,022 | 72,509 | PAH |
| 8A | 8/29/2012 | M2 | AD/CWT | 10-01-93 | 27,896 | 4,136 | 32,032 | PAH |
| 8B | 8/30/2012 | M2 | AD ONLY | N/A | 53,867 | 16,543 | 70,410 | PAH |
| 9A | 8/28/2012 | M2 | AD/CWT | 10-01-93 | 28,699 | 3,333 | 32,032 | PAH |
| 9B | 8/27/2012 | M2 | AD ONLY | N/A | 55,144 | 15,631 | 70,775 | PAH |
| 10 | 8/26/2012 | M2 | AD ONLY | N/A | 77,801 | 22,872 | 100,673 | PAH |
| 11A | 8/31/2012 | M2/M1 | AD ONLY | N/A | 38,708 | 18,799 | 57,507 | PAH |
| 11B | 8/31/2012 | M2/M1 | AD ONLY | N/A | 21,696 | 9,460 | 31,156 | PAH |
| 12 | 8/31/2012 | M2/M1 | AD ONLY | N/A | 72,356 | 22,644 | 95,000 | PAH |
| 13A | 8/30/2012 | M1 | AD/CWT | 10-01-92 | 11,909 | 0 | | PAH |
| 13A | 8/30/2012 | M1 | AD/CWT | 10-51-71 | 12,312 | 0 | | PAH |
| 13A | 8/30/2012 | M1 | AD/CWT | 10-04-75 | 4,295 | 3,494 | 32,010 | PAH |
| 13B | 8/30/2012 | M1 | AD ONLY | N/A | 51,011 | 14,000 | 65,011 | PAH |
| 14 | 8/30/2012 | M1 | AD ONLY | N/A | 67,820 | 27,186 | 95,006 | PAH |
| 15A | 8/29/2012 | M1 | AD/CWT | 10-01-92 | 28,056 | 0 | | PAH |
| 15A | 8/29/2012 | M1 | AD/CWT | 10-51-71 | 0 | 3,948 | 32,004 | PAH |
| 15B | 8/29/2012 | M1 | AD ONLY | N/A | 49,987 | 15,024 | 65,011 | PAH |
| 16 | 8/28/2012 | M1 | AD ONLY | N/A | 76,563 | 18,437 | 95,000 | PAH |
| 17A | 8/27/2012 | M1 | AD/CWT | 10-01-92 | 27,919 | 0 | | PAH |
| 17A | 8/27/2012 | M1 | AD/CWT | 10-51-71 | 0 | 2,092 | 30,011 | PAH |
| 17B | 8/27/2012 | M1 | AD ONLY | N/A | 50,473 | 14,527 | 65,000 | PAH |
| 18 | 8/26/2012 | M1 | AD ONLY | N/A | 75,654 | 19,358 | 95,012 | PAH |
| 19 | 8/25/2012 | M1 | AD ONLY | N/A | 73,006 | 22,000 | 95,006 | PAH |

| TAG CODE TOTALS | | |
|-----------------|---------------|----------|
| TAG CODE | TAG CODE SIZE | # TAGGED |
| 10-02-11 | 60k | 60,183 |
| 10-02-03 | 30k | 30,107 |
| 10-73-71 | 20k | 20,435 |
| 10-01-93 | 70k | 73,631 |
| 10-01-92 | 60k | 67,884 |
| 10-51-71 | 20k | 18,352 |
| 10-04-75 | 10k | 7,789 |

| | |
|----------------------|-----------|
| TOTAL AD/CWT | 278,381 |
| TOTAL AD ONLY | 1,578,711 |
| TOTAL MARKED | 1,857,092 |

| CWT RETENTION | | | |
|---------------|-----|-----|---------|
| RWY 1 | 300 | 295 | 98.33% |
| RWY 3 | 300 | 295 | 98.33% |
| RWY 5 | 300 | 296 | 98.67% |
| RWY 7 | 300 | 291 | 97.00% |
| RWY 8 | 300 | 299 | 99.67% |
| RWY 9 | 300 | 300 | 100.00% |
| RWY 13 | 300 | 299 | 99.67% |
| RWY 15 | 300 | 292 | 97.33% |
| RWY 17 | 300 | 295 | 98.33% |

| | |
|--------------------------|---------|
| AVERAGE RETENTION | 98.59% |
| MINIMUM RETENTION | 97.00% |
| MAXIMUM RETENTION | 100.00% |

| NIAGARA SPRINGS ADIPOSE FIN-CLIP RATE | | | | | | |
|---------------------------------------|-----------|---------|--------------|-----------|-------------|---------------|
| RWY | # SAMPLED | NO CLIP | PARTIAL CLIP | DEEP CLIP | # GOOD CLIP | % SUCCESSFUL |
| 1 | 300 | 2 | 3 | 0 | 295 | 98.33% |
| 3 | 300 | 2 | 0 | 0 | 298 | 99.33% |
| 5 | 300 | 2 | 0 | 0 | 298 | 99.33% |
| 7 | 300 | 0 | 1 | 0 | 299 | 99.67% |
| 8 | 300 | 1 | 0 | 0 | 299 | 99.67% |
| 9 | 300 | 2 | 0 | 0 | 298 | 99.33% |
| 13 | 300 | 1 | 0 | 0 | 299 | 99.67% |
| 15 | 300 | 1 | 0 | 0 | 299 | 99.67% |
| 17 | 300 | 1 | 0 | 0 | 299 | 99.67% |
| | | | | | AVG | 99.41% |

| Table 14A: Niagara Springs Fish Hatchery PIT-Tag BY 2011 Steelhead | | | |
|---|------------|--------------------------|------------------|
| DATE | RWY | # OF FISH TAGGED | RWY TOTAL |
| 1/7/2012 | 2 | 4,197 | 4,197 |
| 1/7/2012 | 5 | 4,093 | 4,093 |
| 1/7/2012 | 8 | 4,294 | 4,294 |
| 1/8/2012 | 9 | 2,698 | 2,698 |
| 1/8/2012 | 12 | 3,297 | 3,297 |
| 1/8/2012 | 13 | 3,197 | 3,197 |
| 1/8/2012 | 16 | 3,298 | 3,298 |
| 1/8/2012 | 17 | 3,196 | 3,196 |
| | | TOTAL FISH TAGGED | 28,270 |

Discussion

Overall, the 2012 marking season was a great success. There were some major changes and modifications made by the PSMFC marking crew prior to the 2012 season that contributed greatly to this success. Before the start of the 2012 marking season the two five-line automated marking trailers were upgraded with an internal automated fish lift system identical to the one in use in the six-line automated trailer. This cut down on the handling/netting required during the marking process and therefore reduced the overall stress on the fish during marking. The automated fish lift system also yields a more accurate estimate of the coefficient of variation on the group of fish being marked and allows the Trailer Operator to focus more of their attention to ensuring that the rest of the trailer is operating at maximum efficiency.

Again in 2012, all trailer transportation requiring a CDL was contracted out to Peters and Keatts Trucking LLC. The only exception to this was that Hagerman National Fish Hatchery employee Steve Money transported the trailers between the three Southern Idaho steelhead facilities. Peters and Keatts Trucking was once again able to move the trailers in the time frame necessary in order for the program to meet the very strict deadlines that it operates under.

We put in place a marking schedule for 2012 that ensured we were able to run a minimum of two trailers double shift when feasible even with variable fish size at a hatchery. To accomplish this we utilized experienced Trailer Operators from the California Fish-Marking Program when necessary. This was done to address the concern of only running a single trailer double shift at Magic Valley, Hagerman National, and Niagara Springs hatcheries. All feedback on this approach has been positive from the respective hatcheries and we plan to continue this approach to scheduling in the upcoming marking seasons.

One main topic of conversation over the past year has been to move towards a common receptacle at every hatchery that the marking trailers can plug into. For the 2012 season only two hatcheries had converted over to the new style receptacle. There have been recent discussions and it appears that all hatcheries will have 240v power available with the new receptacle in place prior to marking in 2013. Not only will this allow the marking crew to eliminate the need to change plugs on our end to match what the hatchery has available, it will also be a much safer system. The new style receptacle has a disconnect switch built into it that makes it impossible to plug in or unplug when there is power to the receptacle. The plug that fits the new receptacle also locks into place eliminating the possibility of the connection coming apart inadvertently. All power at the hatcheries will now be 240v which also enables us to remove the converter inside the trailer that allows us to run on 480v power and thus removing 3 connections in the main power supply to the trailer, all of which improves safety and reduces the number of places for possible failure in the power supply. I would like to thank Steve Money for all the time and effort he has put into Hagerman National and many of the LSRCF facilities in regards to the power upgrade and modifications. Paul Abbott has been very helpful in ensuring the needed electrical changes have taken place at the IPC facilities.

One issue that arose on two separate occasions was that of elevated water temperatures during marking. The first issue occurred at Sawtooth Fish Hatchery while we were there marking Chinook

salmon in July. It is not uncommon to encounter higher water temperatures during the summer months at this facility, but with the addition of the new “colder” well we were told we would have the ability to continue marking even with the elevated river water temperatures. It could potentially benefit the Marking Program greatly if the necessary hoses and equipment were in place at Sawtooth to allow us to use the colder water to allow us to mark fish during these warm water events. The second instance of high water temperature was encountered during a trip to Hagerman National Fish hatchery to mark steelhead. Hagerman National had experienced some issues with one of their springs drying up and therefore had reduced water flows and elevated water temperatures. If this happens in the future we need to have a plan in place to allow us to continue marking. The Marking Program has been in contact with staff from Hagerman National and we are currently trying to come up with a few scenarios that will ensure our continued ability to process the necessary fish at the facility. In light of these two events we now have a high water temperature threshold in place and will monitor water temperatures more closely in the future to make certain that fish are out of the marking trailers by the time the water temperature reaches 62 degrees Fahrenheit.