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IDAHO ANADROMOUS FISH-MARKING PROGRAM

Report to:
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Introduction

In April 2009 IDFG contracted all anadromous fish-marking in the state of Idaho to PSMFC. In 2014 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, four Trailer Assistants, and a varying number of temporary Trailer Assistants as needed for the 2014 marking season. This report summarizes all fish marked by the Idaho Anadromous Fish-Marking Program in the year 2014. The program was responsible for the marking of anadromous fish at the following nine fish hatcheries: Clearwater, Rapid River, McCall, Sawtooth, Springfield, 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 the last week of April through the middle of September. The adipose fin-clipping took place from the last week of April through the middle of September. PIT-tags were implanted from January through March, and again in October and 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 2014 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 2014 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 four state-of-the-art automated tagging trailers. Two of these automated trailers have six automated lines, and the other two 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. Steelhead and Chinook salmon were PIT-tagged using a four-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, electric Matsusaka four-inch fish pumps, and electric Aqua-Life four-inch and two and a half-inch fish pumps. The forklifts were operated by hatchery personnel and the 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. Adipose fin clips were also checked on the fish if they had been attempted to be clipped. For the 2014 season, there was a large reduction in the number of

groups of fish that received an adipose fin-clip and coded-wire tag so there weren't very many groups of fish checked for adipose-fin clip quality. Due to this the adipose-fin clip quality information for this report is incomplete.

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 2014 Mark Plan. A total of 16,784,538 adipose fin-clips (AD) and/or coded wire tag (CWT) marks were applied to 15,517,487 fish in 2014 (Table 1).

Table 1: Mark Year 2014 Total number of fish marked, type of mark put on each fish, brood year (BY), and breakdown by each hatchery

HATCHERY	# OF FISH MARKED	AD/CWT	CWT ONLY	AD ONLY	TOTAL MARKS
CLEARWATER SPRING-RUN CHINOOK BY 2013	2,360,085	413,209	277,434	1,669,442	2,773,294
CLEARWATER SUMMER-RUN CHINOOK BY 2013	530,764	-	269,637	261,127	530,764
CLEARWATER STEELHEAD BY 2014	698,290	-	154,061	544,229	698,290
HAGERMAN NATIONAL STEELHEAD BY 2014	1,557,734	185,484	61,889	1,310,361	1,743,218
MAGIC VALLEY STEELHEAD BY 2014	1,385,153	-	193,194	1,191,959	1,385,153
MC CALL CHINOOK BY 2013	1,243,934	120,786	373,775	749,373	1,364,720
NIAGARA SPRINGS STEELHEAD BY 2014	1,887,306	-	-	1,887,306	1,887,306
PAHSIMEROI CHINOOK BY 2013	838,802	120,021	200,935	517,846	958,823
RAPID RIVER CHINOOK BY 2013	2,918,068	120,629	-	2,797,439	3,038,697
SAWTOOTH CHINOOK BY 2013	1,744,908	306,922	200,101	1,237,885	2,051,830
SAWTOOTH SOCKEYE BY 2013	135,976	-	-	135,976	135,976
SPRINGFIELD SOCKEYE BY 2013	216,467	-	-	216,467	216,467
MARK YEAR 2014 TOTALS	15,517,487	1,267,051	1,731,026	12,519,410	16,784,538

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 (Table 2). Adipose fin-clip rates were only checked on those groups of fish that also received a coded-wire tag.

Table 2: Mark Year 2014 overall CWT retention rate, Hatchery average, total # of fish with CWT mark, Successful # of CWT marks

OVERALL CWT RETENTION			
HATCHERY	HATCHERY AVERAGE RETENTION	TOTAL # MARKED	SUCCESSFUL # MARKED
CLEARWATER SPRING CHINOOK	99.72%	690,643	688,676
CLEARWATER SUMMER CHINOOK	99.71%	269,637	268,860
CLEARWATER STEELHEAD	98.33%	154,061	151,493
HAGERMAN NATIONAL STEELHEAD	98.43%	247,373	243,499
MAGIC VALLEY STEELHEAD	98.67%	193,194	190,618
MCCALL CHINOOK	99.34%	494,561	491,303
PAHSIMEROI CHINOOK	98.91%	320,956	317,470
RAPID RIVER CHINOOK	98.73%	120,629	119,099
SAWTOOTH CHINOOK	98.45%	476,977	469,606
TOTALS		2,968,031	2,940,624
OVERALL AVERAGE			99.08%

- Clearwater Fish Hatchery: 98.67 – 100.00% with an average of 99.52%
- Pahsimeroi Fish Hatchery: 96.42 – 99.74% with an average of 98.91%
- Rapid River Fish Hatchery: 98.73 – 98.73% with an average of 98.73%
- McCall Fish Hatchery: 95.00 – 100.00% with an average of 99.34%
- Magic Valley Fish Hatchery: 97.00 – 99.00% with an average of 98.67%
- Hagerman National Fish Hatchery: 95.35 – 99.67% with an average of 98.43%
- Niagara Springs Fish Hatchery: No CWT at Niagara Springs Hatchery in 2014
- Sawtooth Fish Hatchery: 96.67 – 99.33% with an average of 98.45%

In addition to the coded-wire tags and adipose fin-clips, 375,100 fish were PIT-tagged by the Marking Program in 2014 on fish that were marked during the 2013 Mark year (Table 3).

Table 3: Mark Year 2014 Summary of total PIT-Tagged fish and how many tagged at each hatchery

HATCHERY	# TAGGED
CLEARWATER SPRING-RUN CHINOOK BY 2012	56,090
CLEARWATER SUMMER-RUN CHINOOK BY 2012	25,498
CLEARWATER STEELHEAD BY 2013	18,100
HAGERMAN NATIONAL STEELHEAD BY 2013	17,190
MAGIC VALLEY STEELHEAD BY 2013	34,796
MC CALL SUMMER-RUN CHINOOK BY 2012	53,978
NIAGARA SPRINGS STEELHEAD BY 2013	22,698
PAHSIMEROI SUMMER-RUN CHINOOK BY 2012	22,389
RAPID RIVER SPRING-RUN CHINOOK BY 2012	51,992
SAWTOOTH SPRING-RUN CHINOOK BY 2012	22,388
SAWTOOTH SOCKEYE BY 2012	49,981
TOTAL PIT TAGS	375,100

Schedule of Mark Events

- January 28th-29th Pit tagging Steelhead at Magic Valley
- January 30th-31st Pit tagging Steelhead at Niagara Springs
- February 3rd-10th Pit tagging Chinook and Steelhead at Clearwater
- February 12th-14th Pit tagging Chinook at Rapid River
- February 18th-20th Pit tagging Chinook at McCall
- March 13th Pit tagging Chinook at Pahsimeroi
- March 14th-17th Pit tagging Chinook and Sockeye at Sawtooth
- April 28th-May 6th Marking Chinook at Clearwater
- May 13th-17th Marking Chinook at Pahsimeroi
- May 14th-22nd Marking Chinook at Sawtooth
- May 27th-June 2nd Marking Chinook at Clearwater
- June 2nd-6th Marking Chinook at McCall
- June 10th-25th Marking Chinook at Rapid River
- June 24th-26th Marking Sockeye at Springfield
- July 1st-10th Marking Chinook at Sawtooth
- July 7th-11th Marking Chinook at McCall
- July 31st-August 8th Marking Steelhead at Hagerman
- July 31st-August 7th Marking Steelhead at Magic Valley
- August 14th-19th Marking Steelhead at Niagara Springs
- August 23rd-26th Marking Steelhead at Hagerman
- August 25th-September 4th Marking Steelhead at Clearwater
- September 9th-12th Marking Steelhead at Hagerman
- September 16th-17th Marking Sockeye at Sawtooth
- November 5th-6th Pit Tagging Steelhead at Hagerman

Figure 1: Hatchery Locations for the 2014 Idaho Anadromous Fish-Marking Program



Clearwater Fish Hatchery



Clearwater Fish Hatchery Spring Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2013 spring-run Chinook salmon at Clearwater Fish Hatchery on two separate occasions. The first trip occurred April 28th through May 6th using two six-line automated marking trailers. Fish were loaded in to the trailers using two Matsusaka fish-transfer pumps. One six-line and one five-line automated fish marking trailer were used during the second mark event May 27th through June 2nd, one Matsusaka fish pump and one 4" Aqua-life fish pump were used to load the fish in to the trailers. A total of 2,360,085 spring-run Chinook salmon were coded-wire tagged and/or adipose fin-clipped during the two trips (Table 4). After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 4: Clearwater Fish Hatchery Spring Chinook BY 2013 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Clearwater Fish Hatchery Spring Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
1A	4/28/2014	M1	AD/CWT	10/02/78	27,168	2,847	30,015		S F CLWR
1A	4/28/2014	M1	AD ONLY		23,154	7,137	30,291		S F CLWR
1A	4/29/2014	M1	AD ONLY		10,694	3,000	13,694	74,000	S F CLWR
1B	4/28/2014	M4	AD ONLY		65,000	9,000	74,000	74,000	OX/RAPID
2A	4/29/2014	M1	AD ONLY		52,890	13,961	66,851		S F CLWR
2A	4/30/2014	M1	AD ONLY		5,549	1,600	7,149	74,000	S F CLWR
2B	4/29/2014	M4	AD ONLY		26,729	3,035	29,764		OX
2B	4/29/2014	M4	AD ONLY		12,136	2,100	14,236		OX
2B	4/29/2014	M4	AD/CWT	10/02/78	27,979	2,021	30,000	74,000	OX
3A	4/30/2014	M1	AD ONLY		57,886	13,941	71,827		S F CLWR
3A	5/1/2014	M1	AD ONLY		2,173	-	2,173	74,000	S F CLWR
3B	4/29/2014	M4	AD ONLY		25,483	5,219	30,702		OX/RED R
3B	4/30/2014	M4	AD ONLY		18,028	3,191	21,219	51,921	OX/RED R
4A	5/1/2014	M1	AD ONLY		60,700	13,300	74,000	74,000	S F CLWR
4B	5/27/2014	M2	AD ONLY		55,000	19,003	74,003	74,003	S F CLWR
5A	5/1/2014	M1	AD ONLY		15,456	4,543	19,999		S F CLWR
5A	5/2/2014	M1	AD ONLY		21,141	5,460	26,601	46,600	S F CLWR
5B	5/28/2014	M2	AD ONLY		61,500	12,500	74,000	74,000	S F CLWR
6A	4/29/2014	M1	AD ONLY		20,644	6,901	27,545		S F CLWR
6A	5/1/2014	M4	AD ONLY		-	788	788		S F CLWR
6A	5/1/2014	M4	AD/CWT	10/02/78	28,637	1,363	30,000	58,333	S F CLWR
6B	5/29/2014	M2	AD ONLY		36,000	8,060	44,060		S F CLWR
6B	5/28/2014	M2	AD/CWT	10/02/78	18,138	2,879	21,017		S F CLWR
6B	5/29/2014	M2	AD/CWT	10/02/78	8,709	289	8,998	74,075	S F CLWR
7A	5/1/2014	M4	AD ONLY		67,400	6,600	74,000	74,000	S F CLWR
7B	5/29/2014	M2	AD ONLY		39,118	23,795	62,913		S F CLWR
7B	5/30/2014	M2	AD ONLY		9,720	1,387	11,107	74,020	S F CLWR
8A	4/30/2014	M4	AD ONLY		60,269	10,642	70,911		S F CLWR/RAPID
8A	5/1/2014	M4	AD ONLY		2,611	478	3,089	74,000	S F CLWR
8B	5/30/2014	M2	AD ONLY		45,987	9,735	55,722	55,722	S F CLWR
9A	5/2/2014	M1	AD ONLY		15,846	5,647	21,493		S F CLWR
9A	5/5/2014	M1	AD ONLY		41,010	10,000	51,010	72,503	S F CLWR/POW
9B	5/2/2014	M4	AD ONLY		67,000	7,000	74,000	74,000	POWELL
10A	5/5/2014	M1	AD ONLY		31,180	7,008	38,188		POWELL
10A	5/6/2014	M1	AD ONLY		30,643	5,809	36,452	74,640	POWELL
10B	5/2/2014	M4	AD ONLY		18,581	2,831	21,412		POWELL
10B	5/30/2014	M2	AD ONLY		10,595	2,461	13,056		S F CLWR/POW
10B	6/2/2014	M2	AD ONLY		28,744	5,030	33,774	68,242	S F CLWR/POW

Table 4: Continued

Raceway Totals and Mark Totals at Clearwater Fish Hatchery Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
11A	5/5/2014	M4	AD ONLY		12,049	3,010	15,059		POWELL
11A	5/6/2014	M4	AD ONLY		8,072	1,073	9,145		POWELL
11A	5/6/2014	M1	AD ONLY		982	612	1,594		POWELL
11A	5/5/2014	M4	AD/CWT	10/02/77	33,617	1,633	35,250	61,048	POWELL
11B	6/2/2014	M2	AD ONLY		1,955	4,199	6,154		POWELL
11B	6/2/2014	M2	AD/CWT	10/02/77	37,779	2,221	40,000	46,154	POWELL
1E	6/9/2014	M2	CWT ONLY	22/01/40	47,262	5,699	52,961		S F CLWR
1E	6/9/2014	M2	CWT ONLY	22/01/40	32,393	6,483	38,876		S F CLWR
1E	6/9/2014	M2	AD/CWT	22/01/40	9,931	121	10,052	101,889	S F CLWR
1W	6/10/2014	M2	CWT ONLY	22/01/40	38,876	6,273	45,149		S F CLWR
1W	6/10/2014	M2	AD/CWT	22/01/40	37,589	5,817	43,406		S F CLWR
1W	6/11/2014	M2	AD/CWT	22/01/40	8,375	857	9,232	97,787	S F CLWR
2E	6/3/2014	M2	AD ONLY		49,362	12,593	61,955		CLEAR CREEK
2E	6/5/2014	M2	AD ONLY		53,552	9,500	63,052		CLEAR CREEK
2E	6/3/2014	M2	AD/CWT	10/02/77	23,430	1,586	25,016	150,023	CLEAR CREEK
3E	6/5/2014	M2	AD/CWT	10/02/77	19,004	996	20,000		CLEAR CREEK
3E	6/5/2014	M2	AD ONLY		21,266	9,816	31,082		CLEAR CREEK
3E	6/6/2014	M2	AD ONLY		66,761	11,833	78,594	129,676	CLEAR CREEK
4E	6/9/2014	M4	CWT ONLY	10/02/79	100,304	9,341	109,645		SELWAY
4E	6/10/2014	M2	CWT ONLY	10/02/79	15,222	1,581	16,803	126,448	SELWAY
5E	6/6/2014	M4	AD ONLY		53,702	17,321	71,023		SELWAY
5E	6/9/2014	M4	AD ONLY		14,493	2,034	16,527		SELWAY
5E	6/6/2014	M2	CWT ONLY	10/02/79	12,400	1,600	14,000		SELWAY
5E	6/6/2014	M4	AD/CWT	10/02/74	19,254	746	20,000	121,550	SELWAY
6E	6/3/2014	M4	AD ONLY		39,752	4,593	44,345		SELWAY
6E	6/3/2014	M4	AD ONLY		-	883	883		SELWAY
6E	6/4/2014	M4	AD/CWT	10/02/74	37,779	6,062	43,841		SELWAY
6E	6/5/2014	M4	AD/CWT	10/02/74	3,941	410	4,351		SELWAY
6E	6/5/2014	M4	AD/CWT	10/02/74	23,589	3,240	26,829		SELWAY
6E	6/6/2014	M4	AD/CWT	10/02/74	14,637	565	15,202	135,451	SELWAY

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; max, min. and average retention rates of checked fish

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/02/78	110K	120,030
10/02/77	110K	120,266
22/01/40	200K	199,676
10/02/79	135K	140,448
10/02/74	110K	110,223

TOTAL AD/CWT	413,209
TOTAL CWT ONLY	277,434
TOTAL AD ONLY	1,669,442
TOTAL MARKED	2,360,085

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
6B	299	297	99.33%	30,015	29,814
11B	300	300	100.00%	40,000	40,000
3E/2E	300	300	100.00%	45,016	45,016
6E	303	303	100.00%	90,223	90,223
1E	297	294	98.99%	101,889	100,860
1W	300	299	99.67%	97,787	97,461
4E	300	300	100.00%	126,448	126,448
5E	300	300	100.00%	14,000	14,000
5E	302	299	99.01%	20,000	19,801
1A	282	280	99.29%	30,015	29,802
6A	306	306	100.00%	30,000	30,000
11A	295	295	100.00%	35,250	35,250
2B	291	291	100.00%	30,000	30,000
MAX. RETENTION			100.00%	690,643	688,676
MIN. RETENTION			98.99%	AVERAGE	99.72%

A total of 56,090 BY 2012 spring-run Chinook salmon (Table 5) were PIT-tagged at Clearwater Fish Hatchery February 3rd through February 10th using the four-station manual PIT-tagging trailer. 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 5: BY 2012 Clearwater Spring-Run Chinook pit tagged by raceway

Clearwater BY 2012 Spring-Run Chinook		
DATE	RWY	# OF FISH TAGGED
2/3/2014	E5	8,598
2/3/2014	W4	8,500
2/4/2014	W3	5,999
2/4/2014	W2	4,000
2/4/2014	E3	5,599
2/4/2014	E1	5,095
2/6/2014	10A	3,998
2/6/2014	8B	4,001
2/10/2014	3B	5,500
2/10/2014	2B	2,400
2/10/2014	1A	2,400
TOTAL FISH TAGGED:		56,090

Clearwater Fish Hatchery Summer Chinook

530,764 BY 2013 summer-run Chinook salmon were also marked from May 5th to May 6th and May 27th to June 2nd at Clearwater Fish Hatchery in addition to the spring-run Chinook salmon (Table 6).

Table 6: Clearwater Fish Hatchery Summer Chinook BY 2013 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Clearwater Fish Hatchery Summer Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
VAT 30	5/5/2014	M4	CWT ONLY	10/02/70	28,385	2,503	30,888		S F SALMON
VAT 30	5/6/2014	M4	CWT ONLY	10/02/70	20,938	1,905	22,843	53,731	S F SALMON
2W	6/2/2014	M4	CWT ONLY	10/02/82	83,666	6,684	90,350	90,350	S F SALMON
3W	5/30/2014	M4	CWT ONLY	10/02/82	66,768	8,291	75,059		S F SALMON
3W	5/29/2014	M4	CWT ONLY	10/02/70	38,682	3,133	41,815		S F SALMON
3W	5/30/2014	M4	CWT ONLY	10/02/70	8,682	-	8,682	125,556	S F SALMON
4W	5/28/2014	M4	AD ONLY		51,469	14,005	65,474		S F SALMON
4W	5/29/2014	M4	AD ONLY		51,488	7,165	58,653	124,127	S F SALMON
5W	5/27/2014	M4	AD ONLY		72,254	20,234	92,488		S F SALMON
5W	5/28/2014	M4	AD ONLY		38,970	5,542	44,512	137,000	S F SALMON

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; max, min. and average retention rates of checked fish

TAG CODE TOTALS			TOTAL AD/CWT	
TAG CODE	TAG CODE SIZE	# TAGGED		
10/02/70	100K	104,228	TOTAL CWT ONLY	269,637
10/02/82	200K	165,409	TOTAL AD ONLY	261,127
			TOTAL MARKED	530,764

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
2W	300	300	100.00%	90,350	90,350
3W	300	299	99.67%	125,556	125,137
VAT 30	300	298	99.33%	53,731	53,373
MAX. RETENTION			100.00%	269,637	268,860
MIN. RETENTION			99.33%	AVERAGE	99.71%

A total of 25,498 BY 2012 summer-run Chinook salmon (Table 7) were PIT-tagged at Clearwater Fish Hatchery February 7th through February 10th using the four-station manual PIT-tagging trailer. 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 7: BY 2012 Clearwater Summer-Run Chinook pit tagged by raceway

Clearwater BY 2012 Summer-Run Chinook		
DATE	RWY	# OF FISH TAGGED
2/7/2014	7A	6,304
2/7/2014	6B	6,401
2/7/2014	5A	6,397
2/10/2014	4B	6,396
TOTAL FISH TAGGED:		25,498

Clearwater Fish Hatchery Steelhead

The Idaho Anadromous Fish-Marking Crew processed BY 2014 summer-run steelhead at Clearwater Fish Hatchery August 25th through September 4th. A total of 698,290 fish were coded-wire tagged or adipose fin-clipped (Table 8). One six-line automated marking trailer was used to process fish that received a coded-wire tag or adipose fin-clip. Fish were loaded into the main trough of the trailers by one 4" Aqua-life fish pump. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 8: Clearwater Fish Hatchery Summer Steelhead BY 2014 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Clearwater Fish Hatchery Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
8E	8/25/2014	M1	AD ONLY		56,875	17,658	74,533	74,533	DWOR B
9E	8/26/2014	M1	AD ONLY		60,039	15,000	75,039	75,039	DWOR B
10E	8/26/2014	M1	AD ONLY		20,431	4,900	25,331		DWOR B
10E	8/27/2014	M1	AD ONLY		43,100	8,027	51,127	76,458	DWOR B
12E	8/27/2014	M1	AD ONLY		30,392	7,541	37,933		DWOR B
12E	8/28/2014	M1	AD ONLY		27,713	8,654	36,367	74,300	DWOR B
8W	8/28/2014	M1	AD ONLY		51,412	21,518	72,930		S F CLWR
8W	8/29/2014	M1	AD ONLY		3,603	470	4,073		S F CLWR
8W	9/4/2014	M1	AD ONLY		3,969	906	4,875	81,878	S F CLWR
9W	8/29/2014	M1	AD ONLY		58,012	15,501	73,513		S F CLWR
9W	9/4/2014	M1	AD ONLY		7,106	1,400	8,506	82,019	S F CLWR
12W	9/3/2014	M1	AD ONLY		27,664	16,442	44,106		S F CLWR/DWO
12W	9/4/2014	M1	AD ONLY		27,896	8,000	35,896	80,002	S F CLWR/DWO
10W	9/2/2014	M1	CWT ONLY	10/02/89	66,553	10,476	77,029	77,029	S F CLWR
11W	9/2/2014	M1	CWT ONLY	10/02/89	12,051	2,891	14,942		S F CLWR
11W	9/3/2014	M1	CWT ONLY	10/02/89	54,692	7,398	62,090	77,032	S F CLWR

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; max, min. and average retention rates of checked fish

TAG CODE TOTALS			TOTAL AD/CWT	
TAG CODE	TAG CODE SIZE	# TAGGED	TOTAL CWT ONLY	0
10/02/89	140K	154,061	TOTAL AD ONLY	544,229
			TOTAL MARKED	698,290

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
10W	300	294	98.00%	77,029	75,488
11W	300	296	98.67%	77,032	76,005
MAX. RETENTION			98.67%	154,061	151,493
MIN. RETENTION			98.00%	AVERAGE	98.33%

A total of 18,100 BY 2013 summer-run steelhead were PIT-tagged at Clearwater Fish Hatchery February 5th and February 6th using the four-station manual PIT-tagging trailer (Table 9). 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 9: BY 2013 Clearwater Summer-Run Steelhead pit tagged by raceway

Clearwater BY 2013 Steelhead		
DATE	RWY	# OF FISH TAGGED
2/5/2014	W12	1,299
2/5/2014	W10	5,704
2/5/2014	W8	5,699
2/6/2014	W7	1,499
2/6/2014	E8	1,300
2/6/2014	E10	1,300
2/6/2014	E12	1,299
TOTAL FISH TAGGED:		18,100

Pahsimeroi Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2013 summer-run Chinook salmon at Pahsimeroi Fish Hatchery May 13th through May 17th. A total of 838,802 fish were coded-wire tagged and/or adipose-fin-clipped (Table 10). One 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 two trailers by two electric Matsusaka fish-transfer pumps. After marking, fish were distributed to ponds via four-inch aluminum discharge pipe.

Table 10: Pahsimeroi Fish Hatchery Summer Chinook BY 2013 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Pahsimeroi Fish Hatchery Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
POND 1	5/13/2014	M3	CWT ONLY	10/02/67	76,958	9,531	86,489		PAH
POND 1	5/13/2014	M4	CWT ONLY	10/02/67	102,975	11,471	114,446		PAH
POND 1	5/14/2014	M4	AD/CWT	10/02/64	37,990	2,011	40,001		PAH
POND 1	5/14/2014	M4	AD ONLY		26,799	8,640	35,439		PAH
POND 1	5/16/2014	M4	AD ONLY		10,381	2,855	13,236		PAH
POND 1	5/14/2014	M3	AD ONLY		15,085	3,241	18,326		PAH
POND 1	5/14/2014	M3	AD ONLY		36,568	8,327	44,895		PAH
POND 1	5/15/2014	M3	AD ONLY		37,835	9,900	47,735		PAH
POND 1	5/16/2014	M3	AD ONLY		18,370	4,688	23,058		PAH
POND 1	5/17/2014	M3	AD ONLY		13,633	3,878	17,511	441,136	PAH
POND 2	5/15/2014	M4	AD/CWT	10/02/64	19,221	791	20,012		PAH
POND 2	5/16/2014	M4	AD/CWT	10/02/64	18,913	1,087	20,000		PAH
POND 2	5/16/2014	M4	AD/CWT	10/02/64	18,909	1,097	20,006		PAH
POND 2	5/16/2014	M4	AD/CWT	10/02/64	18,506	1,496	20,002		PAH
POND 2	5/14/2014	M3	AD ONLY		13,382	6,151	19,533		PAH
POND 2	5/15/2014	M3	AD ONLY		12,984	2,716	15,700		PAH
POND 2	5/15/2014	M3	AD ONLY		31,397	11,432	42,829		PAH
POND 2	5/16/2014	M3	AD ONLY		72,553	14,065	86,618		PAH
POND 2	5/14/2014	M4	AD ONLY		20,828	3,739	24,567		PAH
POND 2	5/15/2014	M4	AD ONLY		77,747	15,041	92,788		PAH
POND 2	5/16/2014	M4	AD ONLY		6,777	1,400	8,177		PAH
POND 2	5/16/2014	M4	AD ONLY		7,737	2,000	9,737		PAH
POND 2	5/16/2014	M4	AD ONLY		13,935	3,762	17,697	397,666	PAH

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; max, min. and average retention rates of checked fish

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/02/67	200K	200,935
10/02/64	110K	120,021

TOTAL AD/CWT	120,021
TOTAL CWT ONLY	200,935
TOTAL AD ONLY	517,846
TOTAL MARKED	838,802

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
POND 1	387	386	99.74%	240,936	240,313
POND 2	503	485	96.42%	80,020	77,156
MAX. RETENTION			99.74%	320,956	317,470
MIN. RETENTION			96.42%	AVERAGE	98.91%

A total of 22,389 BY 2011 summer-run Chinook salmon were PIT-tagged at Pahsimeroi Fish Hatchery March 13th using the four-station manual PIT-tagging trailer (Table 11). 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 four-inch discharge hose.

Table 11: BY 2012 Pahsimeroi Summer-Run Chinook pit tagged by raceway

Pahsimeroi BY 2012 Chinook		
DATE	RWY	# OF FISH TAGGED
3/13/2014	Pond 1	999
3/13/2014	Pond 1	21,390
TOTAL FISH TAGGED:		22,389

Sawtooth Fish Hatchery



Sawtooth Fish Hatchery Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2013 spring-run Chinook salmon at Sawtooth Fish Hatchery during two separate occasions. The first was May 14th-May 22nd using two six-line automated trailers and one five-line automated trailer. Fish were loaded into the trailer using two Matsusaka fish-transfer pumps. The second trip took place July 1st-10th using one six-line and one five-line automated trailers. Fish were loaded into the trailer using a 2 ½" Aqua-life fish pump. A total of 1,744,908 spring-run Chinook salmon were coded-wire tagged and/or adipose fin-clipped (Table 12). After marking, fish were distributed to the raceways via four-inch aluminum discharge pipe.

Table 12: Sawtooth Fish Hatchery Spring Chinook B.Y. 2013 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Sawtooth Fish Hatchery Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
3	5/14/2014	M1	CWT ONLY	10/02/90	17,849	1,489	19,338		SALMON R
3	5/15/2014	M1	CWT ONLY	10/02/90	38,543	4,007	42,550		SALMON R
3	5/16/2014	M1	CWT ONLY	10/02/90	42,224	6,425	48,649		SALMON R
3	5/17/2014	M1	CWT ONLY	10/02/90	60,210	9,543	69,753		SALMON R
3	5/18/2014	M1	CWT ONLY	10/02/90	17,847	1,964	19,811	200,101	SALMON R
4	5/18/2014	M1	AD/CWT	10/02/91	30,892	4,132	35,024		SALMON R
4	5/19/2014	M1	AD/CWT	10/02/91	60,275	6,317	66,592		SALMON R
4	5/19/2014	M1	AD/CWT	10/02/91	62,692	6,212	68,904		SALMON R
4	5/20/2014	M1	AD/CWT	10/02/91	14,208	2,148	16,356	186,876	SALMON R
5	5/20/2014	M1	AD ONLY		14,955	3,737	18,692		SALMON R
5	5/21/2014	M1	AD ONLY		16,220	2,000	18,220		SALMON R
5	5/21/2014	M3	AD ONLY		33,647	6,900	40,547		SALMON R
5	5/21/2014	M3	AD ONLY		12,686	2,181	14,867		SALMON R
5	5/22/2014	M3	AD ONLY		14,996	3,240	18,236		SALMON R
5	5/21/2014	M1	AD/CWT	10/02/76	27,935	2,111	30,046	140,608	SALMON R
6	5/22/2014	M3	AD ONLY		49,300	21,000	70,300		SALMON R
6	5/22/2014	M1	AD ONLY		57,322	13,124	70,446	140,746	SALMON R
7	7/1/2014	M2	AD ONLY		21,131	10,753	31,884		SALMON R
7	7/2/2014	M2	AD ONLY		28,271	7,400	35,671		SALMON R
7	7/2/2014	M1	AD ONLY		31,002	11,500	42,502		SALMON R
7	7/1/2014	M1	AD/CWT	10/02/76	18,550	1,450	20,000	130,057	SALMON R
8	7/2/2014	M1	AD ONLY		5,637	948	6,585		SALMON R
8	7/2/2014	M2	AD ONLY		1,658	1,900	3,558		SALMON R
8	7/3/2014	M1	AD ONLY		20,226	6,076	26,302		SALMON R
8	7/3/2014	M2	AD ONLY		19,355	4,180	23,535		SALMON R
8	7/8/2014	M1	AD ONLY		31,625	8,400	40,025		SALMON R
8	7/8/2014	M2	AD ONLY		32,431	7,600	40,031	140,036	SALMON R
9	5/18/2014	M4	AD ONLY		85,319	19,500	104,819		SALMON R
9	5/18/2014	M3	AD ONLY		30,150	5,638	35,788	140,607	SALMON R
10	5/19/2014	M4	AD ONLY		52,914	11,902	64,816		SALMON R
10	5/19/2014	M3	AD ONLY		40,256	5,552	45,808		SALMON R
10	5/19/2014	M4	AD/CWT	10/02/76	29,098	902	30,000	140,624	SALMON R
11	5/19/2014	M4	AD ONLY		12,875	4,784	17,659		SALMON R
11	5/20/2014	M4	AD ONLY		68,197	10,271	78,468		SALMON R
11	5/20/2014	M3	AD ONLY		40,297	6,344	46,641	142,768	SALMON R
12	5/20/2014	M4	AD ONLY		31,940	6,651	38,591		SALMON R
12	5/21/2014	M4	AD ONLY		67,591	16,539	84,130	122,721	SALMON R
13	7/8/2014	M1	AD ONLY		14,474	3,002	17,476		SALMON R
13	7/8/2014	M2	AD ONLY		9,515	4,580	14,095		SALMON R

Table 12: Continued

Raceway Totals and Mark Totals at Sawtooth Fish Hatchery Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
13	7/9/2014	M1	AD ONLY		31,301	7,933	39,234		SALMON R
13	7/9/2014	M2	AD ONLY		31,981	8,632	40,613		SALMON R
13	7/10/2014	M2	AD ONLY		8,982	3,638	12,620	124,038	SALMON R
14	7/9/2014	M2	AD ONLY		11,732	4,719	16,451		SALMON R
14	7/10/2014	M2	AD ONLY		26,503	5,575	32,078		SALMON R
14	7/10/2014	M1	AD ONLY		33,767	13,430	47,197		SALMON R
14	7/9/2014	M1	AD/CWT	10/02/76	21,235	-	21,235		SALMON R
14	7/10/2014	M1	AD/CWT	10/02/76	8,765	-	8,765	125,726	SALMON R
DISPLAY	7/1/2014	M1	AD/CWT	10/02/76	9,000	1,000	10,000	10,000	SALMON R

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; max, min. and average retention rates of checked fish

*RWY 5 had a compromised net pen so # Marked doesn't add up to AD/CWT and CWT total

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/02/90	200K	200,101
10/02/76	110K	120,046
10/02/91	200K	186,876

TOTAL AD/CWT	306,922
TOTAL CWT ONLY	200,101
TOTAL AD ONLY	1,237,885
TOTAL MARKED	1,744,908

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	ACTUAL # MARKED
10	300	290	96.67%	30,000	29,000
3	300	294	98.00%	200,101	196,099
4	300	297	99.00%	186,876	185,007
DISPLAY	300	298	99.33%	30,000	29,800
14	300	297	99.00%	30,000	29,700
MAX. RETENTION			99.33%	476,977	469,606
MIN. RETENTION			96.67%	AVERAGE	98.45%

A total of 22,388 BY 2012 spring-run Chinook salmon were PIT-tagged at Sawtooth Fish Hatchery March 16th through March 17th using the four-station manual PIT-tagging trailer (Table 13). Fish were loaded into the main trough of the trailer by one electric Matsusaka fish-transfer pump. After marking, fish were distributed back to the raceways via four-inch discharge hose.

Table 13: BY 2012 Sawtooth Spring-Run Chinook pit tagged by raceway

Sawtooth BY 2012 Chinook		
DATE	RWY	# OF FISH TAGGED
3/16/2014	3	1,001
3/16/2014	4	2,398
3/17/2014	6	4,794
3/17/2014	9	4,700
3/17/2014	11	4,697
3/17/2014	13	4,798
TOTAL FISH TAGGED:		22,388

Sawtooth Fish Hatchery Sockeye

The Marking Crew processed BY 2013 Sockeye salmon at Sawtooth Fish Hatchery September 16th through September 17th (Table 14). A total of 135,976 fish were adipose fin-clipped. One six-line automated marking trailer was used to process fish that received an 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 14: Sawtooth Fish Hatchery Summer Sockeye BY 2013 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Sawtooth Fish Hatchery Sockeye									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
VAT 1	9/16/2014	M4	AD ONLY		16,681	4,519	21,200	21,200	REDFISH LK
VAT 2	9/16/2014	M4	AD ONLY		13,344	3,637	16,981	16,981	REDFISH LK
VAT 3	9/16/2014	M4	AD ONLY		13,592	3,500	17,092	17,092	REDFISH LK
VAT 4	9/16/2014	M4	AD ONLY		13,659	4,277	17,936	17,936	REDFISH LK
VAT 5	9/17/2014	M4	AD ONLY		8,768	2,498	11,266	11,266	REDFISH LK
VAT 6	9/17/2014	M4	AD ONLY		12,802	2,199	15,001	15,001	REDFISH LK
VAT 7	9/16/2014	M4	AD ONLY		7,452	3,426	10,878		REDFISH LK
VAT 7	9/17/2014	M4	AD ONLY		2,622	1,500	4,122	15,000	REDFISH LK
VAT 8	9/16/2014	M4	AD ONLY		17,036	4,464	21,500	21,500	REDFISH LK

Supplemental Table: # of fish by mark type

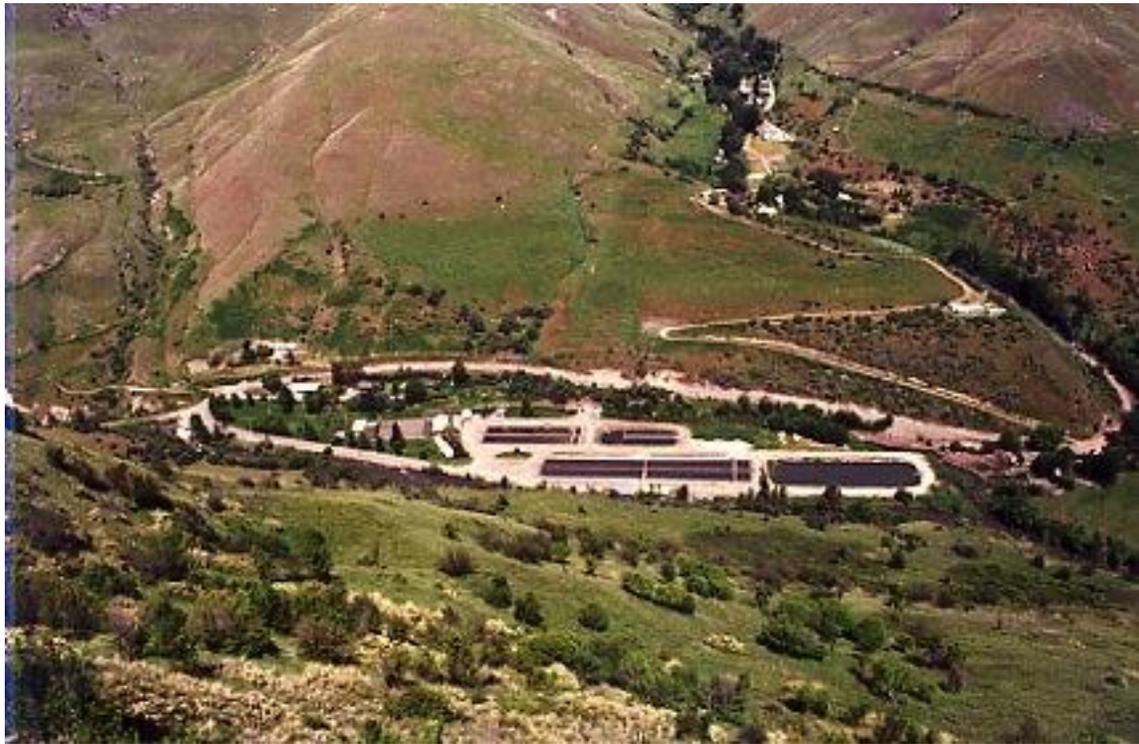
TOTAL AD/CWT	-
TOTAL CWT ONLY	-
TOTAL AD ONLY	135,976
TOTAL MARKED	135,976

A total of 49,981 BY 2012 Sockeye salmon were PIT-tagged at Sawtooth Fish Hatchery March 14th through March 16th using the four-station manual PIT-tagging trailer (Table 15). Fish were loaded into the main trough of the trailer via the Matsusaka fish-transfer pump. After marking, fish were distributed back to the raceways via four-inch aluminum discharge pipe.

Table 15: BY 2012 Sawtooth Summer-Run Sockeye pit tagged by raceway

Sawtooth BY 2012 Sockeye		
DATE	RWY	# OF FISH TAGGED
3/14/2014	1	15,305
3/15/2014	1	9,682
3/15/2014	2	11,545
3/16/2014	2	13,449
TOTAL FISH TAGGED:		49,981

Rapid River Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2013 spring-run Chinook salmon at Rapid River Fish Hatchery June 10th through June 25th. A total of 2,918,068 fish were coded-wire tagged and/or adipose fin-clipped (Table 16). Two six-line and one 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.

Table 16: Rapid River Fish Hatchery Spring Chinook BY 2013 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Rapid River Fish Hatchery Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
POND 1A	6/11/2014	M4	AD/CWT	10/02/65	19,403	599	20,002		RAPID RIVER
POND 1A	6/24/2014	M1	AD/CWT	10/02/65	20,000	-	20,000		RAPID RIVER
POND 1A	6/10/2014	M4	AD ONLY		29,915	7,106	37,021		RAPID RIVER
POND 1A	6/13/2014	M4	AD ONLY		75,471	12,469	87,940		RAPID RIVER
POND 1A	6/16/2014	M4	AD ONLY		64,254	17,955	82,209		RAPID RIVER
POND 1A	6/18/2014	M4	AD ONLY		52,328	14,168	66,496		RAPID RIVER
POND 1A	6/19/2014	M4	AD ONLY		103,800	31,464	135,264		RAPID RIVER
POND 1A	6/24/2014	M1	AD ONLY		21,984	3,419	25,403		RAPID RIVER
POND 1A	6/24/2014	M1	AD ONLY		31,103	17,582	48,685		RAPID RIVER
POND 1A	6/25/2014	M1	AD ONLY		15,471	1,983	17,454		RAPID RIVER
POND 1A	6/25/2014	M1	AD ONLY		14,622	7,270	21,892	562,366	RAPID RIVER
POND 1B	6/16/2014	M4	AD/CWT	10/02/65	17,667	2,496	20,163		RAPID RIVER
POND 1B	6/18/2014	M4	AD/CWT	10/02/65	17,631	2,496	20,127		RAPID RIVER
POND 1B	6/11/2014	M4	AD ONLY		68,641	12,090	80,731		RAPID RIVER
POND 1B	6/12/2014	M4	AD ONLY		44,195	7,509	51,704		RAPID RIVER
POND 1B	6/12/2014	M4	AD ONLY		51,167	9,770	60,937		RAPID RIVER
POND 1B	6/17/2014	M4	AD ONLY		109,697	34,227	143,924		RAPID RIVER
POND 1B	6/18/2014	M4	AD ONLY		32,851	11,167	44,018		RAPID RIVER
POND 1B	6/20/2014	M4	AD ONLY		62,049	15,476	77,525		RAPID RIVER
POND 1B	6/23/2014	M1	AD ONLY		14,874	5,176	20,050		RAPID RIVER
POND 1B	6/25/2014	M1	AD ONLY		10,208	1,800	12,008		RAPID RIVER
POND 1B	6/25/2014	M2	AD ONLY		14,834	11,032	25,866	557,053	RAPID RIVER
POND 2A	6/12/2014	M1	AD/CWT	10/02/65	19,320	1,012	20,332		RAPID RIVER
POND 2A	6/24/2014	M1	AD/CWT	10/02/65	18,999	1,006	20,005		RAPID RIVER
POND 2A	6/10/2014	M1	AD ONLY		25,959	8,760	34,719		RAPID RIVER
POND 2A	6/11/2014	M1	AD ONLY		33,175	7,895	41,070		RAPID RIVER
POND 2A	6/12/2014	M1	AD ONLY		66,544	14,633	81,177		RAPID RIVER
POND 2A	6/17/2014	M1	AD ONLY		102,136	26,204	128,340		RAPID RIVER
POND 2A	6/18/2014	M1	AD ONLY		101,271	21,889	123,160		RAPID RIVER
POND 2A	6/24/2014	M1	AD ONLY		10,233	5,379	15,612	464,415	RAPID RIVER
POND 2B	6/13/2014	M2	AD ONLY		70,344	23,810	94,154		RAPID RIVER
POND 2B	6/17/2014	M2	AD ONLY		91,475	18,468	109,943		RAPID RIVER
POND 2B	6/19/2014	M2	AD ONLY		87,778	21,112	108,890		RAPID RIVER
POND 2B	6/23/2014	M2	AD ONLY		55,989	32,929	88,918		RAPID RIVER
POND 2B	6/24/2014	M2	AD ONLY		8,276	4,040	12,316		RAPID RIVER
POND 2B	6/25/2014	M2	AD ONLY		15,507	4,500	20,007	434,228	RAPID RIVER
POND 2C	6/12/2014	M2	AD ONLY		45,365	14,384	59,749		RAPID RIVER
POND 2C	6/16/2014	M2	AD ONLY		76,041	13,402	89,443		RAPID RIVER
POND 2C	6/18/2014	M2	AD ONLY		87,886	17,601	105,487		RAPID RIVER

Table 16: Continued

Raceway Totals and Mark Totals at Rapid River Fish Hatchery Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
POND 2C	6/20/2014	M2	AD ONLY		64,780	14,798	79,578		RAPID RIVER
POND 2C	6/24/2014	M2	AD ONLY		75,000	25,000	100,000	434,257	RAPID RIVER
POND 2D	6/11/2014	M1	AD ONLY		58,042	14,190	72,232		RAPID RIVER
POND 2D	6/13/2014	M1	AD ONLY		46,904	10,668	57,572		RAPID RIVER
POND 2D	6/16/2014	M1	AD ONLY		85,854	20,177	106,031		RAPID RIVER
POND 2D	6/18/2014	M1	AD ONLY		110,917	26,749	137,666		RAPID RIVER
POND 2D	6/20/2014	M1	AD ONLY		78,769	13,479	92,248	465,749	RAPID RIVER

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; max, min. and average retention rates of checked fish

TAG CODE TOTALS			TOTAL AD/CWT	
TAG CODE	TAG CODE SIZE	# TAGGED	TOTAL CWT ONLY	
10/02/65	110K	120,629	TOTAL AD ONLY	2,797,439
			TOTAL MARKED	2,918,068

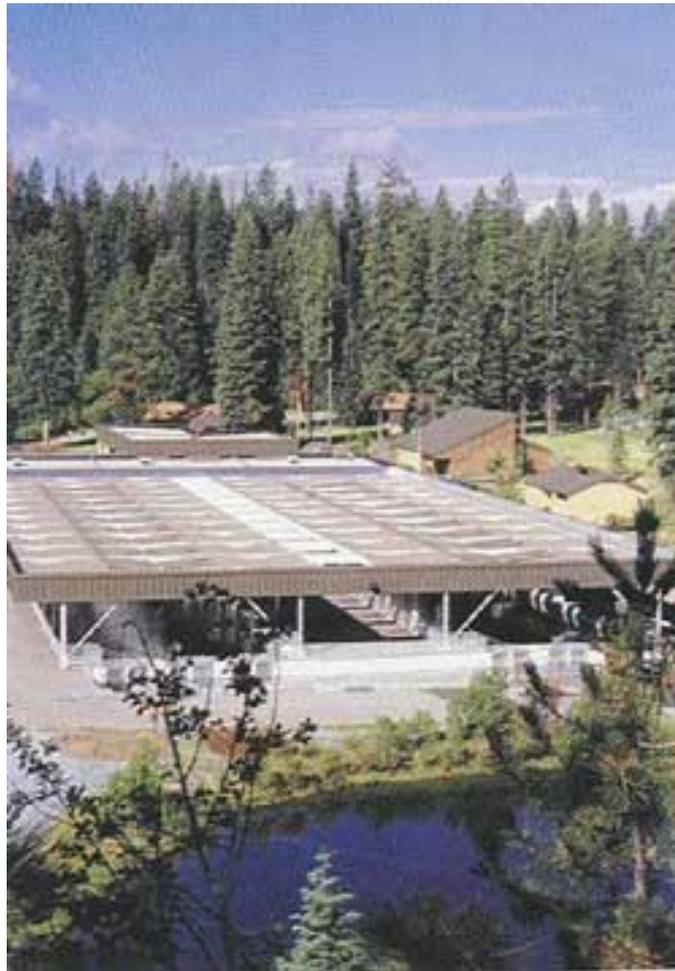
CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
1A,1B,2A	473	467	98.73%	120,629	119,099
MAX. RETENTION			98.73%	120,629	119,099
MIN. RETENTION			98.73%	AVERAGE	98.73%

A total of 51,992 BY 2012 spring-run Chinook salmon were PIT-tagged at Rapid River Fish Hatchery February 12th through February 14th using the four-station manual PIT-tagging trailer (Table 17). 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 17: BY 2012 Rapid River Spring-Run Chinook pit tagged by raceway

Rapid River BY 2012 Chinook		
DATE	RWY	# OF FISH TAGGED
2/12/2014	Pond 2A	9,928
2/13/2014	Pond 2A	27,867
2/14/2014	Pond 2A	14,197
TOTAL FISH TAGGED:		51,992

McCall Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2013 summer-run Chinook salmon at McCall Fish Hatchery on two separate occasions. A total of 1,243,934 fish were coded-wire tagged and/or adipose fin-clipped (Table 18). The first mark event occurred June 2rd through June 6th; one five-line automated 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 7th through July 11th; one five-line and one six-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.

Table 18: McCall Fish Hatchery Spring Chinook BY 2013 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at McCall Fish Hatchery Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
POND 1	6/2/2014	M3	AD ONLY		35,497	14,550	50,047		SF SALMON
POND 1	6/3/2014	M3	AD ONLY		87,886	33,627	121,513		SF SALMON
POND 1	6/4/2014	M3	AD ONLY		94,712	39,316	134,028		SF SALMON
POND 1	6/5/2014	M3	AD ONLY		91,360	35,869	127,229		SF SALMON
POND 1	6/6/2014	M3	AD ONLY		32,348	12,147	44,495		SF SALMON
POND 1	7/7/2014	M3	AD/CWT	10/02/66	17,607	3,293	20,900		SF SALMON
POND 1	7/8/2014	M3	AD/CWT	10/02/66	17,768	1,949	19,717		SF SALMON
POND 1	7/8/2014	M3	AD/CWT	10/02/66	35,593	4,485	40,078		SF SALMON
POND 1	7/9/2014	M3	AD/CWT	10/02/66	36,383	3,708	40,091		SF SALMON
POND 1	7/8/2014	M3	AD ONLY		-	241	241	598,339	SF SALMON
POND 2	7/8/2014	M3	AD ONLY		8,506	4,329	12,835		SF SALMON
POND 2	7/8/2014	M3	AD ONLY		1,420	4,145	5,565		SF SALMON
POND 2	7/9/2014	M3	AD ONLY		48,059	18,831	66,890		SF SALMON
POND 2	7/10/2014	M4	AD ONLY		104,943	12,452	117,395		SF SALMON
POND 2	7/11/2014	M4	AD ONLY		57,320	11,815	69,135		SF SALMON
POND 2	7/7/2014	M4	CWT ONLY	10/02/92	20,433	2,388	22,821		SF SALMON
POND 2	7/8/2014	M4	CWT ONLY	10/02/92	100,046	11,199	111,245		SF SALMON
POND 2	7/9/2014	M4	CWT ONLY	10/02/92	112,924	8,272	121,196	527,082	SF SALMON
VAT 4	7/10/2014	M3	CWT ONLY	22/01/51	26,045	3,455	29,500	29,500	JOHNSON CREEK
VAT 3	7/10/2014	M3	CWT ONLY	22/01/51	25,326	4,277	29,603	29,603	JOHNSON CREEK
VAT 2	7/10/2014	M3	CWT ONLY	22/01/51	25,503	4,000	29,503	29,503	JOHNSON CREEK
VAT 1	7/10/2014	M3	CWT ONLY	22/01/51	15,581	2,595	18,176		JOHNSON CREEK
VAT 1	7/11/2014	M3	CWT ONLY	22/01/51	8,249	3,482	11,731	29,907	JOHNSON CREEK

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; max, min. and average retention rates of checked fish

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/02/66	110K	120,786
10/02/92	225K	255,262
22/01/51	120K	118,513

TOTAL AD/CWT	120,786
TOTAL CWT ONLY	373,775
TOTAL AD ONLY	749,373
TOTAL MARKED	1,243,934

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
VAT 1	100	98	98.00%	29,907	29,309
VAT 2	100	100	100.00%	29,503	29,503
VAT 3	100	95	95.00%	29,603	28,123
VAT 4	100	96	96.00%	29,500	28,320
BOT. 5	400	400	100.00%	255,262	255,262
TOP 5	301	301	100.00%	120,786	120,786
MAX. RETENTION			100.00%	494,561	491,303
MIN. RETENTION			95.00%	AVERAGE	99.34%

A total of 53,978 BY 2012 summer-run Chinook salmon were PIT-tagged at McCall Fish Hatchery February 18th through February 20th using the four-station manual PIT-tagging trailer (Table 19). Fish were loaded into the main trough of the trailer by manually netting the fish out of a holding pen in the pond and transporting them in five-gallon buckets. After marking, fish were sent back to the pond via four-inch aluminum discharge pipe.

Table 19: BY 2012 McCall Spring-Run Chinook pit tagged by raceway

McCall BY 2012 Chinook		
DATE	RWY	# OF FISH TAGGED
2/18/2014	Pond 1	14,609
2/19/2014	Pond 1	11,377
2/19/2014	Pond 2	9,404
2/20/2014	Pond 2	16,589
TOTAL FISH TAGGED:		51,979

Magic Valley Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2014 summer-run steelhead at Magic Valley Fish Hatchery July 31st through August 7th. A total of 1,385,153 fish were coded-wire tagged or adipose fin-clipped using one five-line and one six-line automated marking trailers (Table 20). Fish were loaded into the main trough of the two trailers by Matsusaka fish-transfer pumps. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 20: Magic Valley Fish Hatchery Steelhead BY 2014 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Magic Valley Fish Hatchery Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
W2A	7/31/2014	M4	CWT ONLY	10/02/85	31,104	1,091	32,195	32,195	DWOR B
W3A	7/31/2014	M4	CWT ONLY	10/02/85	29,504	2,694	32,198	32,198	DWOR B
W3B	7/31/2014	M4	CWT ONLY	10/02/85	11,401	1,928	13,329		DWOR B
W3B	8/1/2014	M4	CWT ONLY	10/02/85	17,227	1,644	18,871	32,200	DWOR B
W4A	8/1/2014	M4	CWT ONLY	10/02/86	28,158	4,042	32,200	32,200	U SALMON B
W4B	8/1/2014	M4	CWT ONLY	10/02/86	28,202	3,998	32,200	32,200	U SALMON B
W5B	8/2/2014	M4	CWT ONLY	10/02/86	30,739	1,462	32,201	32,201	U SALMON B
E9A	7/31/2014	M3	AD ONLY		23,703	8,500	32,203		PAH A
E9B	7/31/2014	M3	AD ONLY		25,701	6,500	32,201	32,201	PAH A
E10A	7/31/2014	M3	AD ONLY		3,690	822	4,512		PAH A
E10A	8/1/2014	M3	AD ONLY		22,335	5,400	27,735	32,247	PAH A
E11A	8/1/2014	M3	AD ONLY		24,657	7,610	32,267	32,267	PAH A
E11B	8/1/2014	M3	AD ONLY		14,070	2,552	16,622		PAH A
E11B	8/2/2014	M3	AD ONLY		13,771	1,807	15,578	32,200	PAH A
E10B	8/2/2014	M3	AD ONLY		27,207	5,000	32,207	32,207	PAH A
E15A	8/2/2014	M3	AD ONLY		17,428	4,154	21,582		PAH A
E15A	8/3/2014	M3	AD ONLY		8,018	2,600	10,618	32,200	PAH A
E15B	8/3/2014	M3	AD ONLY		24,802	7,406	32,208	32,208	PAH A
E14B	8/3/2014	M3	AD ONLY		25,105	7,102	32,207	32,207	PAH A
E16A	8/3/2014	M3	AD ONLY		12,874	7,242	20,116		PAH A
E16A	8/4/2014	M3	AD ONLY		9,984	2,100	12,084	32,200	PAH A
E1A	8/4/2014	M3	AD ONLY		26,504	5,700	32,204	32,204	PAH A
E1B	8/4/2014	M3	AD ONLY		4,369	1,673	6,042		PAH A
E1B	8/5/2014	M3	AD ONLY		20,958	5,200	26,158	32,200	PAH A
E2A	8/5/2014	M3	AD ONLY		23,502	8,700	32,202	32,202	PAH A
E3A	8/5/2014	M3	AD ONLY		23,187	9,036	32,223	32,223	PAH A
E3B	8/6/2014	M3	AD ONLY		24,900	7,300	32,200	32,200	PAH A
E2B	8/6/2014	M3	AD ONLY		24,520	7,702	32,222	32,222	PAH A
E4A	8/6/2014	M3	AD ONLY		19,231	9,006	28,237		PAH A
E4A	8/7/2014	M3	AD ONLY		3,288	700	3,988	32,225	PAH A
E5A	8/7/2014	M3	AD ONLY		25,600	6,601	32,201	32,201	PAH A
E5B	8/7/2014	M3	AD ONLY		23,504	8,700	32,204	32,204	PAH A
E4B	8/7/2014	M3	AD ONLY		15,344	4,988	20,332		PAH A
E4B	8/7/2014	M3	AD ONLY		8,869	3,095	11,964	32,296	PAH A
W12B	8/2/2014	M4	AD ONLY		25,700	6,500	32,200	32,200	U SALMON B
W10A	8/2/2014	M4	AD ONLY		4,254	2,235	6,489		U SALMON B
W10A	8/3/2014	M4	AD ONLY		21,911	3,800	25,711	32,200	U SALMON B
W11A	8/3/2014	M4	AD ONLY		26,500	5,700	32,200	32,200	U SALMON B
W11B	8/3/2014	M4	AD ONLY		26,328	5,920	32,248	32,248	U SALMON B

Table 20: Continued

Raceway Totals and Mark Totals at Magic Valley Fish Hatchery Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
W10B	8/4/2014	M4	AD ONLY		27,435	4,931	32,366	32,366	DWOR B/U SAL B
W9A	8/4/2014	M4	AD ONLY		19,096	5,380	24,476		DWOR B
W9A	8/6/2014	M4	AD ONLY		7,724	-	7,724	32,200	DWOR B
E12A	8/4/2014	M4	AD ONLY		25,249	6,951	32,200	32,200	PAH A
E13A	8/4/2014	M4	AD ONLY		2,934	2,458	5,392		PAH A
E13A	8/5/2014	M4	AD ONLY		22,808	4,000	26,808	32,200	PAH A
E13B	8/5/2014	M4	AD ONLY		28,464	3,740	32,204	32,204	PAH A
E12B	8/5/2014	M4	AD ONLY		26,404	5,815	32,219	32,219	PAH A
E14A	8/6/2014	M4	AD ONLY		30,365	1,835	32,200	32,200	PAH A
W9B	8/6/2014	M4	AD ONLY		28,000	4,200	32,200	32,200	DWOR B
W5A	8/6/2014	M4	AD ONLY		26,400	5,800	32,200	32,200	DWOR B
W1B	8/7/2014	M4	AD ONLY		28,594	3,606	32,200	32,200	PAH A
W2B	8/7/2014	M4	AD ONLY		26,300	5,902	32,202	32,202	U SALMON B
W1A	8/7/2014	M4	AD ONLY		25,122	7,081	32,203	32,203	U SAL B/PAH A
E16B	8/4/2014	M3	AD ONLY		24,094	8,106	32,200	32,200	PAH A

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; max, min. and average retention rates of checked fish

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/02/85	90K	96,593
10/02/86	90K	96,601

TOTAL AD/CWT	-
TOTAL CWT ONLY	193,194
TOTAL AD ONLY	1,191,959
TOTAL MARKED	1,385,153

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
W2A	100	99	99.00%	32,195	31,873
W3A	100	99	99.00%	32,198	31,876
W3B	100	99	99.00%	32,200	31,878
W4A	100	99	99.00%	32,200	31,878
W4B	100	99	99.00%	32,200	31,878
W5B	100	97	97.00%	32,201	31,235
MAX. RETENTION			99.00%	193,194	190,618
MIN. RETENTION			97.00%	AVERAGE	98.67%

A total of 34,796 BY 2013 summer-run steelhead were PIT-tagged at Magic Valley Fish Hatchery January 28th through January 29th using the four-station manual PIT-tagging trailer (Table 21). 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 21: BY 2013 Magic Valley Summer-Run Steelhead pit tagged by raceway

Magic Valley BY 2013 Steelhead		
DATE	RWY	# OF FISH TAGGED
1/28/2014	W14B	1,699
1/28/2014	W12B	1,800
1/28/2014	W13A	1,700
1/28/2014	W10B	1,400
1/28/2014	W8B	1,200
1/28/2014	W8A	1,200
1/28/2014	W5B	2,400
1/28/2014	W4B	3,800
1/28/2014	W2B	3,798
1/29/2014	W2A	3,800
1/29/2014	E1B	999
1/29/2014	E1A	900
1/29/2014	E3B	800
1/29/2014	E3A	700
1/29/2014	E5B	800
1/29/2014	E5A	700
1/29/2014	E9A	700
1/29/2014	E10B	700
1/29/2014	E12A	1,901
1/29/2014	E13A	1,899
1/29/2014	E15A	1,900
TOTAL FISH TAGGED:		34,796

Hagerman National Fish Hatchery



Photo Credit: Hagerman National Fish Hatchery, USFWS

The Idaho Anadromous Fish-Marking Crew processed BY 2014 summer-run steelhead at Hagerman National Fish Hatchery on three separate occasions. The first trip occurred July 31st through August 8th; the second mark event was August 23rd through August 26th; the third mark event was September 9th through September 12th. A total of 1,557,734 fish were coded-wire tagged or adipose fin-clipped using one five-line and one six-line automated marking trailer (Table 22). 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.

Table 22: Hagerman National Fish Hatchery Steelhead BY 2014 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Hagerman National Fish Hatchery Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
37	7/31/2014	M2	AD ONLY		19,900	9,600	29,500	29,500	SAW A
38	7/31/2014	M2	AD ONLY		18,332	11,168	29,500	29,500	SAW A
39	7/31/2014	M2	AD ONLY		-	1,035	1,035		SAW A
39	8/1/2014	M2	AD ONLY		21,065	7,400	28,465	29,500	SAW A
40	8/1/2014	M2	AD ONLY		20,501	9,022	29,523	29,523	SAW A
41	8/1/2014	M2	AD ONLY		17,422	7,722	25,144		SAW A
41	8/2/2014	M2	AD ONLY		3,009	1,356	4,365	29,509	SAW A
42	8/2/2014	M2	AD ONLY		21,300	8,200	29,500	29,500	SAW A
43	8/2/2014	M2	AD ONLY		19,801	9,700	29,501	29,501	SAW A
44	8/2/2014	M2	AD ONLY		13,574	7,124	20,698		SAW A
44	8/3/2014	M2	AD ONLY		6,206	2,600	8,806	29,504	SAW A
45	8/3/2014	M2	AD ONLY		21,000	8,500	29,500	29,500	SAW A
46	8/3/2014	M2	AD ONLY		16,700	12,800	29,500	29,500	SAW A
47	8/3/2014	M2	AD ONLY		7,066	5,707	12,773		SAW A
47	8/4/2014	M2	AD ONLY		12,227	4,500	16,727	29,500	SAW A
48	8/4/2014	M2	AD ONLY		20,600	8,900	29,500	29,500	SAW A
49	8/4/2014	M2	AD ONLY		19,901	9,600	29,501	29,501	SAW A
50	8/5/2014	M2	AD ONLY		19,898	9,607	29,505	29,505	SAW A
51	8/5/2014	M2	AD ONLY		20,100	9,400	29,500	29,500	SAW A
52	8/5/2014	M2	AD ONLY		12,141	9,570	21,711		SAW A
52	8/6/2014	M2	AD ONLY		5,070	2,721	7,791	29,502	SAW A
62	8/6/2014	M2	AD ONLY		19,500	9,000	28,500	28,500	SAW A
63	8/6/2014	M2	AD ONLY		2,030	2,063	4,093		SAW A
63	8/7/2014	M2	AD ONLY		17,248	7,159	24,407	28,500	SAW A
65	8/7/2014	M2	AD ONLY		15,032	7,671	22,703		SAW A
65	8/8/2014	M2	AD ONLY		3,406	2,395	5,801	28,504	SAW A
66	8/23/2014	M2	AD ONLY		21,500	7,000	28,500	28,500	SAW A
67	8/23/2014	M2	AD ONLY		22,195	6,306	28,501	28,501	SAW A
68	8/23/2014	M2	AD ONLY		17,385	6,870	24,255		SAW A
68	8/24/2014	M2	AD ONLY		3,832	413	4,245	28,500	SAW A
69	8/24/2014	M2	AD ONLY		23,702	4,800	28,502	28,502	SAW A
71	8/24/2014	M2	AD ONLY		21,901	6,600	28,501	28,501	SAW A
72	8/24/2014	M2	AD ONLY		13,260	6,810	20,070		SAW A
72	8/25/2014	M2	AD ONLY		6,936	1,494	8,430	28,500	SAW A
73	8/25/2014	M2	AD ONLY		22,510	5,990	28,500	28,500	SAW A
75	8/25/2014	M2	AD ONLY		24,101	9,455	33,556	33,556	SAW A
59	8/26/2014	M2	AD ONLY		11,621	6,719	18,340		SAW A
59	9/10/2014	M4	AD ONLY		7,464	1,700	9,164	27,504	SAW A
60	9/10/2014	M4	AD ONLY		21,902	5,600	27,502	27,502	SAW A

Table 22: Continued

Raceway Totals and Mark Totals at Hagerman National Fish Hatchery Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
81	9/10/2014	M4	AD ONLY		3,038	2,425	5,463		SAW A
81	9/11/2014	M4	AD ONLY		17,037	4,000	21,037	26,500	SAW A
82	9/11/2014	M4	AD ONLY		21,537	5,000	26,537	26,537	SAW A
83	9/11/2014	M4	AD ONLY		16,804	4,910	21,714	21,714	SAW A
84	8/23/2014	M4	AD ONLY		22,818	3,713	26,531	26,531	SAW A
85	8/23/2014	M4	AD ONLY		20,060	6,500	26,560	26,560	SAW A
86	8/23/2014	M4	AD ONLY		16,007	5,838	21,845		SAW A
86	8/24/2014	M4	AD ONLY		3,978	700	4,678	26,523	SAW A
87	8/24/2014	M4	AD ONLY		23,009	3,500	26,509	26,509	SAW A
88	8/24/2014	M4	AD ONLY		21,794	4,750	26,544	26,544	SAW A
89	8/24/2014	M4	AD ONLY		21,801	4,700	26,501	26,501	SAW A
90	8/24/2014	M4	AD ONLY		12,062	3,531	15,593		SAW A
90	8/25/2014	M4	AD ONLY		9,503	1,409	10,912	26,505	SAW A
91	8/25/2014	M4	AD ONLY		21,000	5,500	26,500	26,500	SAW A
92	8/25/2014	M4	AD ONLY		20,535	6,000	26,535	26,535	SAW A
93	8/25/2014	M4	AD ONLY		20,349	4,738	25,087	25,087	SAW A
94	8/26/2014	M4	AD ONLY		22,386	4,701	27,087	27,087	SAW A
95	9/9/2014	M4	AD ONLY		22,566	6,000	28,566	28,566	SAW A
96	9/9/2014	M4	AD ONLY		20,700	5,800	26,500	26,500	SAW A
97	9/9/2014	M4	AD ONLY		8,699	2,488	11,187		SAW A
97	9/10/2014	M4	AD ONLY		12,469	2,850	15,319	26,506	SAW A
98	9/10/2014	M4	AD ONLY		12,498	5,043	17,541	17,541	SAW A
CIR 1	9/9/2014	M2	AD/CWT	10/02/84	25,977	4,852	30,829	30,829	SAW A
CIR 2	9/9/2014	M2	AD/CWT	10/02/84	24,621	5,464	30,085	30,085	SAW A
CIR 3	9/10/2014	M2	AD/CWT	10/02/84	27,116	4,601	31,717	31,717	SAW A
61	9/10/2014	M2	AD/CWT	10/02/87	20,026	3,495	23,521	23,521	SAW A
64	9/10/2014	M2	AD/CWT	10/02/87	20,310	3,778	24,088	24,088	SAW A
70	9/11/2014	M2	AD/CWT	10/02/87	20,237	3,265	23,502	23,502	SAW A
74	9/11/2014	M2	AD/CWT	10/02/87	17,597	4,145	21,742	21,742	SAW A
76	8/25/2014	M2	CWT ONLY	10/02/68	3,596	1,563	5,159		E F SALMON
76	8/26/2014	M2	CWT ONLY	10/02/68	6,349	2,998	9,347		E F SALMON
76	9/11/2014	M4	CWT ONLY	10/02/68	4,676	642	5,318	19,824	E F SALMON
53	9/11/2014	M2	CWT ONLY	10/02/68	16,107	5,110	21,217	21,217	E F SALMON
54	9/12/2014	M2	CWT ONLY	10/02/68	16,546	4,302	20,848	20,848	E F SALMON

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; max, min. and average retention rates of checked fish

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/02/87	90K	92,853
10/02/68	60K	61,889
10/02/84	90K	92,631

TOTAL AD/CWT	185,484
TOTAL CWT ONLY	61,889
TOTAL AD ONLY	1,310,361
TOTAL MARKED	1,557,734

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
53	300	298	99.33%	21,217	21,076
54	300	297	99.00%	20,848	20,640
76	301	287	95.35%	19,824	18,902
61	300	298	99.33%	23,521	23,364
64	300	298	99.33%	24,088	23,927
70	300	294	98.00%	23,502	23,032
74	300	299	99.67%	21,742	21,670
CIR. 1	300	296	98.67%	30,829	30,418
CIR. 2	300	292	97.33%	30,085	29,283
CIR. 3	300	295	98.33%	31,717	31,188
MAX. RETENTION			99.67%	247,373	243,500
MIN. RETENTION			95.35%	AVERAGE	98.43%

A total of 17,190 BY 2013 summer-run steelhead were PIT-tagged at Hagerman National Fish Hatchery November 5th through November 6th using the four-station manual PIT-tagging trailer (Table 23). 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 23: BY 2013 Hagerman National Summer-Run Steelhead pit tagged by raceway

Hagerman BY 2013 Steelhead		
DATE	RWY	# OF FISH TAGGED
11/5/2014	39	800
11/5/2014	43	800
11/5/2014	50	499
11/5/2014	54	500
11/5/2014	57	600
11/5/2014	63	700
11/5/2014	67	699
11/5/2014	73	697
11/5/2014	77	697
11/5/2014	80	3,399
11/5/2014	86	601
11/5/2014	90	599
11/5/2014	96	699
11/5/2014	100	700
11/5/2014	101	2,401
11/6/2014	102	2,799
TOTAL FISH TAGGED:		17,190

Niagara Springs Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2014 summer-run steelhead at Niagara Springs Fish Hatchery August 14th through August 19th. A total of 1,887,306 fish were adipose fin-clipped (Table 24). One five-line and two six-line automated marking trailers were used to process fish that received an adipose fin-clip. Fish were loaded into the main trough of the trailers by two electric Matsusaka fish-transfer pumps and a 2 ½" Aqua-Life fish-transfer pump. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 24: Niagara Springs Fish Hatchery Steelhead BY 2014 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Niagara Springs Fish Hatchery Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
1	8/14/2014	M3	AD ONLY		59,148	21,620	80,768		OX
1	8/15/2014	M3	AD ONLY		12,233	4,021	16,254	97,022	OX
2	8/15/2014	M3	AD ONLY		49,472	23,514	72,986		OX
2	8/16/2014	M3	AD ONLY		14,444	9,618	24,062	97,048	OX
3	8/16/2014	M3	AD ONLY		56,292	21,541	77,833		OX
3	8/17/2014	M3	AD ONLY		14,332	4,840	19,172	97,005	OX
4	8/17/2014	M3	AD ONLY		57,619	21,452	79,071		OX
4	8/18/2014	M3	AD ONLY		13,108	4,860	17,968	97,039	OX
5	8/18/2014	M3	AD ONLY		64,548	20,640	85,188		OX
5	8/19/2014	M3	AD ONLY		8,000	4,000	12,000	97,188	OX
6	8/19/2014	M3	AD ONLY		65,621	20,607	86,228		OX
6	8/19/2014	M4	AD ONLY		9,202	1,742	10,944	97,172	OX
7	8/14/2014	M4	AD ONLY		72,903	19,594	92,497		OX
7	8/15/2014	M4	AD ONLY		11,264	4,137	15,401	107,898	OX
8	8/15/2014	M4	AD ONLY		75,758	15,283	91,041		OX
8	8/16/2014	M4	AD ONLY		10,934	3,232	14,166	105,207	OX
9	8/16/2014	M4	AD ONLY		82,490	23,837	106,327	106,327	PAH A
10	8/17/2014	M4	AD ONLY		77,643	26,873	104,516	104,516	PAH A
11 TOP	8/17/2014	M4	AD ONLY		18,421	5,608	24,029		PAH A
11 TOP	8/18/2014	M4	AD ONLY		19,270	6,701	25,971	50,000	PAH A
11 BOT	8/18/2014	M4	AD ONLY		39,104	10,900	50,004	50,004	PAH A
12	8/18/2014	M4	AD ONLY		37,118	8,931	46,049		PAH A
12	8/19/2014	M4	AD ONLY		39,787	11,178	50,965	97,014	PAH A
13	8/19/2014	M4	AD ONLY		39,591	10,974	50,565		PAH A
13	8/19/2014	M1	AD ONLY		35,738	10,700	46,438	97,003	PAH A
14	8/19/2014	M1	AD ONLY		58,173	19,009	77,182		PAH A
14	8/18/2014	M1	AD ONLY		14,136	5,817	19,953	97,135	PAH A
15	8/18/2014	M1	AD ONLY		74,150	23,087	97,237	97,237	PAH A
16	8/17/2014	M1	AD ONLY		75,000	24,000	99,000	99,000	PAH A
17	8/17/2014	M1	AD ONLY		4,821	2,194	7,015		PAH A
17	8/16/2014	M1	AD ONLY		70,179	20,306	90,485	97,500	PAH A
18	8/16/2014	M1	AD ONLY		12,138	4,309	16,447		PAH A
18	8/15/2014	M1	AD ONLY		59,024	22,290	81,314	97,761	PAH A
19	8/15/2014	M1	AD ONLY		10,077	4,957	15,034		PAH A
19	8/14/2014	M1	AD ONLY		58,149	25,047	83,196	98,230	PAH A

Supplemental Table: # of fish by mark type

TOTAL AD/CWT	-
TOTAL CWT ONLY	-
TOTAL AD ONLY	1,887,306
TOTAL MARKED	1,887,306

A total of 22,698 BY 2013 summer-run steelhead were PIT-tagged at Niagara Springs Fish Hatchery January 30th through January 31st using the four-station manual PIT-tagging trailer (Table 25). 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 25: BY 2013 Niagara Springs Summer-Run Steelhead pit tagged by raceway

Niagara Springs BY 2013 Steelhead		
DATE	RWY	# OF FISH TAGGED
1/30/2014	1	2,102
1/30/2014	2	2,199
1/30/2014	4	2,098
1/30/2014	5	2,200
1/30/2014	9	2,502
1/30/2014	10	2,598
1/31/2014	13	2,200
1/31/2014	14	2,298
1/31/2014	17	2,300
1/31/2014	18	2,201
TOTAL FISH TAGGED:		22,698

Springfield Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2013 summer-run sockeye at Springfield Fish Hatchery June 24th through June 26th. A total of 216,467 fish were adipose fin-clipped (Table 26). One six-line automated marking trailer was used to process fish that received an adipose fin-clip. Fish were loaded into the main trough of the trailers by one electric Aqua-life fish-transfer pump. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 26: Springfield Fish Hatchery Sockeye BY 2013 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, MATS and manual numbers

Raceway Totals and Mark Totals at Springfield Fish Hatchery Sockeye									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
8	6/24/2014	M4	AD ONLY		47,065	10,030	57,095	57,095	REDFISH LK
5	6/24/2014	M4	AD ONLY		13,503	4,145	17,648		REDFISH LK
5	6/25/2014	M4	AD ONLY		28,481	5,649	34,130	51,778	REDFISH LK
3	6/25/2014	M4	AD ONLY		47,086	7,728	54,814	54,814	REDFISH LK
2	6/26/2014	M4	AD ONLY		43,009	9,771	52,780	52,780	REDFISH LK

Supplemental Table: # of fish by mark type

TOTAL AD/CWT	-
TOTAL CWT ONLY	-
TOTAL AD ONLY	216,467
TOTAL MARKED	216,467

Discussion

Again in 2014, 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.

Construction at Springfield Fish Hatchery near Blackfoot was completed in 2013 so this was the first year that sockeye were reared at this facility. The hatchery, which is funded by Bonneville Power Administration, is part of the Snake River Sockeye Salmon Recovery Program. Springfield hatchery has an egg incubation room, 22 vats, and 22 concrete raceways outside. In 2014 approximately 216,000 sockeye were reared at this facility. They will increase production to around 750,000 next year with an end goal to produce approximately 1,000,000 smolts. Since this was the first year fish-marking at Springfield Hatchery, it took significant coordination between the marking crew and the hatchery staff to make sure that everything was in order and planned out prior to the commencement of the fish-marking operations. Fish-Marking operations went as well as they could have for the first year of a new hatchery and program.

Northwest Marine Technology built a new automated trailer for the Idaho Fish-Marking Program which was received in March, 2014. This trailer has six automated lines and is many feet shorter in length than the existing six line trailer that has been on the program for many years. This shorter trailer length allows it to be used at every hatchery that we work at throughout the state and creates more flexibility when scheduling trailer moves and fish-marking events. The shorter trailer is easier to transport on some of the narrow, winding highways and is also easier for maneuvering around the hatcheries.

Magic Valley started using the Matsusaka fish pumps for the first time this year in 2014. This caused less stress on the fish and easier handling for the hatchery staff and marking crews. They put in new power receptacles in their vat room so that the fish-transfer pumps could be plugged in near the vats. The trailers were also parked in different locations right in the middle of the raceways so that fish could be pumped a shorter distance to the trailers and the fish could be discharged back into the raceways. Clearwater also went away from the forklift and transfer tank method of getting fish to the trailers. They too had receptacles installed in their vat room to accommodate the fish-transfer pumps and this worked well for the 2014 season.