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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 2017, all fish-marking personnel were employees of PSMFC. The marking program was based out of Lewiston, Idaho and consisted of four full time staff; one Tagging Coordinator, one Supervisory Operator, two Trailer Operators and twelve seasonal staff; four Trailer Operators, eight Trailer Assistants, and a varying number of temporary Trailer Assistants as needed for the 2017 marking season. This report summarizes all fish marked by the Idaho Anadromous Fish-Marking Program in the year 2017. The program was responsible for the marking of anadromous fish at the following nine fish hatcheries: Clearwater, Hagerman National, McCall, Magic Valley, Niagara Springs, Pahsimeroi, Rapid River, Sawtooth, and Springfield. 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 fourth week of April through the end of August. The adipose fin-clipping took place from the fourth week of April through the end of August. PIT-tags were implanted from the third week of September through the second week of 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 2017 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 2017 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 five state-of-the-art automated tagging trailers (AutoFish Trailers). The five AutoFish Trailers have six automated lines. These AutoFish Trailers incorporate the latest advanced technology for adipose fin-clipping and coded-wire tagging fish. These AutoFish 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, Sockeye salmon and Chinook salmon were PIT-tagged using a four-station and three-station manual PIT-tagging trailers.

The AutoFish 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. AutoFish Trailers were moved as needed between hatcheries relative to fish reaching appropriate marking size.

Fish were delivered to the AutoFish Trailers by means of a forklift mounted live fish transfer tank and electric Matsusaka four-inch fish-transfer 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. Approximately 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. Due to the reduction in coded-wire tag groups, fewer groups were checked for adipose fin-clip quality and 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 2017 Mark Plan. A total of 19,855,934 adipose fin-clips (AD) and/or coded wire tag (CWT) marks were applied to 18,108,715 fish in 2017 (Table 1).

Table 1: Mark Year 2017 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 2016	3,097,144	757,388	145,384	2,194,372	3,854,532
CLEARWATER SUMMER-RUN CHINOOK BY 2016	459,147	120,047	120,130	218,970	579,194
CLEARWATER SUMMER-RUN STEELHEAD BY 2017	911,149	-	365,722	545,427	911,149
HAGERMAN NATIONAL SUMMER-RUN STEELHEAD BY 2017	1,543,108	267,500	56,964	1,218,644	1,810,608
MAGIC VALLEY SUMMER-RUN STEELHEAD BY 2017	1,466,972	-	480,228	986,744	1,466,972
MCCALL SUMMER-RUN CHINOOK BY 2016	1,239,970	119,546	264,299	856,125	1,359,516
NIAGARA SPRINGS SUMMER-RUN STEELHEAD BY 2017	1,854,880	-	-	1,854,880	1,854,880
PAHSIMEROI SUMMER-RUN CHINOOK BY 2016	1,065,121	121,298	68,757	875,066	1,186,419
RAPID RIVER SPRING-RUN CHINOOK BY 2016	3,167,962	120,155	-	3,047,807	3,288,117
SAWTOOTH SPRING-RUN CHINOOK BY 2016	2,397,255	241,285	171,052	1,984,918	2,638,540
SPRINGFIELD SUMMER-RUN SOCKEYE BY 2016	906,007	-	-	906,007	906,007
MARK YEAR 2017 TOTALS	18,108,715	1,747,219	1,672,536	14,688,960	19,855,934

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 2017 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-RUN CHINOOK	98.74%	902,772	891,393
CLEARWATER SUMMER-RUN CHINOOK	98.65%	240,177	236,925
CLEARWATER SUMMER-RUN STEELHEAD	97.40%	365,722	356,229
HAGERMAN NATIONAL SUMMER-RUN STEELHEAD	93.14%	327,464	305,016
MAGIC VALLEY SUMMER-RUN STEELHEAD	98.07%	480,228	470,944
MCCALL SUMMER-RUN CHINOOK	99.38%	383,845	381,464
PAHSIMEROI SUMMER-RUN CHINOOK	99.06%	190,055	188,266
RAPID RIVER SPRING-RUN CHINOOK	100.00%	120,155	120,155
SAWTOOTH SPRING-RUN CHINOOK	99.31%	412,337	409,498
TOTALS		3,422,755	3,359,890
OVERALL AVERAGE			98.16%

- Clearwater Fish Hatchery: 90.91 – 100.00% with an average of 98.40%
- Pahsimeroi Fish Hatchery: 98.00 – 99.66% with an average of 99.06%
- Rapid River Fish Hatchery: 100.00 – 100.00% with an average of 100.00%
- McCall Fish Hatchery: 98.75 – 100.00% with an average of 99.38%
- Magic Valley Fish Hatchery: 96.06% – 100.00% with an average of 98.07%
- Hagerman National Fish Hatchery: 84.77 – 98.67% with an average of 93.14%
- Niagara Springs Fish Hatchery: No CWT at Niagara Springs Hatchery in 2017
- Sawtooth Fish Hatchery: 95.96 – 100.00% with an average of 99.31%
- Springfield Fish Hatchery: No CWT at Springfield Hatchery in 2017

In addition to the coded-wire tags and adipose fin-clips, 397,455 fish were PIT-tagged by the Marking Program in 2017 on fish that were marked during the 2017 Mark year (Table 3).

Table 3: Mark Year 2017 Summary of total PIT-Tagged fish in spring and how many tagged at each hatchery

HATCHERY	TOTAL FISH TAGGED
CLEARWATER SPRING-RUN CHINOOK BY 2016	59,985
CLEARWATER SUMMER-RUN STEELHEAD BY 2017	18,101
CLEARWATER SUMMER-RUN CHINOOK BY 2016	25,494
HAGERMAN NATIONAL SUMMER-RUN STEELHEAD BY 2017	38,776
MAGIC VALLEY SUMMER-RUN STEELHEAD BY 2017	34,786
MCCALL SUMMER-RUN CHINOOK BY 2016	51,961
NIAGARA SPRINGS SUMMER-RUN STEELHEAD BY 2017	22,690
PAHSIMEROI SUMMER-RUN CHINOOK BY 2016	21,365
RAPID RIVER SPRING-RUN CHINOOK BY 2016	51,955
SAWTOOTH SPRING-RUN CHINOOK BY 2016	22,352
SPRINGFIELD SUMMER-RUN SOCKEYE BY 2016	49,990
TOTAL PIT TAGS	397,455

Schedule of Mark Events

- April 27th-May 4th Marking Spring-Run Chinook at Clearwater
- May 9th-May 16th Marking Spring-Run Chinook at Sawtooth
- May 23rd-May 27th Marking Summer-Run Chinook at Pahsimeroi
- May 22nd-June 9th Marking Spring-Run Chinook and Summer-Run Chinook at Clearwater
- June 6th-June 9th Marking Summer-Run Chinook at McCall
- June 15th-June 28th Marking Spring-Run Chinook at Rapid River
- July 5th- July 12th Marking Summer-Run Chinook at McCall
- July 6th-July 11th Marking Summer-Run Sockeye at Springfield
- July 27th- August 1st Marking Summer-Run Steelhead at Niagara Springs
- August 7th-August 16th Marking Summer-Run Steelhead at Clearwater
- August 8th-August 15th Marking Summer-Run Steelhead at Magic Valley
- August 23rd-August 29th Marking Summer-Run Steelhead at Hagerman National
- September 19th Pit tagging Summer-Run Chinook at Pahsimeroi
- September 20th-September 21st Pit tagging Spring-Run Chinook at Sawtooth
- September 25th-September 27th Pit tagging Spring-Run Chinook at Rapid River
- October 2nd-October 4th Pit tagging Summer-Run Chinook at McCall
- October 10th-October 19th Pit tagging Spring-Run Chinook, Summer-Run Chinook and Summer-Run Steelhead at Clearwater
- October 24th-26th Pit tagging Summer-Run Sockeye at Springfield

- October 31st-November 1st Pit tagging Summer-Run Steelhead at Magic Valley
- November 2nd-November 3rd Pit tagging Summer-Run Steelhead at Niagara Springs
- November 7th- November 9th Pit tagging Summer-Run Steelhead at Hagerman National

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Figure 1: Hatchery Locations for the 2027 Idaho Anadromous Fish-Marking Program



Clearwater Fish Hatchery



Clearwater Fish Hatchery Spring-Run Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2016 spring-run Chinook salmon at Clearwater Fish Hatchery on two separate occasions. The first trip occurred April 27th through May 4th using three AutoFish Trailers. Three AutoFish Trailers were used during the second mark event, May 22nd through June 9th. Three electric Matsusaka fish-transfer pumps were used to load the fish into the trailers during both marking events. A total of 3,097,144 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-Run Chinook BY 2016 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

Raceway Totals and Mark Totals at Clearwater Fish Hatchery Spring-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
1A	4/27/2017	M2	AD ONLY		74,304	6,213	80,517	80,517	SF CLWR
1B	4/27/2017	M3	AD ONLY		22,086	2,915	25,001		SF CLWR
1B	4/28/2017	M3	AD ONLY		28,008	5,705	33,713		SF CLWR
1B	5/1/2017	M3	AD ONLY		21,067	718	21,785	80,499	SF CLWR
1E	5/31/2017	M1	AD ONLY		16,432	2,826	19,258		DWORSHAK/KOOSKIA
1E	6/1/2017	M1	AD ONLY		44,618	3,111	47,729		DWORSHAK/KOOSKIA
1E	6/1/2017	M1	AD ONLY		52,116	5,692	57,808		DWORSHAK/KOOSKIA
1E	5/31/2017	M1	AD/CWT	10/03/86	37,316	2,781	40,097	164,892	DWORSHAK/KOOSKIA
2A	4/27/2017	M2	AD ONLY		2,810	7,085	9,895		SF CLWR
2A	4/28/2017	M2	AD ONLY		66,014	4,551	70,565	80,460	SF CLWR
2B	4/27/2017	M1	AD ONLY		28,687	7,333	36,020		SF CLWR
2B	4/28/2017	M1	AD ONLY		13,439	1,000	14,439		SF CLWR
2B	4/27/2017	M1	AD/CWT	10/03/79	29,662	348	30,010	80,469	SF CLWR
2E	6/1/2017	M1	AD ONLY		39,352	2,152	41,504		DWORSHAK/KOOSKIA
2E	6/2/2017	M1	AD ONLY		39,376	9,941	49,317		DWORSHAK/KOOSKIA
2E	6/5/2017	M3	AD ONLY		62,267	7,038	69,305		DWORSHAK/KOOSKIA
2E	6/5/2017	M3	AD ONLY		3,381	200	3,581	163,707	DWORSHAK/KOOSKIA
3A	4/28/2017	M2	AD ONLY		13,358	2,503	15,861		SF CLWR
3A	5/1/2017	M2	AD ONLY		52,818	3,341	56,159		SF CLWR
3A	5/1/2017	M2	AD ONLY		7,561	900	8,461	80,481	SF CLWR
3B	4/28/2017	M1	AD ONLY		53,652	6,577	60,229		SF CLWR
3B	5/1/2017	M1	AD ONLY		18,662	1,560	20,222	80,451	SF CLWR
3E	6/5/2017	M3	AD ONLY		44,403	3,239	47,642		DWORSHAK/KOOSKIA
3E	6/6/2017	M3	AD ONLY		69,058	7,000	76,058		DWORSHAK/KOOSKIA
3E	6/6/2017	M1	AD/CWT	10/03/86	38,414	1,591	40,005	163,705	DWORSHAK/KOOSKIA
3W LOWER	6/6/2017	M1	AD/CWT	10/03/78	48,543	1,659	50,202		KOOSKIA
3W LOWER	6/6/2017	M1	AD/CWT	10/03/78	50,438	5,386	55,824		KOOSKIA
3W LOWER	6/7/2017	M1	AD/CWT	10/03/78	3,688	-	3,688	109,714	KOOSKIA
4A	5/1/2017	M2	AD ONLY		3,750	4,267	8,017		SF CLWR
4A	5/2/2017	M2	AD ONLY		40,221	2,208	42,429		SF CLWR
4A	5/1/2017	M2	AD/CWT	10/03/79	29,001	1,025	30,026	80,472	SF CLWR
4B	5/1/2017	M1	AD ONLY		29,549	1,536	31,085		SF CLWR
4B	5/1/2017	M1	AD ONLY		43,760	5,719	49,479	80,564	SF CLWR
4E	6/1/2017	M3	AD ONLY		24,547	3,363	27,910		DWORKSHAK/KOOSKIA
4E	6/1/2017	M3	AD ONLY		54,110	3,260	57,370		DWORKSHAK/KOOSKIA
4E	6/2/2017	M3	AD ONLY		36,979	4,635	41,614		DWORKSHAK/KOOSKIA
4E	6/7/2017	M3	AD ONLY		33,061	3,755	36,816	163,710	DWORKSHAK/KOOSKIA

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Table 4: Continued

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Raceway Totals and Mark Totals at Clearwater Fish Hatchery Spring-Run Chinook

RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
4W LOWER	6/7/2017	M1	AD/CWT	10/03/77	47,741	2,502	50,243		KOOSKIA
4W LOWER	6/7/2017	M1	AD/CWT	10/03/77	35,527	3,112	38,639	88,882	KOOSKIA
5A	5/1/2017	M3	AD ONLY		47,797	5,895	53,692		SF CLWR
5A	5/2/2017	M3	AD ONLY		25,261	1,500	26,761	80,453	SF CLWR
5B	5/2/2017	M1	AD ONLY		50,679	5,309	55,988		SF CLWR
5B	5/2/2017	M1	AD ONLY		20,514	4,019	24,533	80,521	SF CLWR
5E	5/31/2017	M3	AD ONLY		35,177	2,905	38,082		DWORSHAK/KOOSKIA
5E	5/31/2017	M3	AD ONLY		35,897	4,420	40,317		DWORSHAK/KOOSKIA
5E	6/1/2017	M3	AD ONLY		15,028	1,589	16,617		DWORSHAK/KOOSKIA
5E	6/1/2017	M3	AD ONLY		25,555	3,124	28,679		DWORSHAK/KOOSKIA
5E	5/31/2017	M1	AD/CWT	10/03/86	8,362	609	8,971		DWORSHAK/KOOSKIA
5E	6/1/2017	M1	AD/CWT	10/03/86	29,890	1,157	31,047	163,713	DWORSHAK/KOOSKIA
5W LOWER	6/8/2017	M1	AD/CWT	10/03/74	54,589	2,899	57,488		KOOSKIA
5W LOWER	6/8/2017	M1	AD/CWT	10/03/74	48,964	3,262	52,226	109,714	KOOSKIA
6A	5/2/2017	M3	AD ONLY		32,849	2,589	35,438		SF CLWR
6A	5/2/2017	M3	AD ONLY		41,275	3,740	45,015	80,453	SF CLWR
6B	5/2/2017	M1	AD ONLY		11,157	2,617	13,774		SF CLWR
6B	5/3/2017	M1	AD ONLY		32,673	4,036	36,709		SF CLWR
6B	5/2/2017	M1	AD/CWT	10/03/79	29,547	465	30,012	80,495	SF CLWR
6E	6/5/2017	M1	AD ONLY		57,701	7,686	65387		DWORSHAK/KOOSKIA
6E	6/7/2017	M1	AD ONLY		6,802	5,139	11941		DWORSHAK/KOOSKIA
6E	6/9/2017	M1	AD ONLY		10,487	2,124	12611		DWORSHAK/KOOSKIA
6E	6/7/2017	M3	AD ONLY		27,304	1,545	28849		DWORSHAK/KOOSKIA
6E	6/7/2017	M3	AD ONLY		26,685	2,910	29595	148,383	DWORSHAK/KOOSKIA
6W LOWER	6/9/2017	M1	AD/CWT	10/03/76	57,932	2,744	60676		KOOSKIA
6W LOWER	6/9/2017	M1	AD/CWT	10/03/76	26,161	2,045	28206	88,882	KOOSKIA
7A	5/2/2017	M2	AD ONLY		64,111	11,543	75,654		SF CLWR
7A	5/3/2017	M2	AD ONLY		4,670	254	4,924	80,578	SF CLWR
7B	5/3/2017	M1	AD ONLY		36,956	6,003	42,959		SF CLWR
7B	5/4/2017	M1	AD ONLY		6,872	1,077	7,949		SF CLWR
7B	5/4/2017	M2	AD ONLY		18,593	1,500	20,093		SF CLWR
7B	5/4/2017	M2	AD ONLY		530	339	869	71,870	SF CLWR
8A	5/3/2017	M2	AD ONLY		31,369	3,200	34,569		SF CLWR
8A	5/3/2017	M2	AD ONLY		11,879	4,297	16,176		SF CLWR
8A	5/3/2017	M2	AD/CWT	10/03/79	28,539	1,486	30,025	80,770	SF CLWR
8B	5/2/2017	M3	AD ONLY		5,452	4,966	10,418		SF CLWR
8B	5/3/2017	M3	AD ONLY		31,997	4,011	36,008		SF CLWR
8B	5/3/2017	M2	AD ONLY		12,000	3,427	15,427		SF CLWR
8B	5/4/2017	M2	AD ONLY		16,098	2,576	18,674	80,527	SF CLWR
9A	5/26/2017	M2	CWT ONLY	10/03/89	62,578	6,128	68,706	68,706	DWORSHAK/KOOSKIA
9B	5/22/2017	M2	AD ONLY		12,607	4,060	16,667		DWORSHAK/KOOSKIA
9B	5/22/2017	M2	AD/CWT	10/03/85	58,969	1,032	60,001	76,668	DWORSHAK/KOOSKIA

Table 4: Continued

Raceway Totals and Mark Totals at Clearwater Fish Hatchery Spring-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
10A	5/25/2017	M2	AD ONLY		12,760	3,915	16,675		DWORSHAK/KOOSKIA
10A	5/25/2017	M2	AD/CWT	10/03/85	59,107	895	60,002	76,677	DWORSHAK/KOOSKIA
10B	5/23/2017	M2	CWT ONLY	10/03/89	75,588	1,090	76,678	76,678	DWORSHAK/KOOSKIA
11A	5/24/2017	M2	AD ONLY		55,718	8,282	64,000		DWORSHAK/KOOSKIA
11A	5/25/2017	M2	AD ONLY		12,253	494	12,747	76,747	DWORSHAK/KOOSKIA
11B	5/23/2017	M2	AD ONLY		29,399	8,664	38,063		DWORSHAK/KOOSKIA
11B	5/24/2017	M2	AD ONLY		37,684	1,039	38,723	76,786	DWORSHAK/KOOSKIA

Supplemental Tables: Tag Code sizes and amount of fish tagged using that tag code; # of fish by mark type; CWT retention rates by raceway; maximum, minimum and average retention rates of checked fish; Adipose fin-clip rates on those fish that also received a coded-wire tag

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/03/79	110K	120,073
10/03/89	135K	145,384
10/03/85	110K	120,003
10/03/86	110K	120,120
10/03/78	100K	109,714
10/03/77	100K	88,882
10/03/74	100K	109,714
10/03/76	100K	88,882

TOTAL AD/CWT	757,388
TOTAL CWT ONLY	145,384
TOTAL AD ONLY	2,194,372
TOTAL MARKED	3,097,144

CLEARWATER SPRING-RUN CHINOOK CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
4A	100	99	99.00%	30,026	29,726
8A	101	101	100.00%	30,025	30,025
9A	200	198	99.00%	68,706	68,019
10A	200	200	100.00%	60,002	60,002
2B	107	102	95.33%	30,010	28,608
6B	100	100	100.00%	30,012	30,012
9B	203	202	99.51%	60,001	59,705
10B	200	200	100.00%	76,678	76,678
1E	55	50	90.91%	40,097	36,452
3E	163	154	94.48%	40,005	37,796
5E	102	100	98.04%	40,018	39,233
3W LOWER	300	298	99.33%	109,714	108,983
4W LOWER	300	300	100.00%	88,882	88,882
5W LOWER	300	298	99.33%	109,714	108,983
6W LOWER	300	298	99.33%	88,882	88,289
MAX. RETENTION			100.00%	902,772	891,393
MIN. RETENTION			90.91%	AVERAGE	98.74%

CLEARWATER SPRING-RUN CHINOOK ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
4A	100	0	100	100.00%
8A	101	0	101	100.00%
10A	200	0	200	100.00%
2B	107	0	107	100.00%
6B	100	0	100	100.00%
9B	203	0	203	100.00%
1E	55	0	55	100.00%
3E	163	0	163	100.00%
5E	102	0	102	100.00%
3W LOWER	300	0	300	100.00%
4W LOWER	300	0	300	100.00%
5W LOWER	300	0	300	100.00%
6W LOWER	300	0	300	100.00%
			AVERAGE	100.00%

A total of 59,985 BY 2016 spring-run Chinook salmon (Table 5) were PIT-tagged at Clearwater Fish Hatchery October 10th through October 13th and October 17th using the four-station manual PIT-tagging trailer. Fish were loaded into the main trough of the trailer by an electric Matsusaka fish-transfer pump and by hatchery personnel utilizing a forklift mounted live fish transfer tank. After tagging, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 5: BY 2016 Clearwater Spring-Run Chinook PIT-tagged by raceway

Clearwater BY 2016 Spring-Run Chinook		
DATE	RWY	# OF FISH TAGGED
10/12/2017	1AP	4,699
10/10/2017	2A	4,297
10/13/2017	2AP	4,799
10/17/2017	2E	4,298
10/13/2017	3AP	3,799
10/10/2017	3B	4,301
10/13/2017	4AP	3,800
10/17/2017	4E	4,399
10/11/2017	6A	4,197
10/11/2017	7B	4,300
10/11/2017	10B	5,698
10/12/2017	11A	5,699
10/12/2017	11B	5,699
TOTAL FISH TAGGED:		59,985

Clearwater Fish Hatchery Summer-Run Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2016 summer-run Chinook salmon at Clearwater Fish Hatchery from May 30th through June 5th using one AutoFish Trailer. One electric Matsusaka fish-transfer pump was used to load the fish into the trailer. A total of 459,147 summer-run Chinook salmon were coded-wire tagged and/or adipose fin-clipped (Table 6). After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 6: Clearwater Fish Hatchery Summer-Run Chinook BY 2016 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

Raceway Totals and Mark Totals at Clearwater Fish Hatchery Summer-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
3W UPPER	5/30/2017	M2	CWT ONLY	10/03/82	57,955	2,136	60,091	60,091	POWELL
4W UPPER	5/30/2017	M2	CWT ONLY	10/03/82	56,635	3,404	60,039	60,039	POWELL
5W UPPER	5/31/2017	M2	AD ONLY		31,446	6,399	37,845		S F SALMON
5W UPPER	6/1/2017	M2	AD ONLY		65,396	6,250	71,646		S F SALMON
5W UPPER	5/31/2017	M2	AD/CWT	10/03/84	57,858	2,162	60,020	169,511	POWELL/S F SALMON
6W UPPER	6/1/2017	M2	AD ONLY		41,051	3,913	44,964		S F SALMON
6W UPPER	6/2/2017	M2	AD ONLY		10,352	2,304	12,656		S F SALMON
6W UPPER	6/2/2017	M2	AD/CWT	10/03/84	57,490	2,537	60,027		S F SALMON
6W UPPER	6/5/2017	M1	AD ONLY		48,859	3,000	51,859	169,506	POWELL/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; maximum, minimum and average retention rates of checked fish; Adipose fin-clip rates on those fish that also received a coded-wire tag

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/03/82	110K	120,130
10/03/84	110K	120,047

TOTAL AD/CWT	120,047
TOTAL CWT ONLY	120,130
TOTAL AD ONLY	218,970
TOTAL # FISH MARKED	459,147

CLEARWATER SUMMER-RUN CHINOOK CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
3W UPPER	150	148	98.67%	60,091	59,290
4W UPPER	147	141	95.92%	60,039	57,588
5W UPPER*	145	145	100.00%	60,020	60,020
6W UPPER	145	145	100.00%	60,027	60,027
MAX. RETENTION			100.00%	240,177	236,925
MIN. RETENTION			95.92%	AVERAGE	98.65%

*Raceway 5W Upper's net pen was compromised; Raceway 6W upper's tag retention was applied to 5W upper since they have the same tag code 10/03/84.

ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	%
5W UPPER*	145	0	145	100.00%
6W UPPER	145	0	145	100.00%
			AVERAGE	100.00%

* Raceway 5W Upper's net pen was compromised; Raceway 6W upper's adipose fin-clip rate was applied to 5W upper since they have the same tag code 10/03/84 and mark designation.

A total of 25,494 BY 2016 summer-run Chinook salmon (Table 7) were PIT-tagged at Clearwater Fish Hatchery October 16th through October 17th using the four-station manual PIT-tagging trailer. Fish were loaded into the main trough of the trailer by an electric Matsusaka fish-transfer pump. After tagging, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 7: BY 2016 Clearwater Summer-Run Chinook PIT-tagged by raceway

Clearwater BY 2016 Summer Chinook		
DATE	RWY	# OF FISH TAGGED
10/16/2017	3W	6,500
10/16/2017	4W	6,197
10/16/2017	5W	6,396
10/17/2017	6W	6,401
TOTAL FISH TAGGED:		25,494

Clearwater Fish Hatchery Summer-Run Steelhead

The Idaho Anadromous Fish-Marking Crew processed BY 2017 summer-run steelhead at Clearwater Fish Hatchery August 7th through August 16th. A total of 911,149 fish were coded-wire tagged or adipose fin-clipped (Table 8). AutoFish 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 trailer by an electric Matsusaka fish-transfer pump. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 8: Clearwater Fish Hatchery Summer-Run Steelhead BY 2017 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

Raceway Totals and Mark Totals at Clearwater Fish Hatchery Summer-Run Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
7E	8/7/2017	M2	CWT ONLY	10/03/95	66,218	2,789	69,007	69,007	S F CLWR
8E	8/7/2017	M2	CWT ONLY	10/03/95	2,855	4,472	7,327		S F CLWR
8E	8/8/2017	M2	CWT ONLY	10/03/95	50,868	4,831	55,699	63,026	S F CLWR
9E	8/8/2017	M2	CWT ONLY	10/03/94	52,641	6,052	58,693		S F CLWR
9E	8/9/2017	M2	CWT ONLY	10/03/94	6,945		6,945		S F CLWR
9E	8/9/2017	M2	CWT ONLY	10/03/90	14,105	991	15,096	80,734	S F CLWR
10E	8/9/2017	M2	CWT ONLY	10/03/90	24,829	2,084	26,913		S F CLWR
10E	8/9/2017	M2	CWT ONLY	10/03/90	37,300	3,201	40,501		S F CLWR
10E	8/9/2017	M2	CWT ONLY	10/03/94	13,087		13,087	80,501	S F CLWR
11E	8/9/2017	M2	CWT ONLY	10/03/90	20,795	4,041	24,836		S F CLWR
11E	8/10/2017	M2	CWT ONLY	10/03/90	45,252	2,366	47,618		S F CLWR
11E	8/10/2017	M2	AD ONLY		7,461	636	8,097	80,551	S F CLWR
12E	8/10/2017	M2	AD ONLY		21,919	3,733	25,652		S F CLWR
12E	8/10/2017	M2	AD ONLY		50,551	4,300	54,851	80,503	S F CLWR
7W	8/16/2017	M2	AD ONLY		52,557	18,857	71,414	71,414	S F CLWR
8W	8/15/2017	M2	AD ONLY		47,524	8,952	56,476		S F CLWR
8W	8/16/2017	M2	AD ONLY		21,080	4,500	25,580	82,056	S F CLWR
9W	8/14/2017	M2	AD ONLY		6,334	1,235	7,569		S F CLWR
9W	8/15/2017	M2	AD ONLY		62,933	11,512	74,445	82,014	S F CLWR
10W	8/14/2017	M2	AD ONLY		50,637	9,636	60,273	60,273	S F CLWR
11W	8/11/2017	M2	AD ONLY		19,732	3,118	22,850		S F CLWR
11W	8/14/2017	M2	AD ONLY		48,711	9,006	57,717	80,567	S F CLWR
12W	8/10/2017	M2	AD ONLY		1,752	1,859	3,611		S F CLWR
12W	8/11/2017	M2	AD ONLY		58,768	8,554	67,322		S F CLWR
12W	8/11/2017	M2	AD ONLY		8,469	1,101	9,570	80,503	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; maximum, minimum and average retention rates of checked fish

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/03/90	140K	154,964
10/03/94	70K	78,725
10/03/95	120K	132,033

TOTAL AD/CWT	
TOTAL CWT ONLY	365,722
TOTAL AD ONLY	545,427
TOTAL MARKED	911,149

CLEARWATER SUMMER-RUN STEELHEAD CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
7E	150	148	98.67%	69,007	68,087
8E	150	142	94.67%	63,026	59,665
9E	300	292	97.33%	80,734	78,581
10E	300	294	98.00%	80,501	78,891
11E	150	147	98.00%	72,454	71,005
MAX. RETENTION			98.67%	365,722	356,229
MIN. RETENTION			94.67%	AVERAGE	97.40%

*Coded-Wire tagged fish only, No Adipose Fin-Clip Rates

A total of 18,101 BY 2017 summer-run steelhead were PIT-tagged at Clearwater Fish Hatchery October 17th through October 19th using the four-station manual PIT-tagging trailer (Table 9). Fish were loaded into the main trough of the trailer by an electric Matsusaka fish-transfer pump. After tagging, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 9: BY 2017 Clearwater Summer-Run Steelhead PIT-tagged by raceway

Clearwater BY 2017 Summer-Run Steelhead		
DATE	RWY	# OF FISH TAGGED
10/17/2017	7E	1,300
10/18/2017	8E	1,299
10/18/2017	9E	2,401
10/18/2017	10E	2,302
10/18/2017	12E	2,002
10/19/2017	7W	1,500
10/19/2017	8W	1,601
10/18/2017	9W	1,600
10/18/2017	10W	2,100
10/18/2017	12W	1,996
TOTAL FISH TAGGED:		18,101

Pahsimeroi Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2016 summer-run Chinook salmon at Pahsimeroi Fish Hatchery May 12th through May 16th. A total of 1,065,121 fish were coded-wire tagged and/or adipose fin-clipped (Table 10). Two AutoFish 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-Run Chinook BY 2016 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

Raceway Totals and Mark Totals at Pahsimeroi Fish Hatchery Summer-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
POND 1	5/23/2017	M5	AD ONLY		14,763	4,941	19,704		PAH
POND 1	5/23/2017	M4	AD ONLY		24,821	6,196	31,017		PAH
POND 1	5/23/2017	M5	AD/CWT	10/03/65	19,351	690	20,041		PAH
POND 1	5/23/2017	M4	CWT ONLY	10/03/66	65,507	3,250	68,757		PAH
POND 1	5/24/2017	M5	AD ONLY		4,669	680	5,349		PAH
POND 1	5/24/2017	M5	AD ONLY		1,334	794	2,128		PAH
POND 1	5/24/2017	M5	AD ONLY		14,775	1,283	16,058		PAH
POND 1	5/24/2017	M5	AD ONLY		54,974	8,274	63,248		PAH
POND 1	5/24/2017	M4	AD ONLY		4,751	625	5,376		PAH
POND 1	5/24/2017	M4	AD ONLY		18,561	2,764	21,325		PAH
POND 1	5/24/2017	M4	AD ONLY		28,449	7,491	35,940		PAH
POND 1	5/24/2017	M4	AD/CWT	10/03/65	19,292	1,146	20,438		PAH
POND 1	5/25/2017	M5	AD ONLY		35,461	4,400	39,861		PAH
POND 1	5/26/2017	M4	AD ONLY		53,444	6,678	60,122		PAH
POND 1	5/27/2017	M4	AD ONLY		51,968	6,508	58,476		PAH
POND 1	5/27/2017	M4	AD ONLY		7,829	2,828	10,657		PAH
POND 1	5/27/2017	M5	AD ONLY		25,417	4,508	29,925		PAH
POND 1	5/27/2017	M4	AD/CWT	10/03/65	19,695	936	20,631	529,053	PAH
POND 2	5/23/2017	M5	AD ONLY		40,121	4,072	44,193		PAH
POND 2	5/23/2017	M5	AD ONLY		10,236	1,621	11,857		PAH
POND 2	5/25/2017	M5	AD ONLY		55,762	8,489	64,251		PAH
POND 2	5/25/2017	M4	AD ONLY		27,709	3,420	31,129		PAH
POND 2	5/25/2017	M4	AD ONLY		52,819	8,169	60,988		PAH
POND 2	5/25/2017	M4	AD/CWT	10/03/65	19,413	715	20,128		PAH
POND 2	5/25/2017	M5	AD/CWT	10/03/65	19,199	808	20,007		PAH
POND 2	5/26/2017	M4	AD ONLY		8,979	1,009	9,988		PAH
POND 2	5/26/2017	M4	AD ONLY		43,314	9,437	52,751		PAH
POND 2	5/26/2017	M5	AD ONLY		62,904	6,448	69,352		PAH
POND 2	5/26/2017	M5	AD ONLY		54,653	8,538	63,191		PAH
POND 2	5/27/2017	M4	AD ONLY		7,628	1,187	8,815		PAH
POND 2	5/27/2017	M5	AD ONLY		15,377	1,717	17,094		PAH
POND 2	5/27/2017	M5	AD ONLY		20,242	2,008	22,250		PAH
POND 2	5/27/2017	M5	AD ONLY		17,833	2,188	20,021		PAH
POND 2	5/27/2017	M5	AD/CWT	10/03/65	19,366	687	20,053	536,068	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; maximum, minimum and average retention rates of checked fish; Adipose fin-clip rates on those fish that also received a coded-wire tag

TAG CODE TOTALS			TOTAL AD/CWT	121,298
TAG CODE	TAG CODE SIZE	# TAGGED	TOTAL CWT ONLY	68,757
10/03/66	65K	68,757	TOTAL AD ONLY	875,066
10/03/65	110K	121,298	TOTAL MARKED	1,065,121

PAHSIMEROI SUMMER-RUN CHINOOK CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
POND 1	300	294	98.00%	68,757	67,382
POND 1, 2	293	292	99.66%	121,298	120,884
MAX. RETENTION			99.66%	190,055	188,266
MIN. RETENTION			98.00%	AVERAGE	99.06%

PAHSIMEROI SUMMER-RUN CHINOOK ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
Pond 1, 2	293	2	291	99.32%
			AVERAGE	99.32%

A total of 21,365 BY 2016 summer-run Chinook salmon were PIT-tagged at Pahsimeroi Fish Hatchery September 19th using the three-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 three-inch discharge hose.

Table 11: BY 2016 Pahsimeroi Summer-Run Chinook PIT-tagged by raceway

Pahsimeroi BY 2016 Summer-Run Chinook		
DATE	RWY	# OF FISH TAGGED
9/19/2017	Pond 1	21,365
TOTAL FISH TAGGED:		21,365

Sawtooth Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2016 spring-run Chinook salmon at Sawtooth Fish Hatchery May 9th through 16th using three AutoFish Trailers. A total of 2,397,255 spring-run Chinook salmon were coded-wire tagged and/or adipose fin-clipped (Table 12). Fish were loaded into the trailers using three electric Matsusaka fish-transfer pumps. After marking, fish were distributed to the raceways via four-inch aluminum discharge pipe.

Table 12: Sawtooth Fish Hatchery Spring-Run Chinook and Summer-Run Chinook BY 2016 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

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Raceway Totals and Mark Totals at Sawtooth Fish Hatchery Spring-Run Chinook

RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
DISPLAY	5/11/2017	M5	AD ONLY		4,834	200	5,034	5,034	SALMON R
1	5/16/2017	M5	AD ONLY		31,896	4,047	35,943		SALMON R
1	5/16/2017	M3	AD ONLY		8,657	2,070	10,727		SALMON R
1	5/16/2017	M4	AD ONLY		10,012	1,086	11,098	57,768	SALMON R
2	5/11/2017	M5	AD ONLY		14,083	2,061	16,144		SALMON R
2	5/9/2017	M5	CWT ONLY	10/03/92	20,267	950	21,217		SALMON R
2	5/9/2017	M5	CWT ONLY	10/03/92	37,621	5,393	43,014		SALMON R
2	5/10/2017	M5	CWT ONLY	10/03/92	36,895	1,823	38,718		SALMON R
2	5/10/2017	M5	CWT ONLY	10/03/92	44,932	4,976	49,908		SALMON R
2	5/11/2017	M5	CWT ONLY	10/03/92	17,971	224	18,195	187,196	SALMON R
3	5/10/2017	M4	AD ONLY		35,456	4,575	40,031		SALMON R
3	5/10/2017	M4	AD ONLY		34,109	5,355	39,464		SALMON R
3	5/9/2017	M4	AD/CWT	10/03/87	20,845	1,732	22,577		SALMON R
3	5/9/2017	M4	AD/CWT	10/03/87	26,206	5,035	31,241		SALMON R
3	5/10/2017	M4	AD/CWT	10/03/87	5,967	217	6,184	139,497	SALMON R
4	5/11/2017	M4	AD ONLY		18,504	3,395	21,899		SALMON R
4	5/12/2017	M4	AD ONLY		50,689	4,818	55,507		SALMON R
4	5/11/2017	M4	AD/CWT	10/03/87	39,456	1,362	40,818		SALMON R
4	5/11/2017	M4	AD/CWT	10/03/87	18,504	1,380	19,884	138,108	SALMON R
5	5/9/2017	M3	AD ONLY		38,674	8,207	46,881		SALMON R
5	5/10/2017	M3	AD ONLY		49,306	4,623	53,929		SALMON R
5	5/10/2017	M3	AD ONLY		30,297	4,965	35,262		SALMON R
5	5/11/2017	M3	AD ONLY		22,014	1,400	23,414		SALMON R
5	5/9/2017	M3	AD/CWT	10/03/88	28,712	1,307	30,019	189,505	SALMON R
6	5/11/2017	M3	AD ONLY		23,399	1,483	24,882		SALMON R
6	5/11/2017	M3	AD ONLY		35,895	6,519	42,414		SALMON R
6	5/12/2017	M3	AD ONLY		60,157	5,573	65,730		SALMON R
6	5/12/2017	M3	AD ONLY		50,897	5,635	56,532	189,558	SALMON R
7	5/11/2017	M5	AD ONLY		31,294	4,355	35,649		SALMON R
7	5/12/2017	M5	AD ONLY		87,526	8,885	96,411		SALMON R
7	5/12/2017	M3	AD ONLY		8,433	2,155	10,588		SALMON R
7	5/12/2017	M5	AD/CWT	10/03/88	29,068	1,002	30,070		SALMON R
7	5/13/2017	M3	AD ONLY		11,138	850	11,988	184,706	SALMON R
8	5/13/2017	M5	AD ONLY		52,537	1,864	54,401		SALMON R
8	5/13/2017	M5	AD ONLY		55,257	5,636	60,893		SALMON R
8	5/14/2017	M5	AD ONLY		67,605	6,791	74,396	189,690	SALMON R
9	5/14/2017	M5	AD/CWT	10/03/88	29,813	676	30,489		SALMON R
9	5/15/2017	M5	AD ONLY		48,484	4,475	52,959		SALMON R
9	5/15/2017	M5	AD ONLY		83,490	8,384	91,874		SALMON R
9	5/16/2017	M5	AD ONLY		13,196	1,008	14,204	189,526	SALMON R

Table 12: Continued

Raceway Totals and Mark Totals at Sawtooth Fish Hatchery Spring-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
10	5/12/2017	M4	AD ONLY		45,901	15,428	61,329		SALMON R
10	5/13/2017	M4	AD ONLY		48,681	4,666	53,347		SALMON R
10	5/13/2017	M4	AD ONLY		46,911	7,093	54,004		SALMON R
10	5/14/2017	M4	AD ONLY		17,783	3,000	20,783	189,463	SALMON R
11	5/14/2017	M4	AD ONLY		51,542	6,774	58,316		SALMON R
11	5/14/2017	M4	AD/CWT	10/03/88	28,607	1,396	30,003		SALMON R
11	5/15/2017	M4	AD ONLY		50,392	6,191	56,583		SALMON R
11	5/15/2017	M4	AD ONLY		40,069	4,300	44,369	189,271	SALMON R
12	5/13/2017	M3	AD ONLY		45,569	5,284	50,853		SALMON R
12	5/13/2017	M3	AD ONLY		39,862	6,066	45,928		SALMON R
12	5/14/2017	M3	AD ONLY		58,652	6,685	65,337		SALMON R
12	5/14/2017	M3	AD ONLY		24,203	3,002	27,205	189,323	SALMON R
13	5/14/2017	M3	AD ONLY		23,307	3,561	26,868		SALMON R
13	5/15/2017	M3	AD ONLY		58,304	6,381	64,685		SALMON R
13	5/15/2017	M3	AD ONLY		58,607	7,466	66,073		SALMON R
13	5/16/2017	M3	AD ONLY		28,751	2,800	31,551	189,177	SALMON R
14	5/15/2017	M4	AD ONLY		20,327	1,677	22,004		SALMON R
14	5/16/2017	M4	AD ONLY		53,101	4,768	57,869		SALMON R
14	5/16/2017	M4	AD ONLY		22,927	3,000	25,927		SALMON R
14	5/16/2017	M3	AD ONLY		34,386	4,223	38,609		SALMON R
14	5/16/2017	M3	AD ONLY		22,212	2,812	25,024	169,433	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; maximum, minimum and average retention rates of checked fish; Adipose fin-clip rates on those fish that also received a coded-wire tag

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/03/92	150K	171,052
10/03/87	110K	120,704
10/03/88	110K	120,581

TOTAL AD/CWT	241,285
TOTAL CWT ONLY	171,052
TOTAL AD ONLY	1,984,918
TOTAL MARKED	2,397,255

SAWTOOTH SPRING-RUN CHINOOK CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	ACTUAL # MARKED
2	400	399	99.75%	171,052	170,624
3	200	200	100.00%	60,002	60,002
4	200	200	100.00%	60,702	60,702
5*	*	*	97.99%	30,019	29,417
7	99	95	95.96%	30,070	28,855
9	105	105	100.00%	30,489	30,489
11	101	99	98.02%	30,003	29,409
MAX. RETENTION			100.00%	412,337	409,498
MIN. RETENTION			95.96%	AVERAGE	99.31%

*Raceway 5's net pen was compromised, the average retention rate from Raceways 7,9,11 was used since these raceways are the same tag code 10/03/88

SAWTOOTH SPRING-RUN CHINOOK ADIPOSE FIN-CLIP RATES				
RWY	# SAMPLED	NO CLIP	# GOOD	%
3	200	0	200	100.00%
4	203	0	203	100.00%
5*	*	*	*	100.00%
7	99	0	99	100.00%
9	105	0	105	100.00%
11	101	0	101	100.00%
			AVERAGE	100.00%

*Raceway 5's net pen was compromised, the average adipose fin-clip rate from Raceways 7,9,11 was used since these raceways are the same tag code 10/03/88

A total of 22,352 BY 2016 spring-run Chinook salmon were PIT-tagged at Sawtooth Fish Hatchery September 20th through September 21st using the three-station manual PIT-tagging trailer (Table 13). 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 tagging, fish were distributed back to the ponds via three-inch discharge hose.

Table 13: BY 2016 Sawtooth Spring-Run Chinook PIT-tagged by raceway

Sawtooth BY 2016 Spring-Run Chinook		
DATE	RWY	# OF FISH TAGGED
9/21/2017	2	999
9/21/2017	3	1,197
9/21/2017	4	1,276
9/21/2017	6	4,692
9/21/2017	8	4,701
9/20/2017	10	4,794
9/20/2017	13	4,693
TOTAL FISH TAGGED:		22,352

Rapid River Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2016 spring-run Chinook salmon at Rapid River Fish Hatchery June 15th through June 28th. A total of 3,167,962 fish were coded-wire tagged and/or adipose fin-clipped (Table 14). Three AutoFish 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 the AutoFish Trailers and rearing ponds, much of the discharge pipe is provided by Rapid River Hatchery and is stored on site at the hatchery.

Table 14: Rapid River Fish Hatchery Spring-Run Chinook BY 2016 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

Raceway Totals and Mark Totals at Rapid River Fish Hatchery Spring-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
POND 1A	6/14/2017	M5	AD/CWT	10/03/63	16,466	1,930	18,396		RAPID RIVER
POND 1A	6/14/2017	M5	AD/CWT	10/03/63	1,576	46	1,622		RAPID RIVER
POND 1A	6/15/2017	M5	AD ONLY		52,138	4,818	56,956		RAPID RIVER
POND 1A	6/15/2017	M5	AD ONLY		1,183	275	1,458		RAPID RIVER
POND 1A	6/16/2017	M5	AD ONLY		44,558	5,680	50,238		RAPID RIVER
POND 1A	6/20/2017	M5	AD ONLY		58,009	6,425	64,434		RAPID RIVER
POND 1A	6/21/2017	M5	AD ONLY		60,130	7,031	67,161		RAPID RIVER
POND 1A	6/22/2017	M5	AD ONLY		22,730	1,467	24,197		RAPID RIVER
POND 1A	6/22/2017	M5	AD ONLY		61,112	6,549	67,661		RAPID RIVER
POND 1A	6/23/2017	M5	AD ONLY		31,531	4,217	35,748		RAPID RIVER
POND 1A	6/27/2017	M5	AD ONLY		18,879	3,630	22,509		RAPID RIVER
POND 1A	6/27/2017	M3	AD ONLY		61,852	6,652	68,504		RAPID RIVER
POND 1A	6/27/2017	M3	AD ONLY		65,144	10,624	75,768		RAPID RIVER
POND 1A	6/27/2017	M5	AD/CWT	10/03/63	19,337	680	20,017		RAPID RIVER
POND 1A	6/28/2017	M1	AD ONLY		13,986	3,002	16,988		RAPID RIVER
POND 1A	6/28/2017	M5	AD ONLY		11,354	2,336	13,690	605,347	RAPID RIVER
POND 1B	6/15/2017	M5	AD ONLY		64,043	6,548	70,591		RAPID RIVER
POND 1B	6/16/2017	M5	AD ONLY		28,735	3,142	31,877		RAPID RIVER
POND 1B	6/19/2017	M5	AD ONLY		56,973	7,086	64,059		RAPID RIVER
POND 1B	6/20/2017	M5	AD ONLY		27,599	3,141	30,740		RAPID RIVER
POND 1B	6/20/2017	M5	AD ONLY		8,791	996	9,787		RAPID RIVER
POND 1B	6/20/2017	M5	AD/CWT	10/03/63	18,294	1,722	20,016		RAPID RIVER
POND 1B	6/21/2017	M5	AD ONLY		61,627	5,963	67,590		RAPID RIVER
POND 1B	6/22/2017	M5	AD ONLY		9,455	924	10,379		RAPID RIVER
POND 1B	6/22/2017	M5	AD/CWT	10/03/63	19,258	747	20,005		RAPID RIVER
POND 1B	6/23/2017	M5	AD ONLY		42,222	7,808	50,030		RAPID RIVER
POND 1B	6/26/2017	M5	AD ONLY		72,385	13,594	85,979		RAPID RIVER
POND 1B	6/27/2017	M5	AD ONLY		57,283	8,205	65,488		RAPID RIVER
POND 1B	6/27/2017	M5	AD ONLY		16,097	3,008	19,105		RAPID RIVER
POND 1B	6/28/2017	M5	AD ONLY		29,776	3,260	33,036	578,682	RAPID RIVER
POND 2A	6/15/2017	M1	AD ONLY		60,605	5,880	66,485		RAPID RIVER
POND 2A	6/15/2017	M1	AD/CWT	10/03/63	18,719	1,292	20,011		RAPID RIVER
POND 2A	6/16/2017	M1	AD ONLY		32,115	5,919	38,034		RAPID RIVER
POND 2A	6/20/2017	M1	AD ONLY		34,641	3,856	38,497		RAPID RIVER
POND 2A	6/20/2017	M1	AD/CWT	10/03/63	19,482	606	20,088		RAPID RIVER

Table 14: Continued

Raceway Totals and Mark Totals at Rapid River Fish Hatchery Spring-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
POND 2A	6/21/2017	M1	AD ONLY		62,183	6,045	68,228		RAPID RIVER
POND 2A	6/22/2017	M1	AD ONLY		58,749	6,201	64,950		RAPID RIVER
POND 2A	6/23/2017	M1	AD ONLY		46,143	9,000	55,143		RAPID RIVER
POND 2A	6/23/2017	M1	AD ONLY		31,917	6,345	38,262		RAPID RIVER
POND 2A	6/27/2017	M1	AD ONLY		65,635	8,000	73,635		RAPID RIVER
POND 2A	6/27/2017	M1	AD ONLY		61,286	11,579	72,865	556,198	RAPID RIVER
POND 2B	6/15/2017	M3	AD ONLY		53,468	2,278	55,746		RAPID RIVER
POND 2B	6/16/2017	M3	AD ONLY		40,309	764	41,073		RAPID RIVER
POND 2B	6/19/2017	M3	AD ONLY		59,728	8,739	68,467		RAPID RIVER
POND 2B	6/20/2017	M3	AD ONLY		66,357	9,529	75,886		RAPID RIVER
POND 2B	6/21/2017	M3	AD ONLY		65,905	8,973	74,878		RAPID RIVER
POND 2B	6/22/2017	M3	AD ONLY		66,821	8,727	75,548		RAPID RIVER
POND 2B	6/28/2017	M3	AD ONLY		33,305	3,711	37,016	428,614	RAPID RIVER
POND 2C	6/15/2017	M3	AD ONLY		67,761	9,917	77,678		RAPID RIVER
POND 2C	6/16/2017	M3	AD ONLY		31,747	4,741	36,488		RAPID RIVER
POND 2C	6/20/2017	M3	AD ONLY		53,891	5,376	59,267		RAPID RIVER
POND 2C	6/21/2017	M3	AD ONLY		61,443	6,500	67,943		RAPID RIVER
POND 2C	6/22/2017	M3	AD ONLY		60,565	5,808	66,373		RAPID RIVER
POND 2C	6/23/2017	M3	AD ONLY		79,816	10,332	90,148		RAPID RIVER
POND 2C	6/26/2017	M3	AD ONLY		79,474	10,216	89,690	487,587	RAPID RIVER
POND 2D	6/15/2017	M1	AD ONLY		29,426	5,695	35,121		RAPID RIVER
POND 2D	6/15/2017	M1	AD ONLY		2,604	2,315	4,919		RAPID RIVER
POND 2D	6/16/2017	M1	AD ONLY		44,263	4,583	48,846		RAPID RIVER
POND 2D	6/19/2017	M1	AD ONLY		49,522	11,144	60,666		RAPID RIVER
POND 2D	6/20/2017	M1	AD ONLY		50,075	11,594	61,669		RAPID RIVER
POND 2D	6/21/2017	M1	AD ONLY		45,161	16,625	61,786		RAPID RIVER
POND 2D	6/22/2017	M1	AD ONLY		55,725	17,639	73,364		RAPID RIVER
POND 2D	6/26/2017	M1	AD ONLY		69,927	10,945	80,872		RAPID RIVER
POND 2D	6/28/2017	M1	AD ONLY		58,949	5,654	64,603		RAPID RIVER
POND 2D	6/28/2017	M3	AD ONLY		17,439	2,249	19,688	511,534	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; maximum, minimum and average retention rates of checked fish; Adipose fin-clip rates on those fish that also received a coded-wire tag

TAG CODE TOTALS			TOTAL AD/CWT	120,155
TAG CODE	TAG CODE SIZE	# TAGGED	TOTAL CWT ONLY	-
10/03/63	110K	120,155	TOTAL AD ONLY	3,047,807
			TOTAL MARKED	3,167,962

RAPID RIVER SPRING-RUN CHINOOK CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
POND 1A	99	99	100.00%	40,035	40,035
POND 1B	100	100	100.00%	40,021	40,021
POND 2A	100	100	100.00%	40,099	40,099
MAX. RETENTION			100.00%	120,155	120,155
MIN. RETENTION			100.00%	AVERAGE	100.00%

RAPID RIVER SPRING-RUN CHINOOK ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
POND 1A	99	0	99	100.00%
POND 1B	100	0	100	100.00%
POND 2A	100	0	100	100.00%
			AVERAGE	100.00%

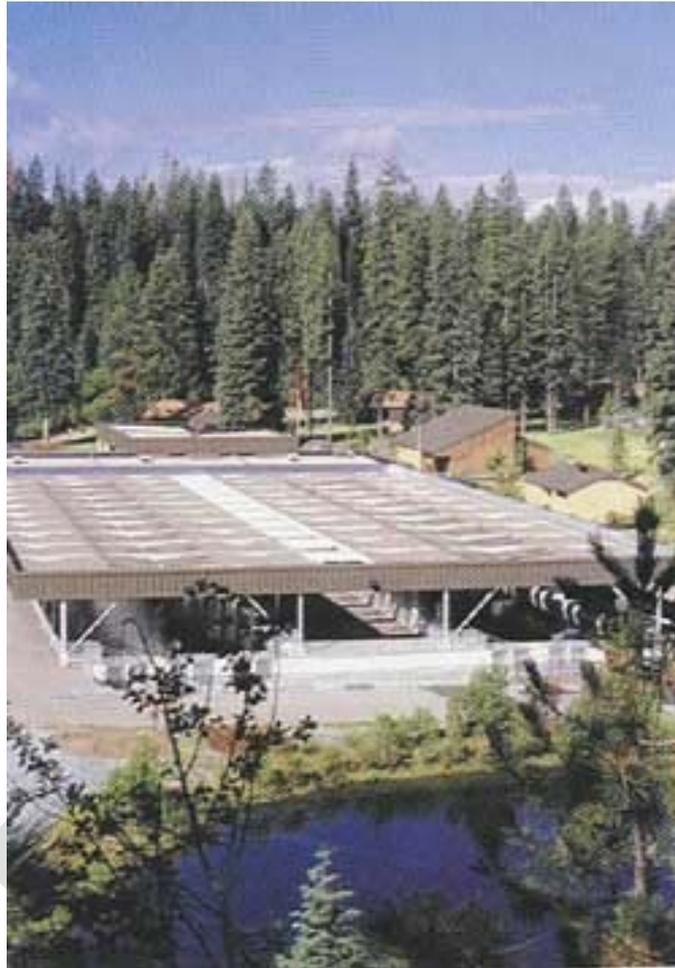
A total of 51,955 BY 2016 spring-run Chinook salmon were PIT-tagged at Rapid River Fish Hatchery September 25th through September 27th using the four-station manual PIT-tagging trailer (Table 15). Fish were loaded into the main trough of the trailer by manually netting the fish out of the pond and transporting them in five-gallon buckets. After tagging, fish were distributed back to the pond via four-inch aluminum discharge pipe.

Table 15: BY 2016 Rapid River Spring-Run Chinook PIT-tagged by raceway

Rapid River BY 2016 Spring-Run Chinook		
DATE	RWY	# OF FISH TAGGED
9/25/2017	2A to 2B	12,409
9/26/2017	2A to 2B	20,091
9/27/2017	2A to 2B	19,455
TOTAL FISH TAGGED:		51,955

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McCall Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2016 summer-run Chinook salmon at McCall Fish Hatchery on two separate occasions. A total of 1,239,970 fish were coded-wire tagged and/or adipose fin-clipped (Table 16). The first mark event occurred June 5th through June 9th. One AutoFish 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 5th through July 12th and one AutoFish Trailer was used to process fish that received an adipose fin-clip and/or coded-wire tag. Fish were loaded into the main trough of the trailer by one electric Matsusaka fish-transfer pump during both marking events. After marking, fish were distributed to ponds via four-inch aluminum discharge pipe. There were tag retention concerns with the integrated group of summer Chinook in Pond 2. A PSMFC employee went back on September 26th and checked 2,032 adipose intact fish. There were 90 of the 2,032 adipose intact fish that did not have a coded-wire tag, which is a 95.6% successful CWT rate.

Table 16: McCall Fish Hatchery Summer-Run Chinook BY 2016 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

Raceway Totals and Mark Totals at McCall Fish Hatchery Summer-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
POND 1	6/6/2017	M4	AD ONLY		64,617	5,452	70,069		S F SALMON
POND 1	6/6/2017	M4	AD ONLY		67,672	10,144	77,816		S F SALMON
POND 1	6/7/2017	M4	AD ONLY		78,103	7,134	85,237		S F SALMON
POND 1	6/7/2017	M4	AD ONLY		75,561	12,087	87,648		S F SALMON
POND 1	6/8/2017	M4	AD ONLY		63,799	7,012	70,811		S F SALMON
POND 1	6/8/2017	M4	AD ONLY		66,875	11,651	78,526		S F SALMON
POND 1	6/9/2017	M4	AD ONLY		34,955	6,485	41,440		S F SALMON
POND 1	7/5/2017	M4	AD ONLY		-	334	334		S F SALMON
POND 1	7/5/2017	M4	AD/CWT	10/03/64	58,309	3,906	62,215	574,096	S F SALMON
POND 2	7/6/2017	M4	AD/CWT	10/03/64	53,794	3,537	57,331		S F SALMON
POND 2	7/6/2017	M4	CWT ONLY	10/03/91	75,670	8,170	83,840		S F SALMON
POND 2	7/7/2017	M4	CWT ONLY	10/03/91	69,456	4,868	74,324		S F SALMON
POND 2	7/7/2017	M4	AD ONLY		5,533	1,869	7,402		S F SALMON
POND 2	7/10/2017	M4	AD ONLY		33,244	6,462	39,706		S F SALMON
POND 2	7/10/2017	M4	AD ONLY		34,360	9,627	43,987		S F SALMON
POND 2	7/11/2017	M4	AD ONLY		65,488	14,286	79,774		S F SALMON
POND 2	7/11/2017	M4	AD ONLY		61,697	16,170	77,867		S F SALMON
POND 2	7/12/2017	M4	AD ONLY		61,115	14,494	75,609		S F SALMON
POND 2	7/12/2017	M4	AD ONLY		15,794	4,105	19,899	559,739	S F SALMON
VAT 2	7/13/2017	M4	CWT ONLY	22/01/70	30,950	2,675	33,625	33,625	JOHNSON CREEK
VAT 3	7/13/2017	M4	CWT ONLY	22/01/70	34,401	2,415	36,816	36,816	JOHNSON CREEK
VAT 4	7/12/2017	M4	CWT ONLY	22/01/70	32,584	3,110	35,694	35,694	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; maximum, minimum and average retention rates of checked fish; Adipose fin-clip rates on those fish that also received a coded-wire tag

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/03/64	110K	119,546
10/03/91	140K	158,164
22/01/70	120k	106,135

TOTAL AD/CWT	119,546
TOTAL CWT ONLY	264,299
TOTAL AD ONLY	856,125
TOTAL MARKED	1,239,970

MCCALL SUMMER-RUN CHINOOK CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
POND 1,2	300	300	100.00%	119,546	119,546
POND 2	300	298	99.33%	158,164	157,110
VAT 1,2,3,4	400	395	98.75%	106,135	104,808
MAX. RETENTION			100.00%	383,845	381,464
MIN. RETENTION			98.75%	AVERAGE	99.38%

MCCALL SUMMER-RUN CHINOOK ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
Pond 1, 2	300	0	300	100.00%
			AVERAGE	100.00%

A total of 51,961 BY 2016 summer-run Chinook salmon were PIT-tagged at McCall Fish Hatchery October 2nd through October 4th using the four-station manual PIT-tagging trailer (Table 17). Fish were loaded into the main trough of the trailer by an electric Matsusaka fish-transfer pump. After tagging, fish were discharged back to the pond via four-inch aluminum discharge pipe.

Table 17: BY 2016 McCall Summer-Run Chinook PIT-tagged by raceway

McCall BY 2016 Summer-Run Chinook		
DATE	RWY	# OF FISH TAGGED
10/4/2017	Pond 1	25,984
10/2/2017	Pond 2	8,718
10/3/2017	Pond 2	17,259
TOTAL FISH TAGGED:		51,961

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Magic Valley Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2017 summer-run steelhead at Magic Valley Fish Hatchery August 8th through August 15th. A total of 1,466,972 fish were coded-wire tagged or adipose fin-clipped using two AutoFish Trailers (Table 18). Fish were loaded into the main trough of the two trailers by two electric Matsusaka fish-transfer pumps. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 18: Magic Valley Fish Hatchery Summer-Run Steelhead BY 2017 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

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Raceway Totals and Mark Totals at Magic Valley Fish Hatchery Summer-Run Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
E1A	8/13/2017	M5	AD ONLY		3,483	1,446	4,929		SAW A
E1A	8/14/2017	M5	AD ONLY		22,622	4,450	27,072	32,001	SAW A
E1B	8/14/2017	M5	AD ONLY		26,200	5,800	32,000	32,000	SAW A
E2A	8/13/2017	M5	AD ONLY		26,942	5,060	32,002	32,002	SAW A
E2B	8/13/2017	M5	AD ONLY		27,404	4,638	32,042	32,042	PAH A
E3A	8/12/2017	M5	AD ONLY		27,956	4,045	32,001	32,001	PAH A
E3B	8/12/2017	M5	AD ONLY		5,818	2,830	8,648		PAH A
E3B	8/13/2017	M5	AD ONLY		19,584	3,776	23,360	32,008	PAH A
E4A	8/11/2017	M5	AD ONLY		27,001	5,000	32,001	32,001	PAH A
E4B	8/12/2017	M5	AD ONLY		15,955	2,811	18,766		PAH A
E4B	8/12/2017	M5	AD ONLY		10,436	2,800	13,236	32,002	PAH A
E5A	8/11/2017	M5	AD ONLY		26,425	5,577	32,002	32,002	PAH A
E5B	8/11/2017	M5	AD ONLY		5,492	2,328	7,820		PAH A
E5B	8/12/2017	M5	AD ONLY		20,586	3,600	24,186	32,006	PAH A
E9A	8/10/2017	M5	AD ONLY		27,000	5,000	32,000	32,000	PAH A
E9B	8/10/2017	M5	AD ONLY		8,834	2,510	11,344		PAH A
E9B	8/10/2017	M5	AD ONLY		16,802	3,855	20,657	32,001	PAH A
E10A	8/9/2017	M5	AD ONLY		26,704	5,300	32,004	32,004	PAH A
E10B	8/10/2017	M5	AD ONLY		20,088	2,964	23,052		PAH A
E10B	8/10/2017	M5	AD ONLY		6,837	2,113	8,950	32,002	PAH A
E11A	8/9/2017	M5	AD ONLY		26,549	5,451	32,000	32,000	PAH A
E11B	8/9/2017	M5	AD ONLY		6,947	3,802	10,749		PAH A
E11B	8/9/2017	M5	AD ONLY		17,648	3,606	21,254	32,003	PAH A
E12A	8/10/2017	M3	CWT ONLY	10/03/93	17,365	1,229	18,594		U SALMON B
E12A	8/10/2017	M3	CWT ONLY	10/03/93	12,381	1,045	13,426	32,020	U SALMON B
E12B	8/9/2017	M3	CWT ONLY	10/03/93	28,895	3,106	32,001	32,001	U SALMON B
E13A	8/9/2017	M3	CWT ONLY	10/03/93	5,532	1,461	6,993		U SALMON B
E13A	8/10/2017	M3	CWT ONLY	10/03/93	12,420	1,491	13,911		U SALMON B
E13A	8/10/2017	M3	CWT ONLY	10/03/93	10,529	605	11,134	32,038	U SALMON B
E13B	8/10/2017	M3	CWT ONLY	10/03/93	29,164	2,856	32,020	32,020	U SALMON B
E14A	8/9/2017	M3	CWT ONLY	10/03/93	24,534	1,115	25,649		U SALMON B
E14A	8/9/2017	M3	CWT ONLY	10/03/93	5,833	520	6,353	32,002	U SALMON B
E14B	8/8/2017	M3	CWT ONLY	10/03/68	10,855	2,086	12,941		DWOR B
E14B	8/9/2017	M3	CWT ONLY	10/03/68	17,924	1,163	19,087	32,028	DWOR B
E15A	8/8/2017	M3	CWT ONLY	10/03/68	30,635	1,366	32,001	32,001	DWOR B
E15B	8/8/2017	M3	CWT ONLY	10/03/68	29,611	2,406	32,017	32,017	DWOR B
W1A	8/15/2017	M3	AD ONLY		28,509	3,500	32,009	32,009	SAW A
W1B	8/15/2017	M3	AD ONLY		26,405	5,625	32,030	32,030	SAW A

Table 18: Continued

Raceway Totals and Mark Totals at Magic Valley Fish Hatchery Summer-Run Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
W2A	8/14/2017	M5	AD ONLY		19,055	4,274	23,329		SAW A
W2A	8/15/2017	M5	AD ONLY		7,422	1,256	8,678	32,007	SAW A
W2B	8/15/2017	M5	AD ONLY		25,863	6,146	32,009	32,009	SAW A
W3A	8/14/2017	M5	AD ONLY		26,700	5,300	32,000	32,000	SAW A
W3B	8/15/2017	M5	AD ONLY		27,000	5,000	32,000	32,000	SAW A
W4A	8/14/2017	M3	AD ONLY		13,417	1,980	15,397		DWOR B
W4A	8/14/2017	M3	AD ONLY		14,330	2,293	16,623	32,020	DWOR B
W4B	8/14/2017	M3	AD ONLY		14,238	3,069	17,307		DWOR B
W4B	8/15/2017	M3	AD ONLY		7,249	1,822	9,071	26,378	U SALMON B/DWOR B
W5A	8/14/2017	M3	AD ONLY		28,306	3,700	32,006	32,006	DWOR B
W5B	8/14/2017	M3	AD ONLY		27,014	5,000	32,014	32,014	DWOR B
W9A	8/13/2017	M3	AD ONLY		26,502	5,500	32,002	32,002	DWOR B
W9B	8/13/2017	M3	AD ONLY		18,805	3,626	22,431		DWOR B
W9B	8/14/2017	M3	AD ONLY		7,777	1,800	9,577	32,008	DWOR B
W10A	8/8/2017	M5	AD ONLY		19,006	3,893	22,899		DWOR B
W10A	8/9/2017	M5	AD ONLY		6,659	1,406	8,065		DWOR B
W10A	8/13/2017	M3	AD ONLY		638	401	1,039	32,003	DWOR B
W10B	8/8/2017	M5	AD ONLY		27,158	5,000	32,158	32,158	DWOR B
W11A	8/13/2017	M3	CWT ONLY	10/03/96	3,239	513	3,752		U SALMON B
W11A	8/13/2017	M3	CWT ONLY	10/03/96	26,831	1,424	28,255	32,007	DWOR B
W11B	8/8/2017	M5	AD ONLY		27,525	4,500	32,025	32,025	DWOR B
W12A	8/12/2017	M3	CWT ONLY	10/03/96	2,226	190	2,416		U SALMON B
W12A	8/12/2017	M3	CWT ONLY	10/03/97	27,579	2,006	29,585	32,001	U SALMON B
W12B	8/12/2017	M3	CWT ONLY	10/03/96	20,468	4,171	24,639		U SALMON B
W12B	8/13/2017	M3	CWT ONLY	10/03/96	6,886	482	7,368	32,007	U SALMON B
W13A	8/11/2017	M3	CWT ONLY	10/03/97	21,131	3,894	25,025		U SALMON B
W13A	8/12/2017	M3	CWT ONLY	10/03/97	6,369	609	6,978	32,003	U SALMON B
W13B	8/12/2017	M3	CWT ONLY	10/03/96	28,847	3,166	32,013	32,013	U SALMON B
W14A	8/11/2017	M3	CWT ONLY	10/03/97	29,971	2,073	32,044	32,044	U SALMON B
W14B	8/11/2017	M3	CWT ONLY	10/03/97	17,353	1,013	18,366		U SALMON B
W14B	8/11/2017	M3	CWT ONLY	10/03/97	12,167	1,493	13,660	32,026	U SALMON B

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

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/03/68	90K	96,046
10/03/93	150K	160,081
10/03/96	110K	98,443
10/03/97	110K	125,658

TOTAL AD/CWT	-
TOTAL CWT ONLY	480,228
TOTAL AD ONLY	986,744
TOTAL MARKED	1,466,972

MAGIC VALLEY SUMMER-RUN STEELHEAD CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
E12A	116	115	99.14%	32,020	31,744
E12B	127	122	96.06%	32,001	30,741
E13A	115	111	96.52%	32,038	30,924
E13B	134	131	97.76%	32,020	31,303
E14A	125	123	98.40%	32,002	31,490
E14B	130	126	96.92%	32,028	31,043
E15A	120	119	99.17%	32,001	31,734
E15B	125	123	98.40%	32,017	31,505
W11A	140	139	99.29%	32,007	31,778
W12A	134	134	100.00%	32,001	32,001
W12B	157	154	98.09%	32,007	31,395
W13A	145	143	98.62%	32,003	31,562
W13B	152	150	98.68%	32,013	31,592
W14A	152	147	96.71%	32,044	30,990
W14B	145	141	97.24%	32,026	31,143
MAX. RETENTION			100.00%	480,228	470,945
MIN. RETENTION			96.06%	AVERAGE	98.07%

* Coded-Wire tagged fish only, No Adipose Fin-Clip Rates

A total of 34,786 BY 2017 summer-run steelhead were PIT-tagged at Magic Valley Fish October 31st through November 1st using the four-station manual PIT-tagging trailer (Table 19). Fish were loaded into the main trough of the trailer by hatchery personnel utilizing a forklift mounted live fish transfer tank. After tagging, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 19: BY 2017 Magic Valley Summer-Run Steelhead PIT-tagged by raceway

Magic Valley BY 2017 Summer-Run Steelhead		
DATE	RWY	# OF FISH TAGGED
10/31/2017	E1A	1,196
10/31/2017	E3A	1,001
10/31/2017	E10B	1,201
10/31/2017	E12A	3,597
10/31/2017	E13A	3,598
10/31/2017	E14B	2,099
10/31/2017	E15A	2,097
11/1/2017	W1B	2,199
11/1/2017	W3B	2,301
11/1/2017	W4A	3,299
11/1/2017	W10A	3,396
11/1/2017	W11B	1,801
11/1/2017	W12B	3,401
10/31/2017	W14B	3,600
TOTAL FISH TAGGED:		34,786

Hagerman National Fish Hatchery



Photo Credit: Hagerman National Fish Hatchery, USFWS

The Idaho Anadromous Fish-Marking Crew processed BY 2017 summer-run steelhead at Hagerman National Fish Hatchery from August 24th through August 30th. A total of 1,543,108 fish were coded-wire tagged or adipose fin-clipped using three AutoFish Trailers (Table 20). Fish were loaded into the three AutoFish Trailers by three electric Matsusaka fish-transfer pumps. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 20: Hagerman National Fish Hatchery Summer-Run Steelhead BY 2017 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

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Raceway Totals and Mark Totals at Hagerman National Fish Hatchery Summer-Run Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
CIRCULAR TANK 1	8/23/2017	M4	AD/CWT	10/03/69	24,549	3,994	28,543	28,543	SAW A
CIRCULAR TANK 2	8/23/2017	M4	AD/CWT	10/03/69	26,744	4,018	30,762	30,762	SAW A
CIRCULAR TANK 3	8/24/2017	M4	AD/CWT	10/03/69	27,273	3,624	30,897	30,897	SAW A
37	8/24/2017	M4	AD ONLY		14,660	6,203	20,863		SAW A
37	8/25/2017	M4	AD ONLY		5,591	1,000	6,591	27,454	SAW A
38	8/25/2017	M4	AD ONLY		22,736	4,700	27,436	27,436	SAW A
39	8/25/2017	M4	AD ONLY		22,326	5,100	27,426	27,426	SAW A
40	8/25/2017	M4	AD ONLY		6,606	3,760	10,366		SAW A
40	8/26/2017	M4	AD ONLY		14,057	3,000	17,057	27,423	SAW A
41	8/26/2017	M4	AD ONLY		22,431	5,000	27,431	27,431	SAW A
42	8/26/2017	M4	AD ONLY		23,423	4,000	27,423	27,423	SAW A
43	8/26/2017	M4	AD ONLY		7,767	3,464	11,231		SAW A
43	8/27/2017	M4	AD ONLY		13,941	2,300	16,241	27,472	SAW A
44	8/27/2017	M4	AD ONLY		22,821	4,600	27,421	27,421	SAW A
45	8/27/2017	M4	AD ONLY		10,169	1,500	11,669		SAW A
45	8/27/2017	M4	AD ONLY		12,760	3,000	15,760	27,429	SAW A
46	8/27/2017	M4	AD ONLY		22,977	4,444	27,421	27,421	SAW A
47	8/27/2017	M4	AD ONLY		3,016	1,680	4,696		SAW A
47	8/28/2017	M4	AD ONLY		18,744	4,000	22,744	27,440	SAW A
48	8/28/2017	M4	AD ONLY		22,224	5,202	27,426	27,426	SAW A
49	8/28/2017	M4	AD ONLY		23,220	4,200	27,420	27,420	SAW A
50	8/28/2017	M4	AD ONLY		10,844	4,950	15,794		SAW A
50	8/29/2017	M4	AD ONLY		7,228	1,070	8,298		SAW A
50	8/28/2017	M5	AD ONLY		2,595	734	3,329	27,421	SAW A
51	8/28/2017	M5	AD ONLY		24,200	3,220	27,420	27,420	SAW A
52	8/29/2017	M5	AD ONLY		17,100	1,900	19,000		SAW A
52	8/29/2017	M4	AD ONLY		7,326	1,100	8,426	27,426	SAW A
53	8/29/2017	M4	AD ONLY		3,591	2,143	5,734		SAW A
53	8/29/2017	M5	AD ONLY		2,856	2,859	5,715	11,449	SAW A
59	8/23/2017	M5	AD/CWT	10/03/62	25,739	1,696	27,435	27,435	SAW A
60	8/24/2017	M5	AD/CWT	10/03/70	21,680	1,837	23,517	23,517	SAW A
61	8/23/2017	M5	AD/CWT	10/03/62	25,866	1,555	27,421	27,421	SAW A
62	8/24/2017	M5	AD/CWT	10/03/70	20,911	2,595	23,506	23,506	SAW A
63	8/24/2017	M5	AD/CWT	10/03/70	9,621	3,971	13,592		SAW A
63	8/25/2017	M5	AD/CWT	10/03/70	9,716	598	10,314	23,906	SAW A
64	8/23/2017	M5	AD/CWT	10/03/62	10,436	2,367	12,803		SAW A
64	8/24/2017	M5	AD/CWT	10/03/62	13,846	773	14,619	27,422	SAW A
65	8/25/2017	M5	AD/CWT	10/03/70	21,593	2,498	24,091	24,091	SAW A
66	8/25/2017	M5	AD ONLY		22,901	4,520	27,421	27,421	SAW A

Table 20: Continued

Raceway Totals and Mark Totals at Hagerman National Fish Hatchery Summer-Run Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
67	8/25/2017	M5	AD ONLY		23,454	3,966	27,420	27,420	SAW A
68	8/26/2017	M5	AD ONLY		21,024	6,476	27,500	27,500	SAW A
69	8/26/2017	M5	AD ONLY		22,923	4,501	27,424	27,424	SAW A
70	8/26/2017	M5	AD ONLY		23,124	4,300	27,424	27,424	SAW A
71	8/26/2017	M5	AD ONLY		15,206	3,759	18,965		SAW A
71	8/27/2017	M5	AD ONLY		6,351	2,104	8,455	27,420	SAW A
72	8/27/2017	M5	AD ONLY		22,501	4,920	27,421	27,421	SAW A
73	8/27/2017	M5	AD ONLY		23,720	3,700	27,420	27,420	SAW A
74	8/27/2017	M5	AD ONLY		24,422	3,000	27,422	27,422	SAW A
75	8/27/2017	M5	AD ONLY		11,539	2,887	14,426		SAW A
75	8/28/2017	M5	AD ONLY		10,298	2,700	12,998	27,424	SAW A
76	8/28/2017	M5	AD ONLY		22,500	4,927	27,427	27,427	SAW A
77	8/28/2017	M5	AD ONLY		23,122	4,300	27,422	27,422	SAW A
81	8/28/2017	M3	CWT ONLY	10/03/67	17,248	2,787	20,035	20,035	E F SALMON
82	8/28/2017	M3	CWT ONLY	10/03/67	17,522	2,488	20,010	20,010	E F SALMON
83	8/29/2017	M3	CWT ONLY	10/03/67	12,730	4,189	16,919	16,919	E F SALMON
84	8/23/2017	M3	AD ONLY		24,223	3,200	27,423	27,423	SAW A
85	8/23/2017	M3	AD ONLY		22,420	5,000	27,420	27,420	SAW A
86	8/23/2017	M3	AD ONLY		3,731	2,479	6,210		SAW A
86	8/24/2017	M3	AD ONLY		19,411	1,800	21,211	27,421	SAW A
87	8/24/2017	M3	AD ONLY		23,288	4,140	27,428	27,428	SAW A
88	8/24/2017	M3	AD ONLY		12,032	5,963	17,995		SAW A
88	8/25/2017	M3	AD ONLY		8,575	851	9,426	27,421	SAW A
89	8/25/2017	M3	AD ONLY		24,554	2,872	27,426	27,426	SAW A
90	8/25/2017	M3	AD ONLY		19,888	7,575	27,463	27,463	SAW A
91	8/25/2017	M3	AD ONLY		22,037	5,440	27,477	27,477	SAW A
92	8/25/2017	M3	AD ONLY		7,687	4,996	12,683		SAW A
92	8/26/2017	M3	AD ONLY		12,801	1,938	14,739	27,422	SAW A
93	8/26/2017	M3	AD ONLY		22,059	5,468	27,527	27,527	SAW A
94	8/26/2017	M3	AD ONLY		22,479	5,070	27,549	27,549	SAW A
95	8/26/2017	M3	AD ONLY		14,412	4,446	18,858		SAW A
95	8/27/2017	M3	AD ONLY		7,206	1,362	8,568	27,426	SAW A
96	8/27/2017	M3	AD ONLY		22,806	4,614	27,420	27,420	SAW A

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Table 20: Continued

Raceway Totals and Mark Totals at Hagerman National Fish Hatchery Summer-Run Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
97	8/27/2017	M3	AD ONLY		21,753	5,727	27,480	27,480	SAW A
98	8/27/2017	M3	AD ONLY		22,736	4,700	27,436	27,436	SAW A
99	8/27/2017	M3	AD ONLY		337	1,085	1,422		SAW A
99	8/28/2017	M3	AD ONLY		21,570	4,430	26,000	27,422	SAW 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; maximum, minimum and average retention rates of checked fish; Adipose fin-clip rates on those fish that also received a coded-wire tag

TAG CODE TOTALS		
TAG CODE	TAG CODE SIZE	# TAGGED
10/03/62	90K	82,278
10/03/67	60K	56,964
10/03/69	90K	90,202
10/03/70	90K	95,020

TOTAL AD/CWT	267,500
TOTAL CWT ONLY	56,964
TOTAL AD ONLY	1,218,644
TOTAL MARKED	1,543,108

HAGERMAN NATIONAL SUMMER-RUN STEELHEAD CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	SUCCESSFUL # MARKED
CIRCULAR TANK 1	300	296	98.67%	28,543	28,162
CIRCULAR TANK 2	302	297	98.34%	30,762	30,253
CIRCULAR TANK 3	300	290	96.67%	30,897	29,867
59	302	256	84.77%	27,435	23,256
60	310	284	91.61%	23,517	21,545
61	305	261	85.57%	27,421	23,465
62	300	286	95.33%	26,506	25,269
63	321	302	94.08%	23,906	22,491
64	301	278	92.36%	27,422	25,327
65	304	266	87.50%	24,091	21,080
81	303	291	96.04%	20,035	19,242
82	300	289	96.33%	20,010	19,276
83	298	278	93.29%	16,919	15,783
MAX. RETENTION			98.67%	327,464	305,016
MIN. RETENTION			84.77%	AVERAGE	93.14%

HAGERMAN NATIONAL SUMMER-RUN STEELHEAD ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
CIRC 1	300	1	299	99.67%
CIRC 2	302	0	302	100.00%
CIRC 3	300	3	297	99.00%
59	302	6	296	98.01%
60	310	1	309	99.68%
61	305	7	298	97.70%
62	300	0	300	100.00%
63	321	2	319	99.38%
64	301	7	294	97.67%
65	304	3	301	99.01%
			AVERAGE	99.01%

A total of 38,776 BY 2017 summer-run steelhead were PIT-tagged at Hagerman National Fish Hatchery November 7th through November 9th 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 tagging, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 21: BY 2017 Hagerman National Summer-Run Steelhead PIT-tagged by raceway

Hagerman BY 2017 Summer-Run Steelhead		
DATE	RWY	# OF FISH TAGGED
11/7/2017	CIRC 1	2,899
11/7/2017	CIRC 2	2,895
11/7/2017	CIRC 3	2,898
11/7/2017	40	1,200
11/7/2017	49	1,498
11/7/2017	59	1,200
11/8/2017	60	2,196
11/8/2017	61	1,396
11/8/2017	62	2,198
11/8/2017	63	2,198
11/8/2017	64	1,398
11/8/2017	65	2,203
11/8/2017	68	1,498
11/8/2017	73	1,501
11/8/2017	81	3,001
11/8/2017	82	2,997
11/9/2017	83	2,600
11/9/2017	89	1,500
11/9/2017	95	1,500
TOTAL FISH TAGGED:		38,776

Niagara Springs Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2017 summer-run steelhead at Niagara Springs Fish Hatchery July 27th through August 1st. A total of 1,854,880 fish were adipose fin-clipped (Table 22). Three AutoFish Trailers were used to process fish that received an adipose fin-clip. Fish were loaded into the main trough of the trailers by three electric Matsusaka fish-transfer pumps. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 22: Niagara Springs Fish Hatchery Summer-Run Steelhead BY 2017 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

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Raceway Totals and Mark Totals at Niagara Springs Fish Hatchery Summer-Run Steelhead

RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
1	7/27/2017	M5	AD ONLY		35,919	5,692	41,611		OX
1	7/27/2017	M5	AD ONLY		53,010	8,625	61,635	103,246	OX
2	7/28/2017	M5	AD ONLY		45,284	6,117	51,401		OX
2	7/28/2017	M5	AD ONLY		43,625	8,000	51,625	103,026	OX
3	7/28/2017	M5	AD ONLY		9,897	1,595	11,492		OX
3	7/29/2017	M5	AD ONLY		40,202	6,117	46,319		OX
3	7/29/2017	M5	AD ONLY		38,413	6,801	45,214	103,025	OX
4	7/29/2017	M5	AD ONLY		13,414	2,424	15,838		OX
4	7/30/2017	M5	AD ONLY		39,948	5,919	45,867		OX
4	7/30/2017	M5	AD ONLY		34,017	7,299	41,316	103,021	OX
5	7/30/2017	M5	AD ONLY		11,029	2,166	13,195		OX
5	7/31/2017	M5	AD ONLY		40,708	7,227	47,935		OX
5	7/31/2017	M5	AD ONLY		33,825	8,200	42,025	103,155	OX
6 UPPER	7/27/2017	M4	AD ONLY		42,695	6,392	49,087	49,087	OX
6 LOWER	7/31/2017	M5	AD ONLY		14,829	2,341	17,170		OX
6 LOWER	8/1/2017	M5	AD ONLY		28,039	4,845	32,884	50,054	OX
7	7/27/2017	M4	AD ONLY		32,374	7,202	39,576		OX
7	7/28/2017	M4	AD ONLY		38,044	8,183	46,227	85,803	OX
8	7/28/2017	M4	AD ONLY		40,698	10,805	51,503		OX
8	7/29/2017	M4	AD ONLY		25,575	3,258	28,833	80,336	OX
9	7/29/2017	M4	AD ONLY		25,386	2,559	27,945		OX
9	7/29/2017	M4	AD ONLY		38,943	11,484	50,427		OX/PAH
9	7/30/2017	M4	AD ONLY		16,595	2,240	18,835	97,207	PAH
10	7/30/2017	M4	AD ONLY		30,257	3,136	33,393		PAH
10	7/30/2017	M4	AD ONLY		34,579	9,041	43,620		PAH
10	7/31/2017	M4	AD ONLY		2,777	256	3,033	80,046	PAH
11	7/31/2017	M4	AD ONLY		46,410	5,022	51,432		PAH
11	7/31/2017	M4	AD ONLY		24,318	4,263	28,581	80,013	PAH
12	7/31/2017	M4	AD ONLY		17,829	4,052	21,881		PAH
12	8/1/2017	M4	AD ONLY		48,854	5,677	54,531		PAH
12	8/1/2017	M4	AD ONLY		19,889	5,700	25,589	102,001	PAH
13	8/1/2017	M5	AD ONLY		43,182	5,900	49,082		PAH
13	8/1/2017	M3	AD ONLY		44,879	8,529	53,408	102,490	PAH
14	7/31/2017	M3	AD ONLY		55,580	14,235	69,815		PAH
14	8/1/2017	M3	AD ONLY		26,899	5,292	32,191	102,006	PAH
15	7/30/2017	M3	AD ONLY		40,279	11,042	51,321		PAH
15	7/31/2017	M3	AD ONLY		43,484	7,248	50,732	102,053	PAH
16	7/29/2017	M3	AD ONLY		26,354	6,493	32,847		PAH
16	7/30/2017	M3	AD ONLY		58,246	10,958	69,204	102,051	PAH

Table 22: Continued

Raceway Totals and Mark Totals at Niagara Springs Fish Hatchery Summer-Run Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
17	7/28/2017	M3	AD ONLY		4,538	1,348	5,886		PAH
17	7/29/2017	M3	AD ONLY		52,954	9,659	62,613		PAH
17	7/29/2017	M3	AD ONLY		26,546	7,088	33,634	102,133	PAH
18	7/28/2017	M3	AD ONLY		48,736	7,389	56,125		PAH
18	7/28/2017	M3	AD ONLY		35,501	10,416	45,917	102,042	PAH
19	7/27/2017	M3	AD ONLY		40,121	5,602	45,723		PAH
19	7/27/2017	M3	AD ONLY		44,286	12,076	56,362	102,085	PAH

Supplemental Table: # of fish by mark type.

TOTAL AD/CWT	-
TOTAL CWT ONLY	-
TOTAL AD ONLY	1,854,880
TOTAL MARKED	1,854,880

* No Adipose Fin-Clip Rates were checked

A total of 22,690 BY 2017 summer-run steelhead were PIT-tagged at Niagara Springs Fish Hatchery November 2nd through November 3rd using the four-station manual PIT-tagging trailer (Table 23). Fish were loaded into the main trough of the trailer by an electric Matsusaka fish-transfer pump. After tagging, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 23: BY 2017 Niagara Springs Summer-Run Steelhead PIT-tagged by raceway

Niagara Springs BY 2016 Summer-Run Steelhead		
DATE	RWY	# OF FISH TAGGED
11/3/2017	1	2,800
11/3/2017	3	2,797
11/2/2017	5	3,000
11/2/2017	8	2,800
11/2/2017	10	2,299
11/2/2017	12	2,201
11/2/2017	14	2,299
11/2/2017	16	2,200
11/2/2017	18	2,294
TOTAL FISH TAGGED:		22,690

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Springfield Fish Hatchery



The Idaho Anadromous Fish-Marking Crew processed BY 2016 summer-run Sockeye at Springfield Fish Hatchery July 6th through July 11th. A total of 906,007 fish were adipose fin-clipped (Table 24). Two AutoFish 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. After marking, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 24: Springfield Fish Hatchery Summer-Run Sockeye BY 2016 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

Raceway Totals and Mark Totals at Springfield Fish Hatchery Summer-Run Sockeye									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
1	7/10/2017	M5	AD ONLY		14,562	3,043	17,605		REDFISH LK
1	7/11/2017	M5	AD ONLY		20,899	4,768	25,667	43,272	REDFISH LK
2	7/10/2017	M5	AD ONLY		35,569	6,700	42,269	42,269	REDFISH LK
3	7/9/2017	M5	AD ONLY		8,061	1,954	10,015		REDFISH LK
3	7/10/2017	M5	AD ONLY		29,943	7,197	37,140	47,155	REDFISH LK
4	7/9/2017	M5	AD ONLY		13,111	2,172	15,283		REDFISH LK
4	7/9/2017	M5	AD ONLY		27,715	6,735	34,450	49,733	REDFISH LK
5	7/8/2017	M5	AD ONLY		8,143	1,845	9,988		REDFISH LK
5	7/9/2017	M5	AD ONLY		33,230	6,946	40,176	50,164	REDFISH LK
6	7/8/2017	M5	AD ONLY		38,466	9,168	47,634	47,634	REDFISH LK
7	7/7/2017	M5	AD ONLY		18,036	3,629	21,665		REDFISH LK
7	7/8/2017	M5	AD ONLY		19,396	4,586	23,982	45,647	REDFISH LK
8	7/7/2017	M5	AD ONLY		41,002	9,563	50,565	50,565	REDFISH LK
9	7/6/2017	M5	AD ONLY		19,100	4,848	23,948		REDFISH LK
9	7/7/2017	M5	AD ONLY		20,399	4,129	24,528	48,476	REDFISH LK
10	7/6/2017	M5	AD ONLY		34,044	10,661	44,705	44,705	REDFISH LK
11	7/10/2017	M3	AD ONLY		14,467	4,772	19,239		REDFISH LK
11	7/11/2017	M3	AD ONLY		19,152	6,100	25,252	44,491	REDFISH LK
12	7/10/2017	M3	AD ONLY		15,778	2,970	18,748		REDFISH LK
12	7/10/2017	M3	AD ONLY		22,652	7,143	29,795	48,543	REDFISH LK
13	7/9/2017	M3	AD ONLY		21,945	4,759	26,704		REDFISH LK
13	7/10/2017	M3	AD ONLY		16,779	4,046	20,825	47,529	REDFISH LK
14	7/9/2017	M3	AD ONLY		22,308	3,744	26,052		REDFISH LK
14	7/9/2017	M3	AD ONLY		14,651	6,063	20,714	46,766	REDFISH LK
15	7/8/2017	M3	AD ONLY		20,925	6,402	27,327		REDFISH LK
15	7/9/2017	M3	AD ONLY		14,720	4,906	19,626	46,953	REDFISH LK
16	7/8/2017	M3	AD ONLY		21,970	6,100	28,070		REDFISH LK
16	7/8/2017	M3	AD ONLY		12,497	3,683	16,180	44,250	REDFISH LK
17	7/7/2017	M3	AD ONLY		41,201	10,471	51,672	51,672	REDFISH LK
18	7/6/2017	M3	AD ONLY		8,900	2,015	10,915		REDFISH LK
18	7/7/2017	M3	AD ONLY		33,651	8,775	42,426	53,341	REDFISH LK
19	7/6/2017	M3	AD ONLY		17,914	5,479	23,393		REDFISH LK
19	7/6/2017	M3	AD ONLY		24,268	5,181	29,449	52,842	REDFISH LK

Supplemental Table: # of fish by mark type

TOTAL AD/CWT	-
TOTAL CWT ONLY	-
TOTAL AD ONLY	906,007
TOTAL MARKED	906,007

* No Adipose Fin-Clip Rates were checked

A total of 49,990 BY 2016 summer-run Sockeye salmon were PIT-tagged at Springfield Fish Hatchery October 24th through October 26th 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 tagging, fish were distributed to raceways via four-inch aluminum discharge pipe.

Table 25: BY 2016 Summer-Run Sockeye Salmon PIT-tagged by raceway

Springfield BY 2016 Summer-Run Sockeye		
DATE	RWY	# OF FISH TAGGED
10/26/2017	1	3,499
10/26/2017	2	3,500
10/26/2017	8	3,498
10/25/2017	9	3,500
10/25/2017	10	3,603
10/25/2017	11	3,598
10/25/2017	12	3,599
10/25/2017	13	3,600
10/25/2017	14	3,596
10/24/2017	15	3,598
10/24/2017	16	3,600
10/24/2017	17	3,600
10/24/2017	18	3,599
10/24/2017	19	2,599
10/24/2017	20	1,001
TOTAL FISH TAGGED:		49,990

Discussion

Again in 2017, 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 employees Steve Money and Brian Clifford transporting 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.

This year the program used five six-line AutoFish Trailers. This allows the marking crew to be more flexible and/or available to meet all the hatcheries needs and deadlines. Also, the programs two five-line and one six-line AutoFish Trailers that were sent for upgrades to NMT in 2016 were finished and were used in the 2017 season. The two five-line AutoFish Trailers became six-line trailers to increase efficiency and productivity throughout the marking process. The Idaho Fish-Marking Program now has five six-line AutoFish Trailers which helps to cut down on the number of trailer moves and reduces trailer transportation costs.

There were electrical issues for the power supply to the AutoFish Trailers at Rapid River this season. The main power supply breaker was being tripped for the AutoFish Trailers due to the electrical load balance being uneven in the AutoFish Trailers. NMT was contacted and they balanced the electrical load on all the AutoFish Trailers in the program to lower the risk of the electrical power being tripped at the breaker. Since this fix happened there have not been any electrical issues for the trailers.

Hagerman National started using electric Matsusaka fish-transfer pumps for the first time in the year 2015. This process made handling fish easier for the hatchery staff and marking crews. The trailers were also parked in different locations in the 2017 marking season: the first trailer was between Hatch House 2 and the upper raceways; the second trailer was between the upper and middle level raceways; and the third trailer was between Hatch House 1 and the lower level raceways. All three trailers used the electric Matsusaka fish-transfer pumps. The marking process increased efficiency and productivity with all three AutoFish Trailers using electric Matsusaka fish-transfer pumps.

The program was short staffed for the 2017 Chinook marking season. A thank you to the Clearwater Hatchery staff, Sawtooth Hatchery staff, and Nampa Research staff that helped in the manual section clipping adipose fins and coded-wire tagging so the program could meet the deadlines for the 2017 marking season.