



# 2018

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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 2018, all fish-marking personnel were employees of PSMFC. The marking program was based out of Lewiston, Idaho and consisted of three fulltime staff; one Tagging Coordinator, one Supervisory Operator, one Trailer Operator and twelve seasonal staff; five Trailer Operators, eight Trailer Assistants, and a varying number of temporary Trailer Assistants as needed for the 2018 marking season. This report summarizes all fish marked by the Idaho Anadromous Fish-Marking Program in the year 2018. The program was responsible for the marking of anadromous fish at the following nine fish hatcheries: Clearwater, Hagerman National, Magic Valley, McCall, 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 first week of May through the last week of August. The adipose fin-clipping took place from the fourth week of April to the second week of September. PIT-tags were implanted from the second 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 2018 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 2018 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 all 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 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 2018 Mark Plan. A total of 18,134,642 adipose fin-clips (AD) and/or coded wire tag (CWT) marks were applied to 16,320,440 fish in 2018 (Table 1).

**Table 1:** Mark Year 2018 Total number of fish marked, type of mark put on each fish, brood year (BY), and breakdown by each hatchery

<b>2018 MARKING SUMMARY</b>					
<b>HATCHERY</b>	<b># OF FISH MARKED</b>	<b>AD/CWT</b>	<b>CWT ONLY</b>	<b>AD ONLY</b>	<b>TOTAL MARKS</b>
CLEARWATER SPRING-RUN CHINOOK BY 2017	2,983,731	753,375	135,789	2,094,567	3,737,106
CLEARWATER SUMMER-RUN CHINOOK BY 2017	436,538	122,742	120,151	193,645	559,280
CLEARWATER SUMMER-RUN STEELHEAD BY 2018	1,008,704	0	542,370	466,334	1,008,704
HAGERMAN NATIONAL SUMMER-RUN STEELHEAD BY 2018	1,586,527	243,519	45,702	1,297,306	1,830,046
MAGIC VALLEY SUMMER-RUN STEELHEAD BY 2018	1,604,797	0	480,587	1,124,210	1,604,797
MCCALL SUMMER-RUN CHINOOK BY 2017	1,246,847	123,841	290,482	832,524	1,370,688
NIAGARA SPRINGS SUMMER-RUN STEELHEAD BY 2018	1,806,630	0	0	1,806,630	1,806,630
PAHSIMEROI SUMMER-RUN CHINOOK BY 2017	867,546	120,613	64,182	682,751	988,159
RAPID RIVER SPRING-RUN CHINOOK BY 2017	3,146,503	121,031	0	3,025,472	3,267,534
SAWTOOTH SPRING-RUN CHINOOK BY 2017	1,168,018	220,553	142,701	804,764	1,388,571
SAWTOOTH SUMMER-RUN SOCKEYE BY 2017	81,729	0	0	81,729	81,729
SPRINGFIELD SPRING-RUN CHINOOK BY 2017	108,528	108,528	0	0	217,056
SPRINGFIELD SUMMER-RUN SOCKEYE BY 2017	274,342	0	0	274,342	274,342
<b>MARK YEAR 2017 TOTALS</b>	<b>16,320,440</b>	<b>1,814,202</b>	<b>1,821,964</b>	<b>12,684,274</b>	<b>18,134,642</b>

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 2018 overall CWT retention rate, Hatchery average, total # of fish with CWT mark, Successful # of CWT marks

<b>2018 OVERALL CWT RETENTION</b>			
<b>HATCHERY</b>	<b>AVERAGE RETENTION</b>	<b># MARKED</b>	<b># SUCCESSFUL</b>
CLEARWATER SPRING-RUN CHINOOK	99.67%	889,164	886,384
CLEARWATER SUMMER-RUN CHINOOK	99.34%	242,893	241,289
CLEARWATER SUMMER-RUN STEELHEAD	98.44%	305,660	310,487
HAGERMAN NATIONAL SUMMER-RUN STEELHEAD	98.44%	305,660	300,915
MAGIC VALLEY SUMMER-RUN STEELHEAD	98.50%	480,587	470,945
MCCALL SUMMER-RUN CHINOOK	99.75%	414,323	413,362
PAHSIMEROI SUMMER-RUN CHINOOK	97.67%	184,795	180,483
RAPID RIVER SPRING-RUN CHINOOK	100.00%	121,031	121,031
SAWTOOTH SPRING-RUN CHINOOK	98.25%	277,765	273,091
SPRINGFIELD SPRING-RUN CHINOOK	100.00%	108,528	108,528
<b>TOTALS</b>		<b>3,330,406</b>	<b>3,306,515</b>
<b>OVERALL AVERAGE</b>			<b>99.28%</b>

**Retention by Hatchery:**

- Clearwater Fish Hatchery: 98.00 – 100.00% with an average of 99.20%
- Pahsimeroi Fish Hatchery: 97.67 – 97.67 with an average of 97.67%
- Rapid River Fish Hatchery: 100.00 – 100.00% with an average of 100.00%
- McCall Fish Hatchery: 99.25 – 100.00% with an average of 99.75%
- Magic Valley Fish Hatchery: 96.84 – 99.50% with an average of 98.50%
- Hagerman National Fish Hatchery: 98.05 – 99.12% with an average of 98.44%
- Niagara Springs Fish Hatchery: No CWT at Niagara Springs Hatchery in 2018
- Sawtooth Fish Hatchery: 95.67 – 99.75% with an average of 98.25%
- Springfield Fish Hatchery: No CWT at Springfield Hatchery in 2018

In addition to the coded-wire tags and adipose fin-clips, 404,715 fish were PIT-tagged by the Marking Program in 2018 on fish that were marked during the 2018 Mark year (Table 3).

**Table 3:** Mark Year 2018 Summary of total PIT-Tagged fish in spring and how many tagged at each hatchery

<b>PIT TAG SUMMARY</b>	
<b>HATCHERY</b>	<b>TOTAL FISH TAGGED</b>
CLEARWATER SPRING-RUN CHINOOK BY 2017	61,035
CLEARWATER SUMMER-RUN CHINOOK BY 2017	25,476
CLEARWATER SUMMER-RUN STEELHEAD BY 2018	18,107
HAGERMAN NATIONAL SUMMER-RUN STEELHEAD BY 2018	38,591
MAGIC VALLEY SUMMER-RUN STEELHEAD BY 2018	34,823
MCCALL SUMMER-RUN CHINOOK BY 2017	51,970
NIAGARA SPRINGS SUMMER-RUN STEELHEAD BY 2018	22,691
PAHSIMEROI SUMMER-RUN CHINOOK BY 2017	21,448
RAPID RIVER SPRING-RUN CHINOOK BY 2017	51,929
SAWTOOTH SPRING-RUN CHINOOK BY 2017	24,461
SPRINGFIELD SPRING-RUN CHINOOK BY 2017	4,197
SPRINGFIELD SUMMER-RUN SOCKEYE BY 2017	49,987
<b>TOTAL PIT TAGS</b>	<b>404,715</b>

**Schedule of Mark Events:**

- April 26<sup>th</sup>-May 7<sup>th</sup> Marking Spring-Run Chinook at Clearwater
- May 14<sup>th</sup>-June 5<sup>th</sup> Marking Spring-Run Chinook and Summer-Run Chinook at Clearwater
- May 17<sup>th</sup>-21<sup>th</sup> Marking Summer-Run Chinook at Pahsimeroi
- June 11<sup>th</sup>-14<sup>th</sup> Marking Summer-Run Chinook at McCall
- June 12<sup>th</sup>-28<sup>th</sup> Marking Spring-Run Chinook at Rapid River
- July 6<sup>th</sup>-1<sup>th</sup> Marking Summer-Run Sockeye and Spring-Run Chinook at Springfield
- July 9<sup>th</sup>- 18<sup>th</sup> Marking Summer-Run Chinook at McCall
- July 18<sup>th</sup>-24<sup>th</sup> Marking Spring-Run Chinook at Sawtooth
- July 30<sup>th</sup>-August 7<sup>th</sup> Marking Summer-Run Steelhead at Clearwater
- August 1<sup>th</sup>-10<sup>th</sup> Marking Summer-Run Steelhead at Magic Valley
- August 16<sup>th</sup>-22<sup>st</sup> Marking Summer-Run Steelhead at Niagara Springs
- September 11<sup>th</sup>-13<sup>th</sup> Marking Summer-Run Sockeye at Sawtooth
- September 17<sup>th</sup>-20<sup>th</sup> Pit tagging Spring-Run Chinook at Rapid River
- September 24<sup>th</sup>-October 2<sup>nd</sup> Pit tagging Spring-Run Chinook, Summer-Run Chinook and Summer-Run Steelhead at Clearwater
- October 11<sup>th</sup> and 12<sup>th</sup> Pit tagging Summer-Run Chinook at Pahsimeroi
- October 13<sup>th</sup>-15<sup>st</sup> Pit tagging Spring-Run Chinook at Sawtooth
- October 22<sup>nd</sup>- 25<sup>th</sup> Pit tagging Summer-Run Chinook at McCall
- October 30<sup>th</sup>- November 1<sup>st</sup> Pit tagging Summer-Run Sockeye and Spring-Run Chinook at Springfield
- November 8<sup>th</sup> and 9<sup>th</sup> Pit tagging Summer-Run Steelhead at Magic Valley
- November 10<sup>th</sup> and 11<sup>th</sup> Pit tagging Summer-Run Steelhead at Niagara Springs
- November 12<sup>th</sup>-14<sup>th</sup> Pit tagging Summer-Run Steelhead at Hagerman National

Figure 1: Hatchery Locations for the 2018 Idaho Anadromous Fish-Marking Program



## Clearwater Fish Hatchery



### Clearwater Fish Hatchery Spring-Run Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2017 spring-run Chinook salmon at Clearwater Fish Hatchery on two separate occasions. The first trip occurred April 26<sup>th</sup> through May 7<sup>th</sup> using two AutoFish Trailers. Two AutoFish Trailers were used again during the second mark event, May 14<sup>t</sup> through July 5<sup>th</sup>. Two electric Matsusaka fish-transfer pumps were used to load the fish into the trailers during both marking events. A total of 2,983,731 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 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 Spring-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
1E	4/26/18	M3	AD ONLY		7,590	3,133	10,723		SF CLWR
1E	4/27/18	M3	AD ONLY		45,466	5,087	50,553		SF CLWR
1E	4/30/18	M3	AD ONLY		39,438	2,111	41,549		SF CLWR
1E	4/30/18	M3	AD ONLY		37,732	6,111	43,843		SF CLWR
1E	5/1/18	M3	AD ONLY		3,302	264	3,566	150,234	SF CLWR
2E	5/1/18	M3	AD ONLY		30,526	1,728	32,254		SF CLWR
2E	5/1/18	M3	AD ONLY		8,085	2,765	10,850		SF CLWR
2E	5/2/18	M3	AD ONLY		48,312	4,352	52,664		SF CLWR
2E	5/2/18	M3	AD ONLY		22,824	1,792	24,616		SF CLWR
2E	5/1/18	M3	AD/CWT	10-03-99	29,202	890	30,092	150,476	SF CLWR
3E	5/2/18	M3	AD ONLY		23,859	2,211	26,070		SF CLWR
3E	5/3/18	M3	AD ONLY		49,432	4,161	53,593		SF CLWR
3E	5/3/18	M3	AD ONLY		41,224	2,872	44,096		SF CLWR
3E	5/4/18	M3	AD ONLY		25,058	1,481	26,539	150,298	SF CLWR
3W upper	5/4/18	M4	AD ONLY		44,244	2,263	46,507		SF CLWR
3W upper	5/4/18	M4	AD ONLY		35,546	7,404	42,950		SF CLWR
3W upper	5/7/18	M4	AD ONLY		42,858	4,666	47,524	136,981	SF CLWR
4E	5/4/18	M3	AD ONLY		60,964	2,008	62,972		SF CLWR
4E	5/7/18	M3	AD ONLY		45,206	7,668	52,874		SF CLWR
4E	5/7/18	M3	AD/CWT	10-03-99	29,629	589	30,218	146,064	SF CLWR
4W upper	5/2/18	M4	AD ONLY		49,096	5,712	54,808		SF CLWR
4W upper	5/3/18	M4	AD ONLY		58,740	6,577	65,317		SF CLWR
4W upper	5/3/18	M4	AD/CWT	10-03-99	29,887	197	30,084	150,209	SF CLWR
5W upper	5/1/18	M4	AD ONLY		64,559	6,499	71,058		SF CLWR
5W upper	5/2/18	M4	AD ONLY		46,570	2,607	49,177		SF CLWR
5W upper	4/30/18	M4	AD/CWT	10-03-99	3,717	262	3,979		SF CLWR
5W upper	5/1/18	M4	AD/CWT	10-03-99	25,818	220	26,038	150,252	SF CLWR
6W upper	4/26/18	M4	AD ONLY		23,773	5,310	29,083		SF CLWR
6W upper	4/27/18	M4	AD ONLY		44,887	5,250	50,137		SF CLWR
6W upper	4/30/18	M4	AD ONLY		45,156	3,667	48,823		SF CLWR
6W upper	4/30/18	M4	AD ONLY		20,034	2,266	22,300	150,343	SF CLWR
3W lower	5/16/18	M4	AD/CWT	10-04-35	872	49	921		DWORSHAK/KOOSKIA
3W lower	5/17/18	M4	AD/CWT	10-04-35	50,052	2,682	52,734		DWORSHAK/KOOSKIA
3W lower	5/17/18	M4	AD/CWT	10-04-35	39,500	2,888	42,388		DWORSHAK/KOOSKIA
3W lower	5/18/18	M4	AD/CWT	10-04-35	1,946	210	2,156	98,199	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
4W lower	5/18/18	M4	AD/CWT	10-04-35	43,040	2,596	45,636		DWORSHAK/KOOSKIA
4W lower	5/18/18	M4	AD/CWT	10-04-35	28,390	2,914	31,304		DWORSHAK/KOOSKIA
4W lower	5/21/18	M4	AD/CWT	10-04-35	18,288	1,097	19,385	96,325	DWORSHAK/KOOSKIA
5A	5/31/18	M4	AD ONLY		43,969	4,031	48,000		DWORSHAK/KOOSKIA
5A	6/1/18	M3	AD/CWT	10-04-27	28,796	2,137	30,933	78,933	DWORSHAK/KOOSKIA
5B	5/19/18	M3	AD ONLY		70,006	10,280	80,286	80,286	DWORSHAK/KOOSKIA
5E	5/14/18	M4	AD ONLY		53,010	9,245	62,255		DWORSHAK/KOOSKIA/
5E	5/14/18	M4	AD ONLY		44,235	6,669	50,904		DWORSHAK/KOOSKIA/
5E	5/15/18	M4	AD ONLY		39,029	3,550	42,579	155,738	DWORSHAK/KOOSKIA
5W lower	5/21/18	M4	AD/CWT	10-04-36	12,743	879	13,622		DWORSHAK/KOOSKIA
5W lower	5/21/18	M4	AD/CWT	10-04-36	35,856	2,856	38,712		DWORSHAK/KOOSKIA
5W lower	5/22/18	M4	AD/CWT	10-04-36	43,784	2,738	46,522	98,856	DWORSHAK/KOOSKIA
6A	6/1/18	M4	AD ONLY		33,860	4,779	38,639		DWORSHAK/KOOSKIA
6A	6/4/18	M4	AD ONLY		35,550	4,372	39,922	78,561	KOOSKIA
6B	5/29/18	M3	AD ONLY		12,246	1,966	14,212		DWORSHAK/KOOSKIA
6B	5/30/18	M3	AD ONLY		29,529	4,203	33,732		DWORSHAK/KOOSKIA
6B	5/30/18	M3	AD/CWT	10-04-27	29,455	1,162	30,617	78,561	DWORSHAK/KOOSKIA
6E	5/15/18	M4	AD ONLY		18,530	3,513	22,043		DWORSHAK/KOOSKIA
6E	5/15/18	M4	AD ONLY		43,068	8,175	51,243		DWORSHAK/KOOSKIA
6E	5/16/18	M4	AD ONLY		55,903	6,881	62,784		DWORSHAK/KOOSKIA
6E	5/16/18	M4	AD ONLY		19,407	2,837	22,244	158,314	DWORSHAK/KOOSKIA
6W lower	5/22/18	M4	AD/CWT	10-04-36	60,517	4,592	65,109		DWORSHAK/KOOSKIA
6W lower	5/23/18	M4	AD/CWT	10-04-36	29,776	1,903	31,679	96,788	DWORSHAK/KOOSKIA
7A	6/4/18	M4	AD ONLY		32,508	3,528	36,036		KOOSKIA
7A	6/5/18	M4	AD ONLY		10,445	1,481	11,926		KOOSKIA
7A	6/4/18	M3	AD/CWT	10-04-27	28,288	2,340	30,628	78,590	KOOSKIA
7B	5/30/18	M3	AD ONLY		20,758	1,422	22,180		DWORSHAK/KOOSKIA
7B	5/31/18	M3	AD ONLY		50,252	5,292	55,544		DWORSHAK/KOOSKIA
7B	6/1/18	M3	AD ONLY		1,007	0	1,007	78,731	KOOSKIA
8A	6/4/18	M3	AD ONLY		41,947	4,068	46,015		KOOSKIA
8A	6/5/18	M3	AD ONLY		7,973	1,243	9,216		KOOSKIA
8A	6/5/18	M4	AD ONLY		4,833	722	5,555	60,786	KOOSKIA
8B	5/31/18	M3	AD/CWT	10-04-27	27,105	2,995	30,100		KOOSKIA
8B	5/31/18	M3	AD ONLY		7,870	3,824	11,694		KOOSKIA
8B	6/1/18	M3	AD ONLY		33,633	3,272	36,905	78,699	KOOSKIA
9A	5/23/18	M4	AD ONLY		34,809	7,092	41,901		DWORSHAK/KOOSKIA
9A	5/24/18	M4	AD ONLY		34,260	3,431	37,691	79,592	DWORSHAK/KOOSKIA
9B	6/1/18	M3	AD ONLY		16,515	3,723	20,238		KOOSKIA
9B	6/4/18	M3	AD ONLY		52,371	5,949	58,320	78,558	KOOSKIA

**Table 4:** Continued

<b>Raceway Totals and Mark Totals at Clearwater Fish Hatchery Spring-Run Chinook</b>									
<b>RWY</b>	<b>DATE</b>	<b>TRAILER</b>	<b>MARK TYPE</b>	<b>TAG CODE</b>	<b>MATS</b>	<b>MANUAL</b>	<b>MARK TOTAL</b>	<b>RWY TOTAL</b>	<b>STOCK</b>
10A	5/25/18	M4	AD ONLY		12,018	1,841	13,859		DWORSHAK/KOOSKIA
10A	5/25/18	M4	AD ONLY		5,299	900	6,199		DWORSHAK/KOOSKIA
10A	5/24/18	M4	AD/CWT	10-04-26	5,844	444	6,288		DWORSHAK/KOOSKIA
10A	5/24/18	M4	AD/CWT	10-04-26	22,685	4,292	26,977		DWORSHAK/KOOSKIA
10A	5/25/18	M4	AD/CWT	10-04-26	25,465	1,797	27,262	80,585	DWORSHAK/KOOSKIA
10B	5/31/18	M4	AD ONLY		17,920	2,780	20,700		DWORSHAK/KOOSKIA
10B	5/30/18	M4	AD/CWT	10-04-26	12,302	2,896	15,198		DWORSHAK/KOOSKIA
10B	5/31/18	M4	AD/CWT	10-04-26	42,565	2,228	44,793	80,691	DWORSHAK/KOOSKIA
11A	5/29/18	M4	AD ONLY		21,174	5,118	26,292		DWORSHAK/KOOSKIA
11A	5/25/18	M4	CWT ONLY	10-04-32	4,968	708	5,676		DWORSHAK/KOOSKIA
11A	5/29/18	M4	CWT ONLY	10-04-32	45,405	3,681	49,086	81,054	DWORSHAK/KOOSKIA
11B	5/29/18	M4	CWT ONLY	10-04-32	1,101	1,211	2,312		DWORSHAK/KOOSKIA
11B	5/30/18	M4	CWT ONLY	10-04-32	60,186	4,174	64,360		DWORSHAK/KOOSKIA
11B	5/30/18	M4	CWT ONLY	10-04-32	13,265	1,090	14,355	81,027	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

<b>TAG CODE TOTALS</b>			<b>MARK SUMMARY</b>	
<b>TAG CODE</b>	<b>TAG CODE SIZE</b>	<b># TAGGED</b>	<b>TOTAL AD/CWT</b>	
10-03-99	110K	120,411	753,375	
10-04-35	200K	194,524	135,789	
10-04-27	110K	122,278	2,094,567	
10-04-36	200K	195,644	2,983,731	
10-04-26	110K	120,518		
10-04-32	135K	135,789		
			<b>TOTAL AD ONLY</b>	
			<b>TOTAL CWT ONLY</b>	
			<b>TOTAL MARKED</b>	

<b>CLEARWATER SPRING-RUN CHINOOK CWT RETENTION</b>					
<b>RACEWAY</b>	<b># CHECKED</b>	<b># TAGGED</b>	<b>% SUCCESSFUL</b>	<b># MARKED</b>	<b>#SUCCESSFUL</b>
2E,4E,5W	401	401	100.00%	120,411	120,411
3W,4W	300	300	100.00%	194,524	194,524
5W,6W	300	299	99.67%	195,644	194,992
10A,10B	398	398	100.00%	120,518	120,518
11A,11B	300	298	99.33%	135,789	134,884
5A,6B,7A,8B	400	396	99.00%	122,278	121,055
<b>MAX. RETENTION</b>			<b>100.00%</b>	<b>889,164</b>	<b>886,384</b>
<b>MIN. RETENTION</b>			<b>99.00%</b>	<b>AVERAGE</b>	<b>99.67%</b>

Supplemental Tables continued:

<b>CLEARWATER SPRING-RUN CHINOOK ADIPOSE FIN-CLIP RATE</b>				
<b>RWY</b>	<b># SAMPLED</b>	<b>NO CLIP</b>	<b># GOOD</b>	<b>% SUCCESSFUL</b>
3W,4W	300	6	294	98.00%
5W,6W	300	2	298	99.33%
2E,4E,5W upper,4W upper	401	0	401	100.00%
10A,10B	398	0	398	100.00%
11A,11B	300	2	298	99.33%
5A,6B,7A,8B	400	4	396	99.00%
			<b>AVERAGE</b>	<b>99.28%</b>

A total of 61,035 BY 2017 spring-run Chinook salmon (Table 5) were PIT-tagged at Clearwater Fish Hatchery September 26<sup>th</sup> through October 2<sup>nd</sup> 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 2017 Clearwater Spring-Run Chinook PIT-tagged by raceway

<b>Clearwater BY 2017 Spring-Run Chinook</b>		
<b>DATE</b>	<b>RWY</b>	<b># OF FISH TAGGED</b>
9/26/2018	5A	2,497
9/26/2018	5B	2,489
9/26/2018	6A	2,391
9/26/2018	7B	2,395
9/26/2018	9A	5,690
9/27/2018	10A	5,685
9/27/2018	11B	5,692
9/28/2018	1E	4,714
9/28/2018	3E	3,776
9/28/2018	3W UPPER	4,302
10/1/2018	6W UPPER	4,301
10/1/2018	4W LOWER	3,802
10/1/2018	3W LOWER	4,699
10/2/2018	5W LOWER	4,801
10/2/2018	6W LOWER	3,801
<b>TOTAL FISH TAGGED:</b>		<b>61,035</b>

## Clearwater Fish Hatchery Summer-Run Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2017 summer-run Chinook salmon at Clearwater Fish Hatchery from May 29<sup>th</sup> through June 5<sup>th</sup> using one AutoFish Trailer. One electric Matsusaka fish-transfer pump was used to load the fish into the trailer. A total of 436,538 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 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 Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
1A	5/30/18	M1	AD ONLY		33,103	4,271	37,374		POWELL
1A	5/29/18	M1	AD/CWT	10-04-25	38,645	3,045	41,690	79,064	POWELL
1B	6/5/18	M1	AD ONLY		28,868	10,175	39,043		POWELL
1B	6/4/18	M1	AD/CWT	10-04-25	26,094	2,998	29,092		POWELL
1B	6/5/18	M1	AD/CWT	10-04-25	10,087	124	10,211		POWELL
1B	6/5/18	M1	AD/CWT	10-04-25	750	0	750	79,096	POWELL
2A	5/30/18	M1	AD ONLY		23,848	5,041	28,889		POWELL
2A	5/31/18	M1	AD ONLY		7,880	1,431	9,311		POWELL
2A	5/30/18	M1	AD/CWT	10-04-25	38,493	2,506	40,999	79,199	POWELL
2B	6/1/18	M1	AD ONLY		16,905	3,803	20,708		POWELL
2B	6/4/18	M1	AD ONLY		50,097	8,223	58,320	79,028	POWELL
3A	5/31/18	M1	CWT Only	10-03-98	38,522	1,553	40,075	40,075	POWELL
3B	5/31/18	M1	CWT Only	10-03-98	11,404	1,307	12,711		POWELL
3B	6/1/18	M1	CWT Only	10-03-98	26,017	1,348	27,365	40,076	POWELL
4B	5/31/18	M1	CWT Only	10-03-98	38,012	1,988	40,000	40,000	POWELL

**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			MARK SUMMARY	
TAG CODE	TAG CODE SIZE	# TAGGED	TOTAL AD/CWT	
10-04-25	110K	122,742	TOTAL CWT ONLY	120,151
10-03-98	110K	120,151	TOTAL AD ONLY	193,645
			<b>TOTAL # FISH MARKED</b>	<b>436,538</b>

CLEARWATER BY 2018 SUMMER-RUN CHINOOK CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	# SUCCESSFUL
1A,1B,2A	305	304	99.67%	122,742	122,340
3A,3B,4B	300	297	99.00%	120,151	118,949
<b>MAX. RETENTION</b>		<b>99.67%</b>		<b>242,893</b>	<b>241,289</b>
<b>MIN. RETENTION</b>		<b>99.00%</b>	<b>AVERAGE RETENTION</b>		<b>99.34%</b>

**Supplemental Tables continued:**

<b>ADIPOSE FIN-CLIP RATE</b>				
<b>RWY</b>	<b># SAMPLED</b>	<b>NO CLIP</b>	<b># GOOD</b>	<b>% SUCCESSFUL</b>
1A,1B,2A	305	0	305	100.00%
3A,3B,4B	300	0	300	100.00%
			<b>AVERAGE</b>	<b>100.00%</b>

A total of 25,476 BY 2017 summer-run Chinook salmon (Table 7) were PIT-tagged at Clearwater Fish Hatchery September 24<sup>th</sup> and 25<sup>th</sup> 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 2017 Clearwater Summer-Run Chinook PIT-tagged by raceway

<b>Clearwater BY 2017 Summer Chinook</b>		
<b>DATE</b>	<b>RWY</b>	<b># OF FISH TAGGED</b>
9/24/2018	1A	6,282
9/24/2018	3A	6,396
9/25/2018	3B	6,399
9/25/2018	4A	6,399
<b>TOTAL FISH TAGGED:</b>		<b>25,476</b>

## Clearwater Fish Hatchery Summer-Run Steelhead

The Idaho Anadromous Fish-Marking Crew processed BY 2018 summer-run steelhead at Clearwater Fish Hatchery August 7<sup>th</sup> through August 16<sup>th</sup>. A total of 1,008,704 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 2018 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	7/30/18	M1	CWT ONLY	10-04-31	61,191	4,731	65,922	131,844	SF CLWR
8E	7/30/18	M1	CWT ONLY	10-04-31	15,397	1,654	17,051		SF CLWR
8E	7/31/18	M1	CWT ONLY	10-04-31	39,265	2,617	41,882	117,866	SF CLWR
9E	7/31/18	M1	CWT ONLY	10-04-37	50,393	5,906	56,299		SF CLWR
9E	8/1/18	M1	CWT ONLY	10-04-37	16,053	871	16,924	146,446	SF CLWR
10E	8/1/18	M1	CWT ONLY	10-04-37	33,663	2,502	36,165		SF CLWR
10E	8/1/18	M1	CWT ONLY	10-04-37	32,597	4,345	36,942	146,214	SF CLWR
11E	8/1/18	M1	CWT ONLY	10-04-37	12,363	1,878	14,241		SF CLWR
11E	8/2/18	M1	CWT ONLY	10-04-37	41,369	2,061	43,430		SF CLWR
11E	8/2/18	M1	AD ONLY		13,174	2,256	15,430	146,202	SF CLWR
12E	8/2/18	M1	AD ONLY		50,114	10,888	61,002		SF CLWR
12E	8/3/18	M1	AD ONLY		11,190	950	12,140	146,284	SF CLWR
7W	8/8/18	M1	AD ONLY		24,015	2,680	26,695		SF CLWR
7W	8/8/18	M1	AD ONLY		22,702	5,440	28,142	109,674	SF CLWR
8W	8/7/18	M1	AD ONLY		36,888	8,475	45,363		SF CLWR
8W	8/8/18	M1	AD ONLY		18,887	2,005	20,892	132,510	SF CLWR
9W	8/7/18	M1	AD ONLY		46,868	4,933	51,801		SF CLWR
9W	8/7/18	M1	AD ONLY		15,606	4,600	20,206	144,014	SF CLWR
10W	8/6/18	M1	AD ONLY		26,787	7,069	33,856		SF CLWR
10W	8/7/18	M1	AD ONLY		3,872	441	4,313	76,338	SF CLWR
11W	8/6/18	M1	AD ONLY		35,873	3,750	39,623		SF CLWR
11W	8/6/18	M1	AD ONLY		26,965	6,555	33,520	146,286	SF CLWR
12W	8/3/18	M1	AD ONLY		28,617	3,438	32,055		SF CLWR
12W	8/3/18	M1	AD ONLY		25,648	7,350	32,998		SF CLWR
12W	8/6/18	M1	AD ONLY		7,281	1,017	8,298	146,702	SF 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			MARK SUMMARY	
TAG CODE	TAG CODE SIZE	# TAGGED	TOTAL AD/CWT	0
10-04-31	123K	124,855	TOTAL CWT ONLY	542,370
10-04-37	210K	204,001	TOTAL AD ONLY	466,334
			<b>TOTAL MARKED</b>	<b>1,008,704</b>

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	# SUCCESSFUL
7E,8E	301	296	98.34%	124,855	122,781
9E,10E,11E	296	296	100.00%	204,001	204,001
<b>MAX. RETENTION</b>		<b>100.00%</b>		<b>328,856</b>	<b>326,782</b>
<b>MIN. RETENTION</b>		<b>98.34%</b>	<b>AVERAGE RETENTION</b>		<b>99.37%</b>

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

A total of 38,591 BY 2018 summer-run steelhead were PIT-tagged at Clearwater Fish Hatchery November 12<sup>th</sup> through November 14<sup>th</sup> 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:** Clearwater Fish Hatchery Summer-Run Steelhead PIT-tagged by raceway

Clearwater BY 2018 Summer-Run Steelhead		
DATE	RWY	# OF FISH TAGGED
10/2/2018	7E	1,400
10/2/2018	8E	1,198
10/2/2018	9E	2,299
10/2/2018	10E	2,003
10/2/2018	12E	1,999
10/2/2018	12W	2,501
10/2/2018	10W	1,998
10/2/2018	9W	2,506
10/2/2018	8W	2,203
<b>TOTAL FISH TAGGED:</b>		<b>18,107</b>

## Pahsimeroi Fish Hatchery



### Pahsimeroi Fish Hatchery Summer-Run Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2017 summer-run Chinook salmon at Pahsimeroi Fish Hatchery May 17<sup>th</sup> through May 21<sup>th</sup>. A total of 867,546 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 2017 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

<b>Raceway Totals and Mark Totals at Pahsimeroi Fish Hatchery Summer-Run Chinook</b>									
<b>RWY</b>	<b>DATE</b>	<b>TRAILER</b>	<b>MARK TYPE</b>	<b>TAG CODE</b>	<b>MATS</b>	<b>MANUAL</b>	<b>MARK TOTAL</b>	<b>RWY TOTAL</b>	<b>STOCK</b>
POND 1	5/17/18	M5	AD ONLY		36,763	5,934	42,697		PAH
POND 1	5/17/18	M2	AD/CWT	10-04-01	14,418	1,193	15,611		PAH
POND 1	5/17/18	M5	CWT ONLY	10-04-02	35,774	995	36,769		PAH
POND 1	5/17/18	M5	CWT ONLY	10-04-02	24,170	3,243	27,413		PAH
POND 1	5/18/18	M5	AD ONLY		9,466	3,390	12,856		PAH
POND 1	5/18/18	M2	AD ONLY		73,910	8,354	82,264		PAH
POND 1	5/18/18	M2	AD/CWT	10-04-01	4,641	72	4,713		PAH
POND 1	5/18/18	M5	AD/CWT	10-04-01	19,385	1,871	21,256		PAH
POND 1	5/19/18	M2	AD ONLY		36,840	4,345	41,185		PAH
POND 1	5/19/18	M5	AD ONLY		4,778	992	5,770		PAH
POND 1	5/20/18	M5	AD ONLY		47,678	6,282	53,960		PAH
POND 1	5/21/18	M5	AD ONLY		41,638	5,580	47,218		PAH
POND 1	5/21/18	M2	AD ONLY		24,184	7,872	32,056		PAH
POND 1	5/21/18	M2	AD/CWT	10-04-01	17,846	1,000	18,846	442,614	PAH
POND 2	5/17/18	M2	AD ONLY		35,570	8,221	43,791		PAH
POND 2	5/19/18	M2	AD ONLY		13,967	2,824	16,791		PAH
POND 2	5/19/18	M5	AD ONLY		57,662	9,762	67,424		PAH
POND 2	5/19/18	M5	AD/CWT	10-04-01	19,778	269	20,047		PAH
POND 2	5/19/18	M2	AD/CWT	10-04-01	18,180	1,851	20,031		PAH
POND 2	5/20/18	M5	AD ONLY		37,880	8,217	46,097		PAH
POND 2	5/20/18	M2	AD ONLY		97,526	11,421	108,947		PAH
POND 2	5/21/18	M2	AD ONLY		44,008	6,494	50,502		PAH
POND 2	5/21/18	M5	AD ONLY		27,762	3,431	31,193		PAH
POND 2	5/21/18	M5	AD/CWT	10-04-01	19,696	413	20,109	424,932	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

<b>TAG CODE TOTALS</b>		
<b>TAG CODE</b>	<b>TAG CODE SIZE</b>	<b># TAGGED</b>
10-04-01	110K	120,613
10-04-02	65K	64,182

<b>MARK SUMMARY</b>	
TOTAL AD/CWT	120,613
TOTAL CWT ONLY	64,182
TOTAL AD ONLY	682,751
<b>TOTAL MARKED</b>	<b>867,546</b>

Supplemental Tables continued:

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	# SUCCESSFUL
Vat 18 lower	300	293	97.67%	64,182	62,684
Vat 18 upper	300	293	97.67%	120,613	117,799
<b>MAX. RETENTION</b>		<b>97.67%</b>	<b>TOTALS</b>	<b>184,795</b>	<b>180,483</b>
<b>MIN. RETENTION</b>		<b>97.67%</b>	<b>AVERAGE RETENTION</b>		<b>97.67%</b>

PAHSIMEROI SUMMER-RUN CHINOOK ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
Vat 18 upper	300	3	297	99.00%
			<b>AVERAGE</b>	<b>99.00%</b>

A total of 21,448 BY 2017 summer-run Chinook salmon were PIT-tagged at Pahsimeroi Fish Hatchery September 19th 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 aluminum discharge pipe.

**Table 11:** BY 2017 Pahsimeroi Summer-Run Chinook PIT-tagged by raceway

Pahsimeroi BY 2017 Summer-Run Chinook		
DATE	RWY	# OF FISH TAGGED
10/11/2018	Pond 2	15,189
10/12/2018	Pond 2	6,259
<b>TOTAL FISH TAGGED:</b>		<b>21,448</b>

## Sawtooth Fish Hatchery



### Sawtooth Fish Hatchery Spring-Run Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2017 spring-run Chinook salmon at Sawtooth Fish Hatchery July 18<sup>th</sup> through 24<sup>th</sup> using three AutoFish Trailers. A total of 1,168,018 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 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 Sawtooth Fish Hatchery Spring-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
5	7/20/18	M5	AD/CWT	10-04-08	38,088	3,551	41,639		SALMON R
5	7/21/18	M5	AD/CWT	10-04-08	11,397	989	12,386		SALMON R
5	7/21/18	M5	AD/CWT	10-04-09	42,641	3,791	46,432	100,457	SALMON R
6	7/18/18	M5	CWT ONLY	10-04-19	37,960	3,639	41,599		SALMON R
6	7/19/18	M5	CWT ONLY	10-04-19	41,279	4,334	45,613	87,212	SALMON R
7	7/18/18	M3	AD ONLY		28,731	10,575	39,306		SALMON R
7	7/19/18	M3	AD ONLY		20,271	5,171	25,442		SALMON R
7	7/20/18	M3	AD ONLY		39,841	8,057	47,898		SALMON R
7	7/19/18	M3	AD/CWT	10-04-29	22,758	1,859	24,617		SALMON R
7	7/20/18	M3	AD/CWT	10-04-29	5,097	341	5,438	142,701	SALMON R
8	7/20/18	M3	AD ONLY		4,256	2,761	7,017		SALMON R
8	7/21/18	M3	AD ONLY		20,428	8,122	28,550		SALMON R
8	7/22/18	M3	AD ONLY		49,508	11,212	60,720		SALMON R
8	7/23/18	M3	AD ONLY		13,707	2,665	16,372		SALMON R
8	7/21/18	M3	AD/CWT	10-04-29	20,483	2,079	22,562		SALMON R
8	7/22/18	M3	AD/CWT	10-04-29	7,067	412	7,479	142,700	SALMON R
9	7/18/18	M4	AD ONLY		25,795	7,508	33,303		SALMON R
9	7/19/18	M4	AD ONLY		35,798	7,882	43,680		SALMON R
9	7/19/18	M5	AD ONLY		1,293	1,048	2,341		SALMON R
9	7/20/18	M5	AD ONLY		6,314	2,771	9,085		SALMON R
9	7/20/18	M4	AD ONLY		40,913	7,890	48,803		SALMON R
9	7/23/18	M3	AD ONLY		7,417	3,295	10,712	147,924	SALMON R
10	7/21/18	M4	AD ONLY		43,671	9,490	53,161		SALMON R
10	7/22/18	M4	AD ONLY		45,922	9,948	55,870		SALMON R
10	7/23/18	M4	AD ONLY		42,719	8,050	50,769		SALMON R
10	7/24/18	M4	AD ONLY		2,611	923	3,534	163,334	SALMON R
11	7/23/18	M4	AD ONLY		5,064	1,589	6,653		SALMON R
11	7/23/18	M3	AD ONLY		1095	753	1,848		SALMON R
11	7/23/18	M5	AD ONLY		4,100	1,604	5,704		SALMON R
11	7/24/18	M4	AD ONLY		44,923	6,418	51,341		SALMON R
11	7/24/18	M3	AD ONLY		36,423	8,106	44,529		SALMON R
11	7/24/18	M5	AD ONLY		18,554	4136	22,690		SALMON R
11	7/24/18	M5	AD ONLY		2,054	764	2,818		SALMON R
11	7/24/18	M5	AD/CWT	10-04-29	27,647	2353	30,000	165,583	SALMON R
12	7/22/18	M5	AD ONLY		14,763	4350	19,113		SALMON R
12	7/22/18	M5	AD ONLY		12,005	2732	14,737		SALMON R
12	7/23/18	M5	AD ONLY		52,890	12447	65,337		SALMON R
12	7/23/18	M3	AD ONLY		25,198	5663	30,861		SALMON R
12	7/24/18	M3	AD ONLY		925	1645	2,570		SALMON R
12	7/22/18	M5	AD/CWT	10-04-29	27344	2,656	30,000	162,618	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
10-04-08	50K	54,025
10-04-09	50K	46,432
10-04-19	80K	87,212
10-04-29	110K	90,096

MARK SUMMARY	
TOTAL AD/CWT	220,553
TOTAL CWT ONLY	142,701
TOTAL AD ONLY	804,764
<b>TOTAL MARKED</b>	<b>1,168,018</b>

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	# SUCCESSFUL
5	300	298	99.33%	100,457	99,787
6	300	287	95.67%	87,212	83,433
7,8,11,12	401	400	99.75%	90,096	89,871
<b>MAX. RETENTION</b>			<b>99.75%</b>	<b>277,765</b>	<b>273,091</b>
<b>MIN. RETENTION</b>			<b>95.67%</b>	<b>AVERAGE</b>	<b>98.25%</b>

SAWTOOTH SPRING-RUN CHINOOK ADIPOSE FIN-CLIP RATES				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
5	300	0	300	100.00%
7,8,11,12	401	0	401	100.00%
<b>AVERAGE</b>				<b>100.00%</b>

A total of 4,461 BY 2017 spring-run Chinook salmon were PIT-tagged at Sawtooth Fish Hatchery October 13<sup>th</sup> through 15<sup>st</sup> using the four-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 2017 Sawtooth Spring-Run Chinook PIT-tagged by raceway

Sawtooth BY 2017 Spring-Run Chinook		
DATE	RWY	# OF FISH TAGGED
10/13/2018	5	4,597
10/13/2018	6	954
10/14/2018	7	4,700
10/14/2018	8	4,700
10/14/2018	10	4,705
10/15/2018	11	4,805
<b>TOTAL FISH TAGGED:</b>		<b>24,461</b>

## Sawtooth Fish Hatchery Summer-Run Sockeye

The Idaho Anadromous Fish-Marking Crew processed BY 2017 summer-run Sockeye salmon at Sawtooth Fish Hatchery September 11<sup>th</sup> through 13<sup>th</sup> using one AutoFish Trailer. A total of 334,614 summer-run Sockeye salmon were adipose fin-clipped (Table 14). Fish were loaded into the trailers using an electric Matsusaka fish-transfer pump. After marking, fish were distributed to the raceways via four-inch aluminum discharge pipe.

**Table 14:** Sawtooth Fish Hatchery Summer-Run Sockeye BY 2017 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

<b>Raceway Totals and Mark Totals at Sawtooth Fish Hatchery Summer-Run Sockeye</b>									
<b>RWY</b>	<b>DATE</b>	<b>TRAILER</b>	<b>MARK TYPE</b>	<b>TAG CODE</b>	<b>MATS</b>	<b>MANUAL</b>	<b>MARK TOTAL</b>	<b>RWY TOTAL</b>	<b>STOCK</b>
2	9/11/18	M5	AD ONLY		42,932	10,566	53,498		REDFISH LK
2	9/11/18	M5	AD ONLY		41,751	19,029	60,780	114,278	REDFISH LK
3	9/11/18	M5	AD ONLY		3,704	3,119	6,823		REDFISH LK
3	9/12/18	M5	AD ONLY		46,423	11,399	57,822		REDFISH LK
3	9/12/18	M5	AD ONLY		32,495	17,782	50,277	114,922	REDFISH LK
4	9/12/18	M5	AD ONLY		15,710	7,975	23,685		REDFISH LK
4	9/13/18	M5	AD ONLY		46,634	12,203	58,837		REDFISH LK
4	9/13/18	M5	AD ONLY		12,587	10,305	22,892	105,414	REDFISH LK

**Supplemental Table:** # of fish by mark type

<b>MARK SUMMARY</b>	
TOTAL AD/CWT	0
TOTAL CWT ONLY	0
TOTAL AD ONLY	334,614
<b>TOTAL MARKED</b>	<b>334,614</b>

## Rapid River Fish Hatchery



### Rapid River Fish Hatchery Spring-Run Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2017 spring-run Chinook salmon at Rapid River Fish Hatchery June 12<sup>h</sup> through June 28<sup>th</sup>. A total of 3,146,503 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 15:** Rapid River Fish Hatchery Spring-Run Chinook BY 2017 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

<b>Raceway Totals and Mark Totals at Rapid River Fish Hatchery Spring-Run Chinook</b>									
<b>RWY</b>	<b>DATE</b>	<b>TRAILER</b>	<b>MARK TYPE</b>	<b>TAG CODE</b>	<b>MATS</b>	<b>MANUAL</b>	<b>MARK TOTAL</b>	<b>RWY TOTAL</b>	<b>STOCK</b>
1A	6/12/18	M3	AD ONLY		15,103	1,654	16,757		Rapid River
1A	6/12/18	M3	AD/CWT	10-04-28	19,084	851	19,935		Rapid River
1A	6/28/18	M3	AD/CWT	10-04-28	19,569	919	20,488		Rapid River
1A	6/14/18	M3	AD ONLY		53,719	8,350	62,069		Rapid River
1A	6/14/18	M3	AD ONLY		51,395	4,774	56,169		Rapid River
1A	6/18/18	M3	AD ONLY		65,978	8,862	74,840		Rapid River
1A	6/20/18	M3	AD ONLY		65,743	6,161	71,904		Rapid River
1A	6/21/18	M3	AD ONLY		55,426	6,305	61,731		Rapid River
1A	6/21/18	M3	AD ONLY		53,841	10,357	64,198		Rapid River
1A	6/26/18	M3	AD ONLY		50,708	6,096	56,804		Rapid River
1A	6/26/18	M3	AD ONLY		71,130	12,530	83,660	588,555	Rapid River
1B	6/13/18	M3	AD ONLY		51,652	6,739	58,391		Rapid River
1B	6/13/18	M3	AD ONLY		50,485	4,454	54,939		Rapid River
1B	6/15/18	M3	AD ONLY		37,310	4,509	41,819		Rapid River
1B	6/15/18	M3	AD ONLY		21,398	4,006	25,404		Rapid River
1B	6/19/18	M3	AD ONLY		56,568	7,468	64,036		Rapid River
1B	6/19/18	M3	AD ONLY		52,169	4,964	57,133		Rapid River
1B	6/20/18	M3	AD/CWT	10-04-28	19,497	553	20,050		Rapid River
1B	6/22/18	M3	AD ONLY		31,075	6,165	37,240		Rapid River
1B	6/22/18	M3	AD/CWT	10-04-28	19,261	836	20,097		Rapid River
1B	6/25/18	M3	AD ONLY		28,253	4,029	32,282		Rapid River
1B	6/25/18	M3	AD ONLY		61,802	7,860	69,662		Rapid River
1B	6/27/18	M3	AD ONLY		44,985	5,774	50,759		Rapid River
1B	6/27/18	M3	AD ONLY		36,471	8,423	44,894		Rapid River
1B	6/28/18	M3	AD ONLY		5,336	792	6,128	582,834	Rapid River
2A	6/14/18	M4	AD ONLY		21,499	2,033	23,532		Rapid River
2A	6/14/18	M4	AD ONLY		10,828	2,933	13,761		Rapid River
2A	6/14/18	M4	AD ONLY		36,664	7,065	43,729		Rapid River
2A	6/14/18	M4	AD/CWT	10-04-28	19,318	753	20,071		Rapid River
2A	6/18/18	M4	AD ONLY		69,588	17,711	87,299		Rapid River
2A	6/18/18	M4	AD/CWT	10-04-28	19,261	1,129	20,390		Rapid River
2A	6/20/18	M4	AD ONLY		32,208	4,362	36,570		Rapid River
2A	6/20/18	M4	AD ONLY		39,153	14,839	53,992		Rapid River
2A	6/21/18	M4	AD ONLY		30,355	5,342	35,697		Rapid River
2A	6/26/18	M4	AD ONLY		42,230	5,707	47,937		Rapid River
2A	6/26/18	M4	AD ONLY		49,665	12,255	61,920		Rapid River
2A	6/17/18	M4	AD ONLY		46,145	6,766	52,911		Rapid River
2A	6/28/18	M4	AD ONLY		44,536	7,448	51,984		Rapid River
2A	6/28/18	M4	AD ONLY		4,762	2,281	7,043		Rapid River

Table 15: 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
2A	6/28/18	M4	AD ONLY		7,812	3,341	11,153	567,989	Rapid River
2B	6/13/18	M4	AD ONLY		43,092	9,449	52,541		Rapid River
2B	6/18/18	M4	AD ONLY		33,903	10,901	44,804		Rapid River
2B	6/19/18	M4	AD ONLY		41,491	12,217	53,708		Rapid River
2B	6/21/18	M4	AD ONLY		44,260	11,586	55,846		Rapid River
2B	6/21/18	M4	AD ONLY		45,381	20,608	65,989		Rapid River
2B	6/26/18	M4	AD ONLY		47,205	11,991	59,196		Rapid River
2B	6/26/18	M4	AD ONLY		60,974	14,467	75,441		Rapid River
2B	6/28/18	M4	AD ONLY		8,383	2,836	11,219		Rapid River
2B	6/28/18	M4	AD ONLY		2,405	847	3,252	421,996	Rapid River
2C	6/13/18	M4	AD ONLY		42,611	4,482	47,093		Rapid River
2C	6/18/18	M4	AD ONLY		20,209	5,461	25,670		Rapid River
2C	6/19/18	M4	AD ONLY		48,828	10,012	58,840		Rapid River
2C	6/20/18	M4	AD ONLY		27,385	9,656	37,041		Rapid River
2C	6/20/18	M4	AD ONLY		43,847	13,511	57,358		Rapid River
2C	6/22/18	M4	AD ONLY		29,645	5,611	35,256		Rapid River
2C	6/22/18	M4	AD ONLY		18,426	6,468	24,894		Rapid River
2C	6/25/18	M4	AD ONLY		28,123	5,965	34,088		Rapid River
2C	6/25/18	M4	AD ONLY		55,133	14,733	69,866		Rapid River
2C	6/17/18	M4	AD ONLY		50,675	11,087	61,762		Rapid River
2C	6/28/18	M4	AD ONLY		10,000	2,000	12,000		Rapid River
2C	6/28/18	M4	AD ONLY		3,951	559	4,510	468,378	Rapid River
2D	6/12/18	M4	AD ONLY		35,823	7,308	43,131		Rapid River
2D	6/15/18	M4	AD ONLY		34,219	3,723	37,942		Rapid River
2D	6/15/18	M4	AD ONLY		21,837	7,041	28,878		Rapid River
2D	6/19/18	M4	AD ONLY		25,603	3,608	29,211		Rapid River
2D	6/19/18	M4	AD ONLY		43,915	16,052	59,967		Rapid River
2D	6/21/18	M4	AD ONLY		46,603	6,546	53,149		Rapid River
2D	6/25/18	M4	AD ONLY		29,647	4,347	33,994		Rapid River
2D	6/25/18	M4	AD ONLY		55,911	11,371	67,282		Rapid River
2D	6/27/18	M4	AD ONLY		44,370	5,993	50,363		Rapid River
2D	6/27/18	M4	AD ONLY		45,772	9,939	55,711		Rapid River
2D	6/28/18	M4	AD ONLY		45,579	11,544	57,123	516,751	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			MARK SUMMARY	
TAG CODE	TAG CODE SIZE	# TAGGED	TOTAL AD/CWT	121,031
10-04-28	110K	121,031	TOTAL CWT ONLY	0
			TOTAL AD ONLY	3,025,472
			<b>TOTAL MARKED</b>	<b>3,146,503</b>

RAPID RIVER SPRING-RUN CHINOOK CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	# SUCCESSFUL
1A	96	96	100.00%	40,423	40,423
1B	97	97	100.00%	40,147	40,147
2A	90	90	100.00%	40,461	40,461
<b>MAX. RETENTION</b>		<b>100.00%</b>	<b>100.00%</b>	<b>40,423</b>	<b>40,423</b>
<b>MIN. RETENTION</b>		<b>100.00%</b>	<b>AVERAGE RETENTION</b>		<b>100.00%</b>

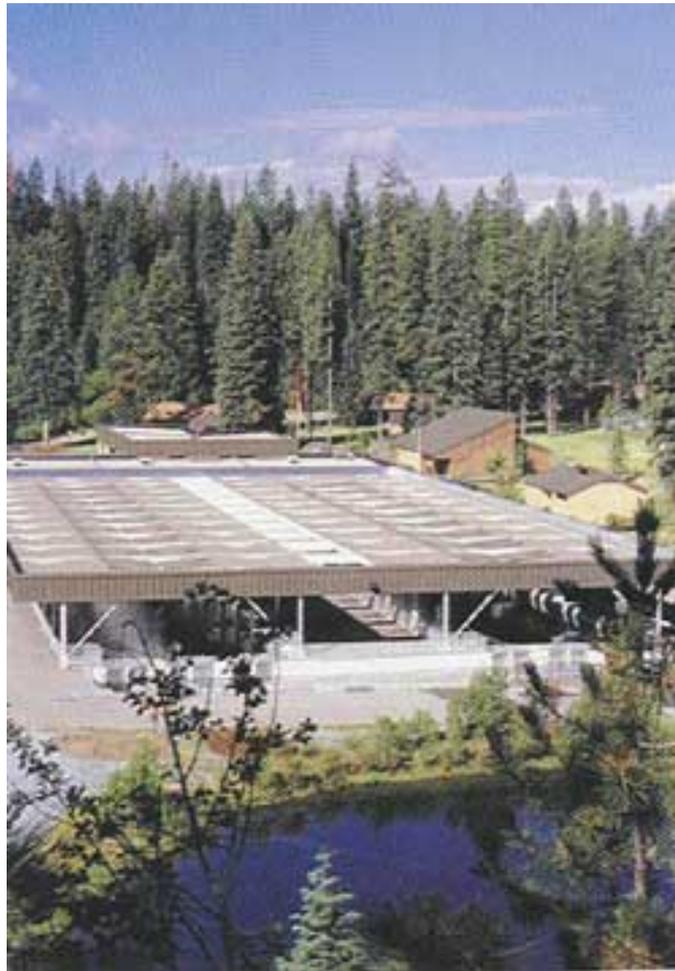
RAPID RIVER SPRING-RUN CHINOOK ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
1A	97	0	97	100.00%
1B	96	0	96	100.00%
2A	90	0	90	100.00%
<b>AVERAGE</b>				<b>100.00%</b>

A total of 51,929 BY 2017 spring-run Chinook salmon were PIT-tagged at Rapid River Fish Hatchery September 17<sup>th</sup> through September 20<sup>th</sup> 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 16:** BY 2017 Rapid River Spring-Run Chinook PIT-tagged by raceway

Rapid River BY 2017 Spring-Run Chinook		
DATE	RWY	# OF FISH TAGGED
9/17/2018	2A->2B	8,316
9/18/2018	2A->2B	17,338
9/19/2018	2A->2B	15,712
9/20/2018	2A->2B	10,563
<b>TOTAL FISH TAGGED:</b>		<b>51,929</b>

## McCall Fish Hatchery



### McCall Fish Hatchery Summer-Run Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2017 summer-run Chinook salmon at McCall Fish Hatchery on two separate occasions. A total of 1,246,847 fish were coded-wire tagged and/or adipose fin-clipped (Table 16). The first mark event occurred June 11<sup>th</sup> through June 14<sup>th</sup>. 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 9<sup>th</sup> through July 18<sup>th</sup> 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.

**Table 17:** McCall Fish Hatchery Summer-Run Chinook BY 2017 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

<b>Raceway Totals and Mark Totals at McCall Fish Hatchery Summer-Run Chinook</b>									
<b>RWY</b>	<b>DATE</b>	<b>TRAILER</b>	<b>MARK TYPE</b>	<b>TAG CODE</b>	<b>MATS</b>	<b>MANUAL</b>	<b>MARK TOTAL</b>	<b>RWY TOTAL</b>	<b>STOCK</b>
POND 1	6/11/18	M2	AD ONLY		84,911	16,744	101,655		S F SALMON
POND 1	6/12/18	M2	AD ONLY		55,083	8,156	63,239		S F SALMON
POND 1	6/12/18	M2	AD ONLY		60,456	13,521	73,977		S F SALMON
POND 1	6/13/18	M2	AD ONLY		52,113	6,000	58,113		S F SALMON
POND 1	6/13/18	M2	AD ONLY		65,081	17,278	82,359		S F SALMON
POND 1	6/14/18	M2	AD ONLY		56,734	7,443	64,177		S F SALMON
POND 1	6/14/18	M2	AD ONLY		31,959	9,066	41,025	484,545	S F SALMON
POND 1	7/10/18	M2	AD/CWT	10-04-30	56,568	6,007	62,575	62,575	SF SALMON
POND 2	7/9/18	M2	AD ONLY		65,920	11,360	77,280		SF SALMON
POND 2	7/10/18	M2	AD ONLY		43,632	5,180	48,812		SF SALMON
POND 2	7/11/18	M2	AD ONLY		0	1,819	1,819		SF SALMON
POND 2	7/11/18	M2	AD/CWT	10-04-30	57,599	3,667	61,266		SF SALMON
POND 2	7/11/18	M2	CWT ONLY	10-04-33	40,351	5,907	46,258		SF SALMON
POND 2	7/12/18	M2	CWT ONLY	10-04-33	47,042	3,972	51,014		SF SALMON
POND 2	7/12/18	M2	CWT ONLY	10-04-33	46,789	7,055	53,844		SF SALMON
POND 2	7/13/18	M2	AD ONLY		16,168	4,260	20,428		SF SALMON
POND 2	7/13/18	M2	CWT ONLY	10-04-33	10,563	665	11,228		SF SALMON
POND 2	7/17/18	M2	AD ONLY		49,358	13,119	62,477		SF SALMON
POND 2	7/18/18	M2	AD ONLY		52,247	13,876	66,123		SF SALMON
POND 2	7/18/18	M2	AD ONLY		54,513	16,527	71,040	571,589	SF SALMON
VAT 2	7/17/18	M2	CWT ONLY	22-01-76	28,954	5,211	34,165		JOHNSON CREEK
VAT 2	7/16/18	M2	CWT ONLY	22-01-76	29,193	4,911	34,104	68,269	JOHNSON CREEK
VAT 3	7/16/18	M2	CWT ONLY	22-01-76	9,425	1,585	11,010		JOHNSON CREEK
VAT 3	7/13/18	M2	CWT ONLY	22-01-76	16,635	2,055	18,690		JOHNSON CREEK
VAT 3	7/16/18	M2	CWT ONLY	22-01-76	27,193	2,976	30,169	59,869	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
10-04-30	110K	123,841
10-04-33	140K	162,344
22-01-76	132K	128,138

MARK SUMMARY	
TOTAL AD/CWT	123,841
TOTAL CWT ONLY	290,482
TOTAL AD ONLY	832,524
<b>TOTAL MARKED</b>	<b>1,246,847</b>

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	# SUCCESSFUL
13 UPPER	301	301	100.00%	162,344	162,344
13 LOWER	300	300	100.00%	123,841	123,841
1,2,3,4	400	397	99.25%	128,138	127,177
<b>MAX. RETENTION</b>		<b>100.00%</b>	<b>99.75%</b>	<b>414,323</b>	<b>413,362</b>
<b>MIN. RETENTION</b>		<b>99.25%</b>	<b>AVERAGE RETENTION</b>	<b>99.77%</b>	

McCALL SUMMER-RUN CHINOOK ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
13 LOWER	300	0	300	100.00%
			<b>AVERAGE</b>	<b>100.00%</b>

A total of 51,970 BY 2017 summer-run Chinook salmon were PIT-tagged at McCall Fish Hatchery October 22<sup>nd</sup> through October 25<sup>th</sup> 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 18:** BY 2016 McCall Summer-Run Chinook PIT-tagged by raceway

McCall BY 2017 Summer-Run Chinook		
DATE	RWY	# OF FISH TAGGED
10/22/2018	Pond 1	14,823
10/23/2018	Pond 1	11,155
10/23/2018	Pond 2	7,674
10/24/2018	Pond 2	14,176
10/25/2018	Pond 2	4,142
<b>TOTAL FISH TAGGED:</b>		<b>51,970</b>

## Magic Valley Fish Hatchery



### Magic Valley Fish Hatchery Summer-Run Steelhead

The Idaho Anadromous Fish-Marking Crew processed BY 2018 summer-run steelhead at Magic Valley Fish Hatchery August 1<sup>st</sup> through August 10<sup>th</sup>. A total of 1,604,797 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 19:** Magic Valley Fish Hatchery Summer-Run Steelhead BY 2018 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 Magic Valley Fish Hatchery Summer-Run Steelhead									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
E1A	8/7/18	M3	AD ONLY		20,589	3,997	24,586		SAW A
E1A	8/8/18	M3	AD ONLY		6,373	1,079	7,452	64,076	SAW A
E1B	8/8/18	M3	AD ONLY		27,979	4,063	32,042	64,084	SAW A
E2A	8/8/18	M3	AD ONLY		28,029	3,980	32,009	64,018	SAW A
E2B	8/9/18	M3	AD ONLY		26,818	5,221	32,039	64,078	SAW A
E3A	8/8/18	M3	AD ONLY		13,042	3,252	16,294		SAW A
E3A	8/9/18	M3	AD ONLY		13,766	2,308	16,074	64,736	SAW A
E3B	8/9/18	M3	AD ONLY		23,094	5,320	28,414		DWOR B
E3B	8/10/18	M3	AD ONLY		3,311	341	3,652	64,132	DWOR B
E4A	8/10/18	M5	AD ONLY		25,537	6,898	32,435	64,870	DWOR B
E4B	8/9/18	M5	AD ONLY		26,772	5,228	32,000	64,000	DWOR B
E5A	8/9/18	M5	AD ONLY		3,286	1,748	5,034		DWOR B
E5A	8/10/18	M5	AD ONLY		24,575	3,121	27,696	65,460	DWOR B
E5B	8/9/18	M5	AD ONLY		25,959	6,050	32,009	64,018	DWOR B
E9A	8/10/18	M3	AD ONLY		28,954	3,093	32,047	64,094	DWOR B
E9B	8/10/18	M3	AD ONLY		27,926	4,286	32,212	64,424	DWOR B
E10A	8/3/18	M3	AD ONLY		12,245	3,094	15,339		PAH A
E10A	8/4/18	M3	AD ONLY		14,618	2,099	16,717	64,112	PAH A
E10B	8/4/18	M3	AD ONLY		1,925	3,212	5,137		PAH A
E10B	8/5/18	M3	AD ONLY		23,883	3,455	27,338	64,950	PAH A
E11A	8/4/18	M3	AD ONLY		26,675	5,329	32,004	64,008	PAH A
E11B	8/4/18	M3	AD ONLY		27,592	4,408	32,000	64,000	PAH A
E12A	8/5/18	M3	AD ONLY		16,105	4,203	20,308		PAH A
E12A	8/6/18	M3	AD ONLY		10,163	1,771	11,934	64,484	PAH A
E12B	8/5/18	M3	AD ONLY		26,381	5,619	32,000	64,000	PAH A
E13A	8/3/18	M5	CWT ONLY	10-04-23	9,077	2,486	11,563		DWOR B
E13A	8/4/18	M5	CWT ONLY	10-04-23	19522	1,062	20,584	64,294	DWOR B
E13B	8/4/18	M5	CWT ONLY	10-04-23	29,703	2,304	32,007	64,014	DWOR B
E14A	8/3/18	M5	CWT ONLY	10-04-23	28,186	3,814	32,000	64,000	DWOR B
E14B	8/2/18	M5	CWT ONLY	10-04-34	1,265	753	2,018		U SALMON B
E14B	8/3/18	M5	CWT ONLY	10-04-34	15,656	1,708	17,364		U SALMON B
E14B	8/3/18	M5	CWT ONLY	10-04-34	11,937	713	12,650	64,064	DWOR B
E15A	8/2/18	M5	CWT ONLY	10-04-34	23,748	1,092	24,840		U SALMON B
E15A	8/2/18	M5	CWT ONLY	10-04-34	6,380	974	7,354	64,388	U SALMON B
E15B	8/2/18	M5	CWT ONLY	10-04-34	28,890	3,117	32,007	64,014	U SALMON B

Table 19: 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
E16A	8/1/18	M5	CWT ONLY	10-04-34	18,781	1,384	20,165		U SALMON B
E16A	8/1/18	M5	CWT ONLY	10-04-34	10,942	928	11,870	64,070	U SALMON B
E16B	8/2/18	M5	CWT ONLY	10-04-34	20,875	3,553	24,428		U SALMON B
E16B	8/2/18	M5	CWT ONLY	10-04-34	7,139	489	7,628	64,112	U SALMON B
W1A	8/7/18	M3	AD ONLY		28114	3890	32,004	64,008	SAW A
W1B	8/6/18	M3	AD ONLY		21880	5695	27,575		SAW A
W1B	8/7/18	M3	AD ONLY		3,715	761	4,476	64,102	SAW A
W2A	8/7/18	M3	AD ONLY		28,566	3,479	32,045	64,090	SAW A
W2B	8/6/18	M3	AD ONLY		25,797	6,203	32,000	64,000	SAW A
W3A	8/1/18	M3	AD ONLY		24,261	7,739	32,000	64,000	DWOR B
W3B	8/1/18	M3	AD ONLY		22,347	7,341	29,688		DWOR B
W3B	8/2/18	M3	AD ONLY		2,084	312	2,396	64,168	DWOR B
W4A	8/2/18	M3	AD ONLY		28,061	4,571	32,632	65,264	DWOR B
W4B	8/3/18	M3	AD ONLY		25,229	6,774	32,003	64,006	DWOR B
W5A	8/2/18	M3	AD ONLY		25,333	6,667	32,000	64,000	DWOR B
W5B	8/2/18	M3	AD ONLY		13,505	3,812	17,317		DWOR B
W5B	8/3/18	M3	AD ONLY		12,435	2,260	14,695	64,024	DWOR B
W9A	8/8/18	M5	AD ONLY		21,510	6,963	28,473		DWOR B
W9A	8/9/18	M5	AD ONLY		3,212	360	3,572	64,090	DWOR B
W9B	8/9/18	M5	AD ONLY		28,844	3,398	32,242	64,484	DWOR B
W10A	8/7/18	M5	AD ONLY		19,323	8,350	27,673		DWOR B
W10A	8/8/18	M5	AD ONLY		4,011	386	4,397	64,140	DWOR B
W10B	8/8/18	M5	AD ONLY		28,695	3,523	32,218	64,436	DWOR B
W11A	8/7/18	M5	AD ONLY		28,110	3,890	32,000	64,000	DWOR B
W11B	8/8/18	M5	AD ONLY		24,936	7,064	32,000	64,000	DWOR B
W12A	8/7/18	M5	CWT ONLY	10-04-13	2,094	1,592	3,686		DWOR B
W12A	8/6/18	M5	CWT ONLY	10-04-13	27,188	1,176	28,364	64,100	DWOR B
W12B	8/7/18	M5	AD ONLY		29,156	2,876	32,032	64,064	DWOR B
W13A	8/6/18	M5	CWT ONLY	10-04-13	19,127	1,002	20,129		DWOR B
W13A	8/6/18	M5	CWT ONLY	10-04-12	10,081	1,798	11,879	64,016	DWOR B
W13B	8/6/18	M5	CWT ONLY	10-04-12	29,143	2,865	32,008	64,016	DWOR B
W14A	8/4/18	M5	CWT ONLY	10-04-16	7,697	1,287	8,984		DWOR B
W14A	8/5/18	M5	CWT ONLY	10-04-16	18,249	662	18,911		DWOR B
W14A	8/5/18	M5	CWT ONLY	10-04-14	3,743	405	4,148	64,086	DWOR B
W14B	8/5/18	M5	CWT ONLY	10-04-14	29,761	2,239	32,000	64,000	DWOR B
W15A	8/4/18	M5	CWT ONLY	10-04-16	28,780	3,220	32,000	64,000	DWOR B
W15B	8/5/18	M5	CWT ONLY	10-04-14	22,193	2,959	25,152		DWOR B
W15B	8/5/18	M5	CWT ONLY	10-04-13	5,985	863	6,848	32,000	DWOR 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

<b>TAG CODE TOTALS</b>				
<b>TAG CODE</b>	<b>TAG CODE SIZE</b>	<b># TAGGED</b>	<b>MARK SUMMARY</b>	
10-04-23	90K	96,154	TOTAL AD/CWT	0
10-04-34	150K	160,324	TOTAL CWT ONLY	480,587
10-04-13	55K	59,027	TOTAL AD ONLY	1,124,210
10-04-12	55K	43,887	<b>TOTAL MARKED</b>	<b>1,604,797</b>
10-04-16	55K	59,895		
10-04-14	55K	61,300		

<b>CWT RETENTION</b>					
<b>RACEWAY</b>	<b># CHECKED</b>	<b># TAGGED</b>	<b>% SUCCESSFUL</b>	<b># MARKED</b>	<b># SUCCESSFUL</b>
E13A, E13B, E14A	300	297	99.00%	96,154	95,192
W14A, W14B, W15	300	295	98.33%	61,300	60,278
W14A, W15A	200	199	99.50%	59,895	59,596
E15A, E15B, E16A	506	490	96.84%	160,324	155,254
W12A, W13A,	300	295	98.33%	59,027	58,043
W13A, W13B	200	198	99.00%	43,887	43,448
<b>MAX. RETENTION</b>		<b>99.50%</b>	<b>TOTAL</b>	<b>480,587</b>	<b>471,812</b>
<b>MIN. RETENTION</b>		<b>96.84%</b>	<b>AVERAGE RETENTION</b>		<b>98.17%</b>

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

A total of 34,823 BY 2018 summer-run steelhead were PIT-tagged at Magic Valley Fish November 8<sup>st</sup> through November 9<sup>th</sup> 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 20:** BY 2018 Magic Valley Summer-Run Steelhead PIT-tagged by raceway

<b>Magic Valley BY 2018 Summer-Run Steelhead</b>		
<b>DATE</b>	<b>RWY</b>	<b># OF FISH TAGGED</b>
11/8/2018	E1A	1,899
11/8/2018	E2B	1,897
11/8/2018	E5B	2,228
11/8/2018	E11A	2,202
11/8/2018	E13A	2,099
11/8/2018	E13B	2,098
11/8/2018	E15A	3,599
11/8/2018	E16B	3,602
11/9/2018	W2B	1,901
11/9/2018	W3B	2,199
11/9/2018	W4A	2,200
11/9/2018	W9A	1,998
11/9/2018	W10B	2,198
11/9/2018	W12A	2,302
11/9/2018	W13A	2,401
<b>TOTAL FISH TAGGED:</b>		<b>34,823</b>

## Hagerman National Fish Hatchery



Photo Credit: Hagerman National Fish Hatchery, USFWS

### Hagerman National Fish Hatchery Summer-Run Steelhead

The Idaho Anadromous Fish-Marking Crew processed BY 2018 summer-run steelhead at Hagerman National Fish Hatchery from August 29<sup>th</sup> through September 5<sup>th</sup>. A total of 1,586,527 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 21:** Hagerman National Fish Hatchery Summer-Run Steelhead BY 2018 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

<b>Raceway Totals and Mark Totals at Hagerman National Fish Hatchery Summer-Run Steelhead</b>									
<b>RWY</b>	<b>DATE</b>	<b>TRAILER</b>	<b>MARK TYPE</b>	<b>TAG CODE</b>	<b>MATS</b>	<b>MANUAL</b>	<b>MARK TOTAL</b>	<b>RWY TOTAL</b>	<b>STOCK</b>
circular tank 1	8/29/18	M1	AD/CWT	10-04-20	26,008	4,974	30,982	30,982	SAW A
circular tank 2	8/29/18	M1	AD/CWT	10-04-20	10,986	2,701	13,687		SAW A
circular tank 2	8/30/18	M1	AD/CWT	10-04-20	15,904	4,073	19,977	33,664	SAW A
circular tank 3	8/30/18	M1	AD/CWT	10-04-20	27,516	3,749	31,265	31,265	SAW A
37	9/4/18	M5	AD ONLY		0	1,300	1,300		SAW A
37	9/5/18	M5	AD ONLY		21,679	5,029	26,708	28,008	SAW A
38	9/5/18	M5	AD ONLY		22,700	5,300	28,000	28,000	SAW A
39	9/5/18	M5	AD ONLY		11,722	3,300	15,022		SAW A
39	9/5/18	M4	AD ONLY		10,345	2,656	13,001	28,023	SAW A
40	9/5/18	M4	AD ONLY		22,192	6,702	28,894	28,894	SAW A
41	9/4/18	M4	AD ONLY		8,361	3,765	12,126		SAW A
41	9/5/18	M4	AD ONLY		11,033	3,905	14,938		SAW A
41	9/5/18	M4	AD ONLY		854	146	1,000	28,064	SAW A
42	9/4/18	M4	AD ONLY		19,729	7,317	27,046		SAW A
42	9/5/18	M5	AD ONLY		852	217	1,069	28,115	SAW A
43	9/4/18	M4	AD ONLY		23,056	4,011	27,067		SAW A
43	9/5/18	M4	AD ONLY		811	199	1,010	28,077	SAW A
44	8/31/18	M4	AD ONLY		24,068	2,969	27,037		SAW A
44	9/5/18	M5	AD ONLY		806	200	1,006	56,086	SAW A
45	8/31/18	M4	AD ONLY		20,436	6,565	27,001		SAW A
45	9/5/18	M4	AD ONLY		709	296	1,005	56,012	SAW A
46	8/31/18	M4	AD ONLY		11,572	4,504	16,076		SAW A
46	9/1/18	M4	AD ONLY		9,745	1,218	10,963		SAW A
46	9/5/18	M5	AD ONLY		803	200	1,003	56,084	SAW A
47	9/1/18	M4	AD ONLY		22,405	4,618	27,023		SAW A
47	9/5/18	M4	AD ONLY		125	927	1,052	56,150	SAW A
48	9/1/18	M4	AD ONLY		21,280	5,720	27,000		SAW A
48	9/5/18	M5	AD ONLY		800	200	1,000	56,000	SAW A
49	9/1/18	M4	AD ONLY		5,871	4,120	9,991		SAW A
49	9/2/18	M4	AD ONLY		15,307	1,789	17,096	54,174	SAW A
50	9/2/18	M4	AD ONLY		22,300	4,700	27,000		SAW A
50	9/5/18	M5	AD ONLY		630	371	1,001	56,002	SAW A
51	9/2/18	M4	AD ONLY		21,970	5,032	27,002		SAW A
51	9/5/18	M5	AD ONLY		0	276	276	54,556	SAW A
52	9/2/18	M4	AD ONLY		9,890	4,653	14,543		SAW A

Table 21: 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
52	9/3/18	M4	AD ONLY		11,051	1,447	12,498	54,082	SAW A
53	9/3/18	M4	AD ONLY		22,963	4,089	27,052	54,104	SAW A
54	9/3/18	M4	AD ONLY		22,412	4,588	27,000	54,000	SAW A
55	9/3/18	M4	AD ONLY		10,280	5,446	15,726		SAW A
55	9/4/18	M4	AD ONLY		10188	1225	11,413	54,278	SAW A
59	8/29/18	M5	AD/CWT	10-04-21	25975	1370	27,345	54,690	SAW A
60	8/30/18	M5	AD/CWT	10-04-22	9,102	3,770	12,872		SAW A
60	8/31/18	M5	AD/CWT	10-04-22	10,247	915	11,162	48,068	SAW A
61	8/29/18	M5	AD/CWT	10-04-21	21013	4523	25,536		SAW A
61	8/30/18	M5	AD/CWT	10-04-21	1416	53	1,469	54,010	SAW A
62	8/31/18	M5	AD/CWT	10-04-22	22,555	1,496	24,051	48,102	SAW A
63	8/31/18	M5	AD/CWT	10-04-22	22,160	1,918	24,078	48,156	SAW A
64	8/30/18	M5	AD/CWT	10-04-21	23438	3667	27,105	54,210	SAW A
65	8/31/18	M5	AD/CWT	10-04-22	9,196	3,099	12,295		SAW A
65	9/1/18	M5	AD/CWT	10-04-22	11,034	683	11,717	48,024	SAW A
66	9/1/18	M5	AD ONLY		21,070	5,935	27,005	54,010	SAW A
67	9/1/18	M5	AD ONLY		24,215	2,789	27,004	54,008	SAW A
68	9/1/2018	M5	AD ONLY		8,410	3,783	12,193		SAW A
68	9/2/2018	M5	AD ONLY		12,197	2,623	14,820	27,013	SAW A
69	9/2/2018	M5	AD ONLY		20,867	6,140	27,007	27,007	SAW A
70	9/2/2018	M5	AD ONLY		23,159	3,841	27,000	27,000	SAW A
71	9/2/2018	M5	AD ONLY		17,731	4,543	22,274		SAW A
71	9/3/2018	M5	AD ONLY		4,038	688	4,726	27,000	SAW A
72	9/3/2018	M5	AD ONLY		22,605	4,449	27,054	27,054	SAW A
73	9/3/2018	M5	AD ONLY		22,269	4,732	27,001	27,001	SAW A
74	9/3/2018	M5	AD ONLY		23,340	3,689	27,029	27,029	SAW A
75	9/3/2018	M5	AD ONLY		818	1,399	2,217		SAW A
75	9/4/2018	M5	AD ONLY		21,373	3,863	25,236	27,453	SAW A
76	9/4/2018	M5	AD ONLY		21,305	5,717	27,022	27,022	SAW A
77	9/4/2018	M5	AD ONLY		22,384	4,616	27,000	27,000	SAW A
81	9/4/2018	M2	CWT ONLY	10-04-17	12,124	1,318	13,442	13,442	E F SALMON
82	9/4/2018	M2	CWT ONLY	10-04-17	16,114	2,563	18,677	18,677	E F SALMON
83	8/29/2018	M2	AD ONLY		22,966	4,059	27,025	27,025	SAW A
84	8/29/2018	M2	AD ONLY		23,279	3,721	27,000	27,000	SAW A
85	8/29/2018	M2	AD ONLY		7,670	5,931	13,601		SAW A
85	8/30/2018	M2	AD ONLY		11,293	2,173	13,466	27,067	SAW A
86	8/30/2018	M2	AD ONLY		22,513	4,487	27,000	27,000	SAW A
87	8/30/2018	M2	AD ONLY		15,630	5,913	21,543		SAW A
87	8/31/2018	M2	AD ONLY		4,358	1,120	5,478	27,021	SAW A

Table 21: 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
88	8/31/2018	M2	AD ONLY		21,749	5,251	27,000	27,000	SAW A
89	8/31/2018	M2	AD ONLY		22,091	4,909	27,000	27,000	SAW A
90	8/31/2018	M2	AD ONLY		4,500	4,932	9,432		SAW A
90	9/1/2018	M2	AD ONLY		15,069	2,601	17,670	27,102	SAW A
91	9/1/2018	M2	AD ONLY		22,559	4,441	27,000	27,000	SAW A
92	9/1/2018	M2	AD ONLY		20,440	6,560	27,000	27,000	SAW A
93	9/1/2018	M2	AD ONLY		3,713	2,642	6,355		SAW A
93	9/2/2018	M2	AD ONLY		17,115	3,530	20,645	27,000	SAW A
94	9/2/2018	M2	AD ONLY		22,094	4,914	27,008	27,008	SAW A
95	9/2/2018	M2	AD ONLY		22,824	4,201	27,025	27,025	SAW A
96	9/2/2018	M2	AD ONLY		8,756	4,274	13,030		SAW A
96	9/3/2018	M2	AD ONLY		11,459	2,570	14,029	27,059	SAW A
97	9/3/2018	M2	AD ONLY		21,688	5,312	27,000	27,000	SAW A
98	9/3/18	M2	AD ONLY		21,472	5,528	27,000	27,000	SAW A
99	9/3/18	M2	AD ONLY		2,321	3,434	5,755		SAW A
99	9/3/18	M2	AD ONLY		18,372	2,882	21,254	27,009	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			MARK SUMMARY	
TAG CODE	TAG CODE SIZE	# TAGGED		
10-04-20	90K	66,229	TOTAL AD/CWT	243,519
10-04-21	90K	50,687	TOTAL CWT ONLY	45,702
10-04-22	90K	126,603	TOTAL AD ONLY	1,297,306
10-04-17	60K	45,702	<b>TOTAL MARKED</b>	<b>1,586,527</b>

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	# SUCCESSFUL
Circ 1, 2, 3	908	900	99.12%	95,911	95,066
59, 61, 64	901	884	98.11%	81,455	79,918
60, 62, 63, 65	1,181	1,158	98.05%	96,175	94,302
81, 82	393	387	98.47%	32,119	31,629
<b>MAX. RETENTION</b>			<b>99.12%</b>	<b>305,660</b>	<b>300,915</b>
<b>MIN. RETENTION</b>			<b>98.05%</b>	<b>AVERAGE</b>	<b>98.44%</b>

**Supplemental Tables continued:**

<b>Adipose Fin-clip Rate</b>				
<b>RWY</b>	<b># SAMPLED</b>	<b>NO CLIP</b>	<b># GOOD</b>	<b>% SUCCESSFUL</b>
Circ 1, 2, 3	908	5	903	99.45%
59, 61, 64	901	13	888	98.56%
60, 62, 63, 65	1,181	9	1,172	99.24%
81, 82	393	0	393	100.00%
			<b>AVERAGE</b>	<b>99.31%</b>

A total of 38,591 BY 2018 summer-run steelhead were PIT-tagged at Hagerman National Fish Hatchery November 12<sup>th</sup> through November 14<sup>th</sup> 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 22:** BY 2017 Hagerman National Summer-Run Steelhead PIT-tagged by raceway

<b>Hagerman BY 2018 Summer-Run Steelhead</b>		
<b>DATE</b>	<b>RWY</b>	<b># OF FISH TAGGED</b>
11/12/2018	Circ 3	2,899
11/12/2018	Circ 2	2,899
11/12/2018	Circ 1	2,901
11/12/2018	39	1,498
11/13/2018	53	1,500
11/13/2018	59	1,200
11/13/2018	60	2,098
11/13/2018	61	1,400
11/13/2018	62	2,195
11/13/2018	63	2,198
11/13/2018	64	1,400
11/13/2018	65	2,200
11/13/2018	69	1,400
11/13/2018	76	1,501
11/14/2018	81	4,299
11/14/2018	82	4,301
11/14/2018	87	1,500
11/14/2018	94	1,202
<b>TOTAL FISH TAGGED:</b>		<b>38,591</b>

## Niagara Springs Fish Hatchery



### Niagara Springs Fish Hatchery Summer-Run Steelhead

The Idaho Anadromous Fish-Marking Crew processed BY 2018 summer-run steelhead at Niagara Springs Fish Hatchery July 27<sup>th</sup> through August 1<sup>st</sup>. 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 23:** Niagara Springs Fish Hatchery Summer-Run Steelhead BY 2018 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

<b>Raceway Totals and Mark Totals at Niagara Springs Fish Hatchery Summer-Run Steelhead</b>									
<b>RWY</b>	<b>DATE</b>	<b>TRAILER</b>	<b>MARK TYPE</b>	<b>TAG CODE</b>	<b>MATS</b>	<b>MANUAL</b>	<b>MARK TOTAL</b>	<b>RWY TOTAL</b>	<b>STOCK</b>
1	8/16/18	M4	AD ONLY		30,162	8,671	38,833		OXBOW
1	8/16/18	M4	AD ONLY		28,240	8,192	36,432		OXBOW
1	8/17/18	M4	AD ONLY		24,431	3,305	27,736	206,002	OXBOW
2	8/17/18	M4	AD ONLY		53,611	9,065	62,676		OXBOW
2	8/18/18	M4	AD ONLY		34,162	6,169	40,331	206,014	OXBOW
3	8/18/18	M4	AD ONLY		45,438	9,169	54,607		OXBOW
3	8/19/18	M4	AD ONLY		39,586	8,822	48,408	206,030	OXBOW
4	8/19/18	M4	AD ONLY		47,305	10,415	57,720		OXBOW
4	8/20/18	M4	AD ONLY		37,609	7,274	44,883	205,206	OXBOW
5	8/20/18	M4	AD ONLY		53,736	9,633	63,369		OXBOW
5	8/21/18	M4	AD ONLY		22,133	5,375	27,508		OXBOW
5	8/21/18	M4	AD ONLY		6,710	4,823	11,533		OXBOW
5	8/22/18	M4	AD ONLY		0	590	590	206,000	OXBOW
6 UPPER	8/17/18	M4	AD ONLY		38,232	9,869	48,101	96,202	OXBOW
6 LOWER	8/21/18	M4	AD ONLY		19,479	3,437	22,916		OXBOW
6 LOWER	8/21/18	M4	AD ONLY		22,454	4,630	27,084	100,000	OXBOW
7	8/17/18	M1	AD ONLY		17,024	4,833	21,857		OXBOW
7	8/18/18	M1	AD ONLY		16,994	2,081	19,075		OXBOW
7	8/18/18	M1	AD ONLY		31,175	7,908	39,083	160,030	OXBOW
8	8/18/18	M1	AD ONLY		28,377	6,786	35,163		OXBOW
8	8/19/18	M1	AD ONLY		40,324	4,576	44,900	160,126	OXBOW
9	8/16/18	M1	AD ONLY		36,195	11,471	47,666		PAH
9	8/19/18	M1	AD ONLY		39,697	8,354	48,051	191,434	OXBOW
10	8/16/18	M1	AD ONLY		20,084	3,994	24,078		PAH
10	8/17/18	M1	AD ONLY		10,155	2,173	12,328		PAH
10	8/20/18	M1	AD ONLY		14,337	2,221	16,558		PAH
10	8/20/18	M1	AD ONLY		24,470	2,590	27,060	160,048	PAH
11	8/21/18	M1	AD ONLY		9,717	1,912	11,629		PAH
11	8/22/18	M1	AD ONLY		16,868	2,681	19,549		PAH
11	8/22/18	M4	AD ONLY		3,006	1,534	4,540		PAH
11	8/22/18	M4	AD ONLY		3,034	3,234	6,268		PAH
11	8/22/18	M2	AD ONLY		3,582	1,807	5,389		PAH
11	8/22/18	M2	AD ONLY		2,320	826	3,146	101,042	PAH
12	8/20/18	M1	AD ONLY		85,790	16,095	101,885	203,770	PAH
13	8/21/18	M1	AD ONLY		83,087	15,468	98,555	197,110	PAH
14	8/21/18	M2	AD ONLY		43,486	8,575	52,061		PAH

**Table 23:** Continued

<b>Raceway Totals and Mark Totals at Niagara Springs Fish Hatchery Summer-Run Steelhead</b>									
<b>RWY</b>	<b>DATE</b>	<b>TRAILER</b>	<b>MARK TYPE</b>	<b>TAG CODE</b>	<b>MATS</b>	<b>MANUAL</b>	<b>MARK TOTAL</b>	<b>RWY TOTAL</b>	<b>STOCK</b>
14	8/21/18	M2	AD ONLY		41,579	8,360	49,939	204,000	PAH
15	8/20/18	M2	AD ONLY		19,411	3,001	22,412		PAH
15	8/20/18	M2	AD ONLY		58,372	14,433	72,805		PAH
15	8/21/18	M2	AD ONLY		3,058	2,474	5,532	201,498	PAH
16	8/19/18	M2	AD ONLY		56,936	14,140	71,076		PAH
16	8/20/18	M2	AD ONLY		24,893	5,555	30,448	203,048	PAH
17	8/18/18	M2	AD ONLY		32,328	7,177	39,505		PAH
17	8/19/18	M2	AD ONLY		40,587	7,961	48,548		PAH
17	8/21/18	M2	AD ONLY		11348	2600	13,948	204,002	PAH
18	8/17/18	M2	AD ONLY		27154	8164	35,318		PAH
18	8/18/18	M2	AD ONLY		41270	8124	49,394		PAH
18	8/18/18	M2	AD ONLY		13684	4863	18,547	206,518	PAH
19	8/16/18	M2	AD ONLY		35653	10551	46,204		PAH
19	8/17/18	M2	AD ONLY		39809	11577	51,386	195,180	PAH

**Supplemental Table:** # of fish by mark type.

<b>MARK SUMMARY</b>	
TOTAL AD/CWT	0
TOTAL CWT ONLY	0
TOTAL AD ONLY	1,806,630
<b>TOTAL MARKED</b>	<b>1,806,630</b>

\* 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 2<sup>nd</sup> through November 3<sup>rd</sup> 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 24:** BY 2018 Niagara Springs Summer-Run Steelhead PIT-tagged by raceway

<b>Niagara Springs BY 2018 Summer-Run Steelhead</b>		
<b>DATE</b>	<b>RWY</b>	<b># OF FISH TAGGED</b>
11/10/2018	18	2,996
11/10/2018	15	3,000
11/10/2018	13	3,002
11/10/2018	10	2,302
11/11/2018	7	2,798
11/11/2018	5	2,998
11/11/2018	3	2,591
11/11/2018	1	3,004
<b>TOTAL FISH TAGGED:</b>		<b>22,691</b>

## Springfield Fish Hatchery



### Springfield Fish Hatchery Summer-Run Sockeye

The Idaho Anadromous Fish-Marking Crew processed BY 2017 summer-run Sockeye at Springfield Fish Hatchery July 6<sup>th</sup> through July 11<sup>th</sup>. A total of 906,007 fish were adipose fin-clipped (Table 25). 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 25:** Springfield Fish Hatchery Summer-Run Sockeye BY 2017 Raceway Totals and Mark Totals by date, trailer, mark type, tag code, Mass Automated Tagging System (MATS) and manual numbers

<b>Raceway Totals and Mark Totals at Springfield Fish Hatchery Summer-Run Sockeye</b>									
<b>RWY</b>	<b>DATE</b>	<b>TRAILER</b>	<b>MARK TYPE</b>	<b>TAG CODE</b>	<b>MATS</b>	<b>MANUAL</b>	<b>MARK TOTAL</b>	<b>RWY TOTAL</b>	<b>STOCK</b>
2	7/6/18	M4	AD ONLY		11,821	5,696	17,517	17,517	REDFISH LK
3	7/6/18	M4	AD ONLY		20,742	6,842	27,584		REDFISH LK
3	7/7/18	M4	AD ONLY		16,581	3,659	20,240	47,824	REDFISH LK
4	7/7/18	M4	AD ONLY		14,203	1,952	16,155		REDFISH LK
4	7/7/18	M4	AD ONLY		30,439	6,725	37,164	53,319	REDFISH LK
5	7/8/18	M4	AD ONLY		31,862	7,162	39,024		REDFISH LK
5	7/8/18	M4	AD ONLY		5,688	1,785	7,473	46,497	REDFISH LK
6	7/8/18	M4	AD ONLY		23,448	5,931	29,379		REDFISH LK
6	7/9/18	M4	AD ONLY		7,587	1,910	9,497	38,876	REDFISH LK
7	7/9/18	M4	AD ONLY		23,984	3,709	27,693		REDFISH LK
7	7/9/18	M4	AD ONLY		19,186	4,709	23,895	51,588	REDFISH LK
8	7/9/18	M4	AD ONLY		22,743	3,747	26,490		REDFISH LK
8	7/10/18	M4	AD ONLY		12,234	2,020	14,254	40,744	REDFISH LK
9	7/9/18	M5	AD ONLY		15,445	5,677	21,122		REDFISH LK
9	7/10/18	M4	AD ONLY		15,865	3,031	18,896	40,018	REDFISH LK
10	7/6/18	M5	AD ONLY		18,307	6,356	24,663		REDFISH LK
10	7/6/18	M5	AD ONLY		8,868	5,195	14,063	38,726	REDFISH LK
11	7/6/18	M5	AD ONLY		4,871	2,055	6,926		REDFISH LK
11	7/7/18	M5	AD ONLY		24,044	10,825	34,869	41,795	REDFISH LK
12	7/7/18	M5	AD ONLY		27,431	11,631	39,062		REDFISH LK
12	7/8/18	M5	AD ONLY		7,632	2,553	10,185	49,247	REDFISH LK
13	7/8/18	M5	AD ONLY		25,160	5,546	30,706		REDFISH LK
13	7/8/18	M5	AD ONLY		6,954	4,844	11,798	42,504	REDFISH LK
14	7/8/18	M5	AD ONLY		18,157	3,982	22,139		REDFISH LK
14	7/9/18	M5	AD ONLY		21,248	4,735	25,983	48,122	REDFISH LK
15	7/9/18	M5	AD ONLY		263	3,378	3,641	3,641	REDFISH LK
16	7/9/18	M5	AD ONLY		0	3,646	3,646	3,646	REDFISH LK
17	7/9/18	M5	AD ONLY		0	3,423	3,423	3,423	REDFISH LK

**Supplemental Table: # of fish by mark type**

<b>MARK SUMMARY</b>	
TOTAL AD/CWT	0
TOTAL CWT ONLY	0
TOTAL AD ONLY	567,487
<b>TOTAL MARKED</b>	<b>567,487</b>

\* No Adipose Fin-Clip Rates were checked

A total of 49,987 BY 2017 summer-run Sockeye salmon were PIT-tagged at Springfield Fish Hatchery October 30<sup>th</sup> through November 1<sup>st</sup> using the four-station manual PIT-tagging trailer (Table 26). 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 26: BY 2017 Summer-Run Sockeye Salmon PIT-tagged by raceway**

<b>Springfield BY 2017 Summer-Run Sockeye</b>		
<b>DATE</b>	<b>RWY</b>	<b># OF FISH TAGGED</b>
10/30/2018	14	3,802
10/30/2018	13	3,799
10/30/2018	12	3,798
10/30/2018	11	3,799
10/30/2018	10	3,898
10/31/2018	9	3,904
10/31/2018	8	3,903
10/31/2018	7	3,899
10/31/2018	6	3,903
10/31/2018	5	3,895
11/1/2018	4	3,797
11/1/2018	3	3,791
11/1/2018	2	3,799
<b>TOTAL FISH TAGGED:</b>		<b>49,987</b>

## Springfield Fish Hatchery Spring-Run Chinook

The Idaho Anadromous Fish-Marking Crew processed BY 2017 spring-run Chinook at Springfield Fish Hatchery July 10<sup>th</sup> and 11<sup>th</sup>. A total of 108,528 fish were adipose fin-clipped and coded-wire tagged (Table 27). One AutoFish Trailers was used to process fish that received an adipose fin-clip and coded-wire tag. 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 27:** Springfield Fish Hatchery Spring-Run Chinook 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 Springfield Fish Hatchery Spring-Run Chinook									
RWY	DATE	TRAILER	MARK TYPE	TAG CODE	MATS	MANUAL	MARK TOTAL	RWY TOTAL	STOCK
20	7/10/18	M5	AD/CWT	10-04-10	20,747	1,898	22,645		SALMON R
20	7/10/18	M5	AD/CWT	10-04-10	26,083	4,347	30,430		SALMON R
20	7/10/18	M5	AD/CWT	10-80-82	551	1,626	2,177	55,252	SALMON R
21	7/11/18	M5	AD/CWT	10-04-11	47,032	6,244	53,276	53,276	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			MARK SUMMARY	
TAG CODE	TAG CODE SIZE	# TAGGED	TOTAL AD/CWT	
10-04-10	50K	53,075	TOTAL CWT ONLY	0
10-80-82	10K	2,177	TOTAL AD ONLY	0
10-04-11	50K	53,276	TOTAL MARKED	108,528

CWT RETENTION					
RACEWAY	# CHECKED	# TAGGED	% SUCCESSFUL	# MARKED	# SUCCESSFUL
20	150	150	100.00%	55,252	55,252
21	154	154	100.00%	53,276	53,276
<b>MAX. RETENTION</b>		<b>100.00%</b>	<b>TOTAL</b>	<b>108,528</b>	<b>108,528</b>
<b>MIN. RETENTION</b>		<b>100.00%</b>	<b>AVERAGE RETENTION</b>		<b>100.00%</b>

ADIPOSE FIN-CLIP RATE				
RWY	# SAMPLED	NO CLIP	# GOOD	% SUCCESSFUL
20	150	0	150	100.00%
21	154	0	154	100.00%
<b>AVERAGE</b>				<b>100.00%</b>

**Table 28:** BY 2017 Spring-Run Chinook Salmon PIT-tagged by raceway

<b>Springfield BY 2017 Spring-Run Chinook</b>		
<b>DATE</b>	<b>RWY</b>	<b># OF FISH TAGGED</b>
11/1/2018	20	4,197
<b>TOTAL FISH TAGGED:</b>		<b>4,197</b>

## Discussion

In 2018, all trailer transportation requiring a CDL was contracted out to Peters and Keatts Trucking LLC. Peters and Keatts Trucking was 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 trucking company was used to move trailers between the three southern Idaho steelhead facilities for marking and PIT-tagging rather than USFWS.

This year the program used five six-line AutoFish Trailers. This allows the marking crew more flexibility to meet all the hatcheries needs and deadlines. This is the second year the program has exclusively used 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. Electrical breakers were improved to alleviate the power outages with the breaker being tripped. Since this fix was implemented there have not been any electrical issues for trailers at Rapid River.

This was the first year Chinook were marked at the Springfield Fish Hatchery. If this continues CV's will need to improve for more efficient marking.

High water temperatures during the Chinook marking event at the Sawtooth Fish Hatchery required the crew to work irregular hours and commute from Challis due to the delayed marking event.

Hagerman National started using electric Matsusaka fish-transfer pumps for the first time in 2015. This process has since made handling fish easier for the hatchery staff and marking crews. The trailers were also parked in different locations in the 2018: the first and second trailers were placed 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.