

Central Valley Salmon and Steelhead Marking/Coded-wire Tagging Program

Fall-run Chinook Salmon
Spring-run Chinook Salmon
Steelhead

2023 Marking Season



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Abstract

The Central Valley Constant Fractional Marking/Tagging Program (CFM) was initiated in the spring of 2007 following the purchase of four automated fish tagging trailers (AutoFish Systems). Planning studies indicated that the optimal marking/tagging rate for the Central Valley CFM program was 25% of the fall-run Chinook salmon production releases. For each production release (fish released at the same time and location), the program therefore targeted marking with an adipose fin-clip and coded-wire tagging a representative 25% of each release of fall-run Chinook salmon from the Central Valley hatcheries in 2007 through 2023. The program was conducted at Coleman National Fish Hatchery, Feather River Fish Hatchery, Nimbus Fish Hatchery, and Mokelumne River Fish Hatchery in these years. We also assisted with the manual tagging operations at Merced River Fish Hatchery during the 2023 tagging season.

The AutoFish Trailers were also used in the 2011 through 2023 seasons to adipose fin-clip and coded-wire tag 100% of the spring-run Chinook salmon reared at both Feather River Fish Hatchery and at the San Joaquin Fish Hatchery in the 2023 season. For the 2023 season, we adipose fin-clipped and coded-wire tagged 100% of the spring-run Chinook salmon. We also adipose fin-clipped 100% of the steelhead reared at Coleman National Fish Hatchery, Feather River Fish Hatchery, Mokelumne River Fish Hatchery, Nimbus Fish Hatchery, and Warm Springs Fish Hatchery.

This report includes the marking/tagging activities conducted with the AutoFish Systems and manual marking trailers at the five Central Valley hatcheries in 2023 (Brood Year 2022 fall-run Chinook salmon, spring-run Chinook salmon, and steelhead). The program successfully processed 100% of the production releases of fall-run Chinook salmon through the automated and manual marking trailers, 34,013,218 fish. Of the fall-run Chinook salmon total, approximately 26.31% were coded-wire tagged and adipose fin-clipped (8,952,129 fish). In addition, the program marked and coded-wire tagged 100% of the spring-run Chinook salmon produced at the Feather River Fish Hatchery, and San Joaquin Fish Hatchery, a total of 2,533,161 fish. The program also adipose fin-clipped 100% of the steelhead produced at Coleman National Fish Hatchery, Feather River Fish Hatchery, Mokelumne River Fish Hatchery, Nimbus Fish Hatchery, and Warm Springs Fish Hatchery, a total of 1,984,790 fish. The Coleman National Fish Hatchery late-fall-run and winter-run Chinook salmon and steelhead marking/tagging numbers are included in a separate report.

Introduction

In most years, approximately 30 million fall-run Chinook salmon are produced at five hatcheries in California's Central Valley, including Coleman National Fish Hatchery, Feather River Fish Hatchery, Nimbus Fish Hatchery, Merced River Fish Hatchery, and Mokelumne River Fish Hatchery (Figure 1). Production from these hatcheries contributes to major sport and commercial fisheries in the ocean and river systems. Until 2007, only experimental releases of fall-run Chinook were externally marked and coded-wire tagged on a regular basis.

In 2004, the CALFED Ecosystem Restoration Program (ERP) funded a study to design a constant fractional marking/coded-wire tagging program for production releases of fall-run Chinook salmon from Central Valley hatcheries, with the goal of estimating in a statistically valid manner the relative contribution of hatchery

production. The study recommended the implementation of a system-wide marking/tagging program for production releases.

In 2006, the ERP Program provided the initial funding to begin implementation of the Central Valley Constant Fractional Marking (CFM) program. The initial contract provided funding to Pacific States Marine Fisheries Commission for the purchase of four automated tagging systems (AutoFish Systems) and the first two years of operating costs for marking/tagging production releases of fall-run Chinook salmon at the five major Central Valley hatcheries (in 2007 and 2008).

This program is a cooperative effort of the California Department of Fish and Wildlife, California Department of Water Resources, U.S. Fish and Wildlife Service, Pacific States Marine Fisheries Commission, U.S. Bureau of Reclamation, and East Bay Municipal Utility District. In 2009 through 2023, funding to conduct tagging operations was provided by the following entities: California Department of Water Resources and California Department of Fish and Wildlife; East Bay Municipal Utility District; and U.S. Bureau of Reclamation.

From 2002 to 2010, 100% of the spring-run Chinook salmon production at Feather River Hatchery was marked and coded-wire tagged using manual techniques. In 2011 through 2023, an AutoFish Trailer was used for the spring-run Chinook salmon marking/tagging. Funding was provided by the California Department of Water Resources.

The overall objectives of the fall and spring-run Chinook salmon tagging programs are:

1. To evaluate the contribution rates of hatchery fish to Central Valley Chinook salmon populations,
2. To evaluate the Central Valley propagation program's genetic and ecological effects on natural Chinook populations,
3. To estimate exploitation rates of hatchery and natural Central Valley Chinook salmon in ocean and inland fisheries,
4. To evaluate the success of restoration actions designed to increase natural production of Central Valley Chinook salmon,
5. To evaluate the relative impacts of water project operations on hatchery and naturally-produced Chinook salmon,
6. To evaluate the recovery of listed stocks of Chinook salmon.

All of the steelhead reared at Central Valley hatcheries were also marked using the AutoFish Trailers in 2023. Marking allows selective harvest of hatchery-reared steelhead in sport fisheries.

This report covers the seventeenth year of the CFM program's marking/tagging activities at four major Central Valley hatcheries in the spring/summer of 2023 (Brood Year 2022 fall-run Chinook salmon). Also included in this report is the manual tagging operations conducted at Merced River Fish Hatchery fall-run Chinook salmon. The report also includes the marking/tagging of Brood Year 2022 spring-run Chinook salmon reared at Feather River Fish Hatchery as well as San Joaquin Fish Hatchery, and marking of steelhead reared at Feather River Fish Hatchery, Mokelumne River Fish Hatchery, Nimbus Fish Hatchery, and Warm Springs Fish Hatchery. Coleman National Fish Hatchery steelhead, late-fall run and winter-run Chinook salmon are included in a separate report.

Methods

The coded-wire tag/adipose fin clip is the method agreed to by the Pacific Salmon Treaty (1999) to monitor Chinook salmon in ocean fisheries along the Pacific Coast. It is a cost-effective method to apply a long-term mark that gives data on hatchery origin and release group, and provides for external identification of tagged fish. The coded-wire tag/adipose fin-clip marking method has been used throughout the West Coast of North America since the 1970's. Currently, over 50 million Chinook and coho salmon are coded-wire tagged each year. This Central Valley program is an integral part of this Coast-wide tagging program; tagged fish are recovered in ocean fisheries throughout the West Coast.

Four state-of-the-art automated tagging trailers were purchased for the Central Valley program in late 2006 and early 2007 from Northwest Marine Technology. The trailers incorporated the latest advanced technology for marking and coded-wire tagging fish. The AutoFish System™ has the capacity to mark and implant coded-wire tags very rapidly without any use of anesthetic or human contact. These systems have been in use for many years in the Pacific Northwest, but the Central Valley trailers were the first to be purchased for use in California.

Planning studies indicated that the optimal marking/tagging rate for the Central Valley CFM program was 25% of the fall-run Chinook production releases. For each production release (fish released at the same time and location), the program therefore targeted marking/tagging a representative 25% from 2007 through 2023. Coded-wire tags for the 2023 season were ordered from Northwest Marine Technology in November 2022. Tags used in the program were all 1.1 mm standard length tags.

The program was operated at Coleman National Fish Hatchery, Feather River Fish Hatchery, Nimbus Fish Hatchery, and Mokelumne River Fish Hatchery (Figure 1). A manual tagging trailer was used for the fall-run Chinook salmon at Merced River Fish Hatchery.

The automated marking trailers have the ability to process fish that are a minimum length of 57 mm and a maximum length of 142 mm. With this in mind, timing of AutoFish Trailer operations at each facility is crucial to maximize efficiency and productivity while meeting hatchery release deadlines. Double shifts were typically used to maximize efficiency and output of the AutoFish Trailers. Trailers were moved as needed when fish at each hatchery reached the appropriate marking size. The fall-run Chinook salmon marking/tagging season began on March 8th at Coleman National Fish Hatchery and ended at Nimbus Fish Hatchery on June 7th. Marking/tagging of hatchery-produced fall-run Chinook salmon in 2023 therefore spanned a 15-week period. The spring-run Chinook salmon marking/tagging season began on February 21st at San Joaquin Fish Hatchery and was completed at Feather River Hatchery on March 17th for a total of four weeks. The Central Valley steelhead marking was conducted intermittently based on the number of fish that met the appropriate size protocols to process through the AutoFish Trailers, from the third week of May through the fourth week of July for a total of ten weeks.

Throughout the season, fin-clipping rate and tag retention studies were conducted for fall and spring-run Chinook salmon to determine actual marking/tagging rates for each coded-wire tag code. Except as otherwise noted below, approximately 800-900 marked/tagged fish per tag code were retained and held separately for a period of approximately 21 days following the completion of each tag code. At Coleman National Fish Hatchery and Mokelumne River Fish Hatchery, approximately 400 fish were held for retention purposes for each tag code. A lower number of fish were set aside at these facilities due to the larger number of tag codes. Study fish were sampled from throughout the tagging period for each tag code. Fish were electronically tested for tag retentions

and visually inspected for fin-clip quality at the end of the study period. During these quality checks, for a fish to be counted as successfully retaining a tag, 60% or more of the adipose fin must be removed and a coded-wire tag must be present. A partial clip resulted in 10-40% of the adipose fin still present but was not counted against the successful clipping rate. If more than 40% of the adipose fin was still intact, it was classified as unclipped and therefore counts against the successful tagging rate (i.e. it likely would not be checked for a CWT since the adipose fin is intact or mostly intact). In some instances, fish were held for less than the standard 21-day time period due to specific hatchery release strategies. For some smaller tag codes, tag retention studies were not feasible; for these tag groups, retention rates were extrapolated from larger groups tagged at the same hatchery during similar time periods.

Following the tagging season, coded-wire tag data was summarized for submission to [the Regional Mark Processing Center \(RMPC\)](http://www.rmpec.org), operated by the Pacific States Marine Fisheries Commission (<http://www.rmpec.org>). The RMPC provides regional coordination of salmon tagging and fin marking programs, and maintenance of coastwide databases for coded-wire tag releases, recoveries, and associated catch/sample information, in the Regional Mark Information System (RMIS).

Figure 2 summarizes the annual project work flow.

Results

Daily tagging rates, tag codes, and results of retention studies for the 2023 tagging season are shown in Appendix Tables 1 – 5 for each of the hatcheries. The technology allowed an accurate count of all production fish, and the marking/tagging of an exact percentage of those fish.

The program successfully processed 100% of the 2023 production releases of fall-run Chinook salmon from the Central Valley hatcheries (totaling 34,013,218 fish). The 25% target rate for marking/tagging was achieved for Brood Year 2022 (approximately 26.31% were CWT/ad-clipped, 8,952,129 fish). The AutoFish Trailers also marked and tagged 2,533,161 Brood Year 2022 spring-run Chinook salmon reared at the Feather River Fish Hatchery and San Joaquin Fish Hatchery.

The AutoFish Trailers marked 100% of the 1,984,790 steelhead reared at Coleman National Fish Hatchery, Feather River Fish Hatchery, Mokelumne River Fish Hatchery, Nimbus Fish Hatchery, and Warm Springs Fish Hatchery.

Tag retention studies for the fall-run Chinook salmon indicated very high rates of tag/mark retention. Retention rates ranged as follows:

- Coleman National Fish Hatchery: 97.78% - 100% with an average of 99.79%
- Feather River Fish Hatchery: 92.6% - 100% with an average of 98.84%
- Mokelumne River Fish Hatchery: 97.74% - 100% with an average of 99.11%
- Nimbus Fish Hatchery: 99.30% - 99.70% with an average of 99.48%
- Merced River Fish Hatchery: 97.00 – 99.79% with an average of 98.10%

Tag retention studies for the spring-run Chinook salmon also indicated high rates of tag/mark retention. Retention rates ranged as follows:

- Feather River Hatchery: 98.67% - 99.56% with an average of 99.19%
- San Joaquin Fish Hatchery: 99.00%-99.00% with an average of 99.00%

The steelhead from each facility are generally released during the winter months and clip quality will be checked just prior to release.

The numbers of fish included in this report were those processed and returned to the raceways during the tagging process. The actual numbers of fish released may differ. Please refer to the RMIS website, <http://www.rmhc.org>, for the number of fish that were successfully clipped, tagged, and then released.

Discussion

Similar to past tagging seasons, finding and retaining qualified technical personnel for program operations was extremely challenging for 2023 tagging season. After many months of having the job recruitments open and contacting every applicant that applied, we were only able to hire approximately half the number of crew members that were needed. At the northern four hatcheries, the program had five Trailer Operators and four Trailer Assistants employed at the start of the 2023 season. At Merced River Hatchery, three Trailer Assistants were employed for the duration of the project. Multiple crewmembers left prior to the end of the season for the Northern tagging crew but we were able to complete the marking/tagging with a short crew and some assistance from a couple of other programs.

This report includes all of the anadromous marking/tagging activities in the Central Valley with the exception of the Coleman National Fish Hatchery late-fall-run Chinook salmon and steelhead, and Coleman National Fish Hatchery and Livingston Stone National Fish Hatchery winter-run Chinook salmon. These groups of fish are included in separate annual reports.

Acknowledgements

The Constant Fractional Marking Program would not have existed or successfully completed its seventeenth year of tagging without significant contributions from a number of people and agencies. I would like to thank the following individuals for their support, dedication and cooperation in this program:

Management, administration, problem solving, and the existence of this program would not have been possible without Keri Miles and Jason Julienne, California Department of Fish and Wildlife (CDFW); Stan Allen and Amy Roberts, Pacific States Marine Fisheries Commission (PSMFC); John Hannon, Bureau of Reclamation (USBR), Michelle Workman East Bay Municipal Utility District (EBMUD); Kevin Niemela, U.S. Fish and Wildlife Service (USFWS) and Sabrina Bell, Eric See, and Jason Kindopp California Department of Water Resources (CDWR).

In particular, I want to thank the managers and staff working at the hatcheries where we conduct the marking/tagging program. Without your help, cooperation and support, this program would not be possible. Your willingness to work with us in adjusting the agendas and scheduling is critical in meeting the goals of all of the facilities. Bob Null (USFWS - Coleman National Fish Hatchery), Penny Booth-Crawshaw (CDFW - Feather River Fish Hatchery), Anna Kastner (CDFW - Feather River Fish Hatchery), Greg Ferguson (CDFW - Nimbus Fish Hatchery), Darrick Baker (CDFW- Mokelumne River Hatchery), William Smith (CDFW - Mokelumne River Fish Hatchery), Matt Bigelow (CDFW- San Joaquin Fish Hatchery), Darrick Muir (CDFW- Warm Springs

Fish Hatchery), Bryan Freele (CDFW- Warm Springs Fish Hatchery) and their very professional hatchery staff did a significant amount of work to accommodate the trailers at their hatcheries, and made us feel welcome while we were on-site. I look forward to continuing to work with you all.

I also want to thank Evan Baron, Chris Childers, Chris Townsend, and Steven Janssen (PSMFC) for their work both compiling data and conducting maintenance on the AutoFish Trailers to ensure that everything was operational. I also want to thank the rest of the professional and hardworking CFM crew that made this seventeenth season a great success. They each spent many long days away from home to accomplish the goals of this very demanding program. Trailer Operators included Evan Baron (PSMFC), Chris Childers (PSMFC), Kelsey Hicks (PSMFC), Steven Janssen (PSMFC), Lue Lo (PSMFC), Michaela Leyva (PSMFC), Francisco Vargas (PSMFC), Blaine Shively (PSMFC), Ingrid Roughton (PSMFC), and Chris Townsend (PSMFC). Tagging Trailer Assistants included seasonal PSMFC staff members Pamella Asnata (PSMFC), Jackson Evans (PSMFC), Tamara Grant (PSMFC), Alex Kumiski (PSMFC), and April Northern (PSMFC).

Schedule of Mark Events

- December 12th - January 10th Clipping/Tagging winter-run Chinook at Livingston Stone National Fish Hatchery
- January 30th – February 23rd Clipping/Tagging winter-run Chinook at Mount Lassen Trout Farm
- February 13th – March 17th Clipping/Tagging spring-run Chinook at Feather River Fish Hatchery
- February 21st – February 27th Clipping/Tagging spring-run Chinook at San Joaquin Fish Hatchery
- March 7th – April 3rd Clipping/Tagging winter-run Chinook at Coleman National Fish Hatchery
- March 8th - April 26th Clipping/Tagging fall-run Chinook at Coleman National Fish Hatchery
- March 13th – May 3rd Clipping/Tagging fall-run Chinook at Mokelumne River Fish Hatchery
- March 20th – May 17th Clipping/Tagging fall-run Chinook at Feather River Fish Hatchery
- April 3rd - May 17th Clipping/Tagging fall-run Chinook at Merced Fish Hatchery
- April 11th – June 7th Clipping/Tagging fall-run Chinook at Nimbus Fish Hatchery
- May 22nd - June 29th Clipping steelhead at Coleman National Fish Hatchery
- June 1st - June 29th Clipping/Tagging late-fall-run Chinook at Coleman National Fish Hatchery
- June 12th – July 12th Clipping steelhead at Nimbus Fish Hatchery
- June 26th - July 6th Clipping steelhead at Mokelumne River Fish Hatchery
- July 5th - July 10th Clipping steelhead at Feather River Fish Hatchery
- July 10th – July 27th Clipping Steelhead at Warm Springs Fish Hatchery

Figure 1. Hatchery Locations: Central Valley Constant Fractional Marking Program (2023)

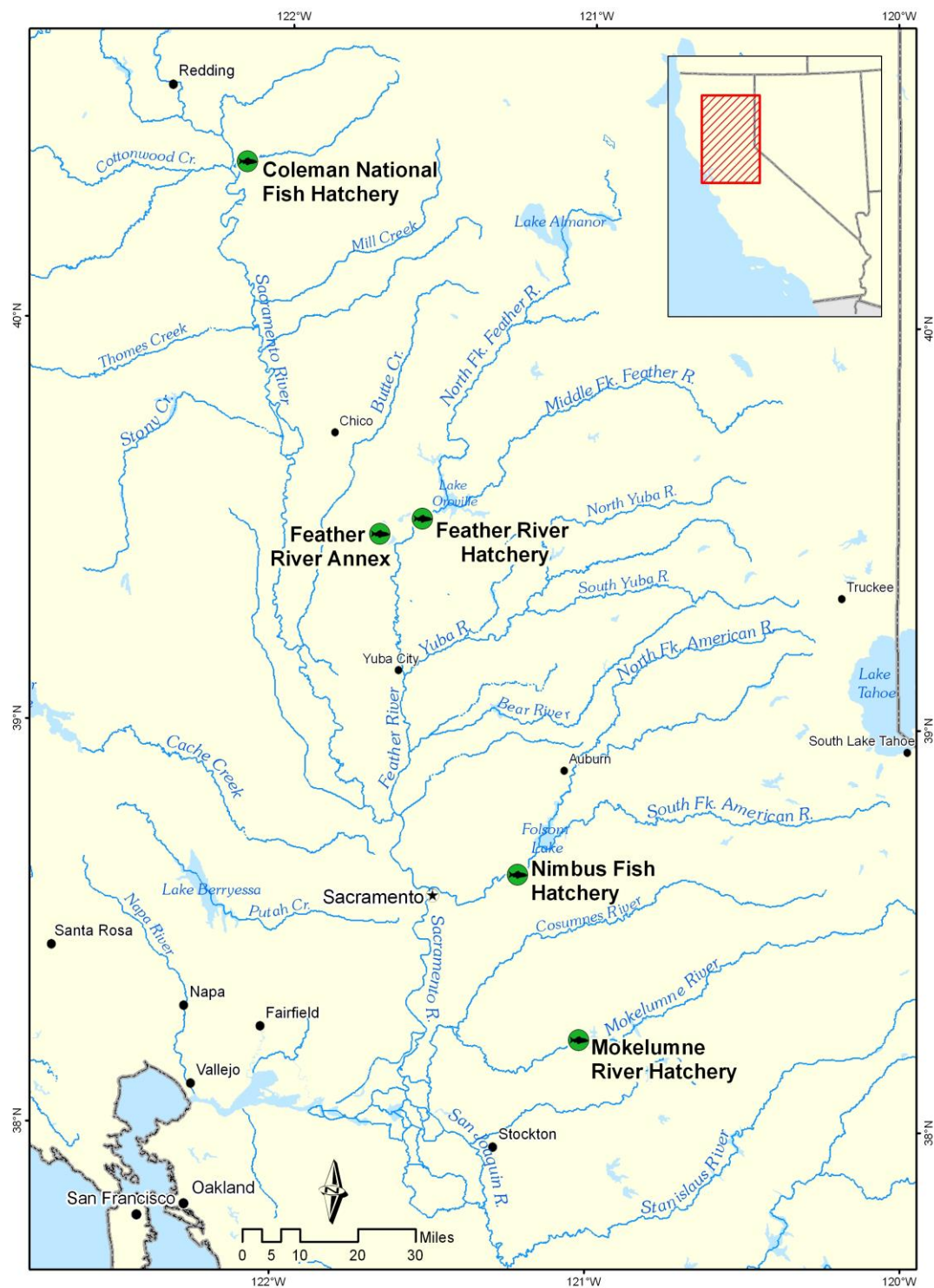
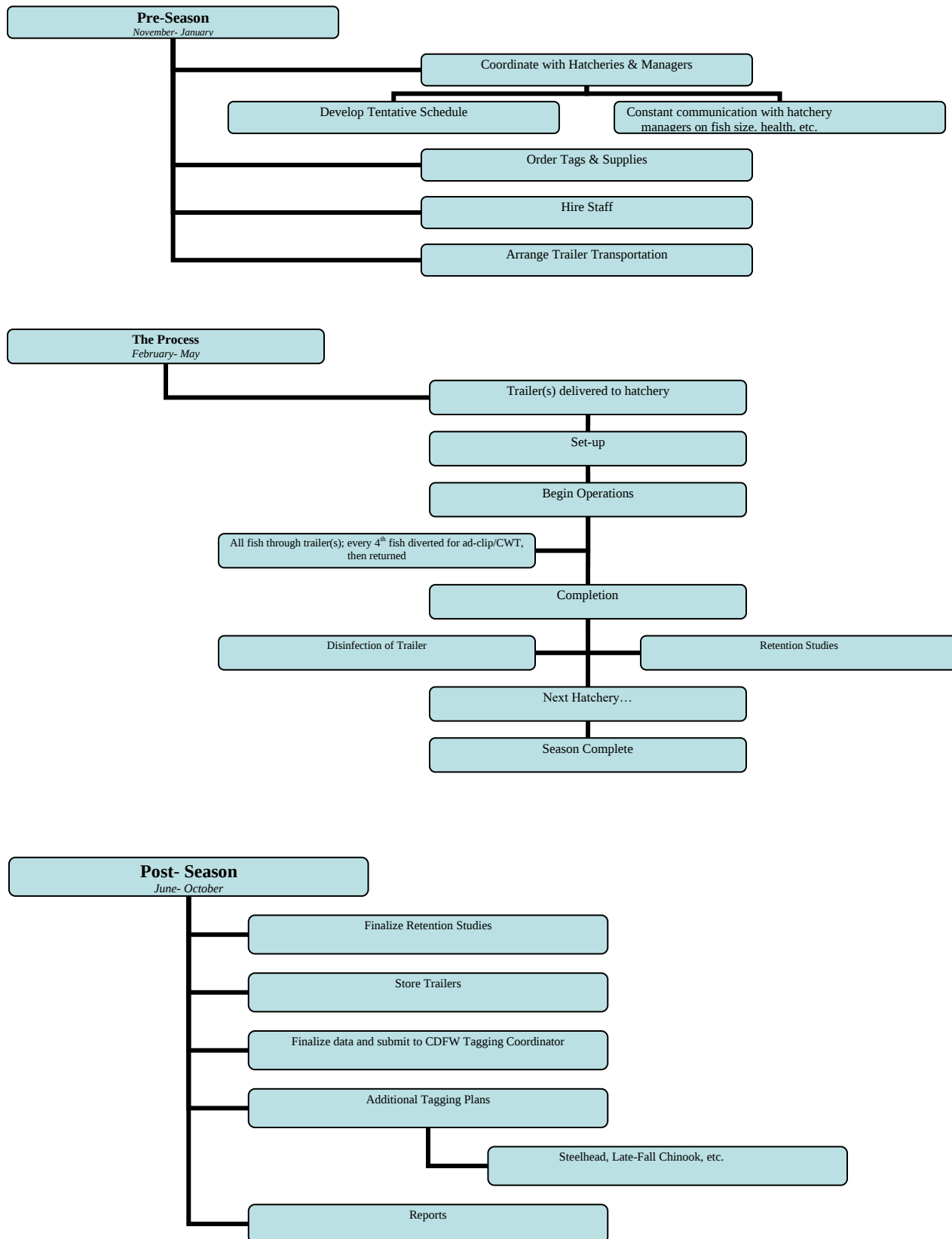


Figure 2. Constant Fractional Marking Program Annual Work Flow Summary



Appendix

Coleman National Fish Hatchery



Table 1a. Daily Tagging Rates at Coleman National Fish Hatchery

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/75			Size: 30K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/8/2023	30	31	21,602	21,602	64,845	64,845	86,447
Tag Code Totals			-	21,602	-	64,845	86,447

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/92			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/13/2023	1	1	25,762	-	77,361	-	103,123
3/13/2023	1	1	33,790	59,552	101,394	178,755	238,307
3/14/2023	1	1	32,315	91,867	96,987	275,742	367,609
3/14/2023	1	1	16,086	107,953	48,291	324,033	431,986
Tag Code Totals			-	107,953	-	324,033	431,986

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/93			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/20/2023	2	2	44,897	-	134,802	-	179,699
3/21/2023	2	2	40,542	85,439	121,902	256,704	342,143
3/21/2023	2	2	13,329	98,768	40,011	296,715	395,483
Tag Code Totals			-	98,768	-	296,715	395,483

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/96			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/20/2023	5	5	22,046	-	66,324	-	88,370
3/21/2023	5	5	42,965	65,011	128,961	195,285	260,296
3/22/2023	5	5	37,188	102,199	111,615	306,900	409,099
3/23/2023	5	5	13,269	115,468	39,846	346,746	462,214
Tag Code Totals			-	115,468	-	346,746	462,214

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/01			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/23/2023	9	9	10,273	-	30,828	-	41,101
3/24/2023	9	9	30,065	40,338	90,228	121,056	161,394
3/27/2023	9	9	37,727	78,065	113,259	234,315	312,380
3/28/2023	9	9	22,568	100,633	67,755	302,070	402,703
Tag Code Totals			-	100,633	-	302,070	402,703

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/07			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/4/2023	15	15	25,651	-	76,968	-	102,619
4/4/2023	15	15	39,619	65,270	118,920	195,888	261,158
4/4/2023	15	15	43,964	109,234	131,892	327,780	437,014
Tag Code Totals			-	109,234	-	327,780	437,014

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/09			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/10/2023	17	17	27,255	-	81,798	-	109,053
4/11/2023	17	17	40,401	67,656	121,203	203,001	270,657
4/12/2023	17	17	39,992	107,648	119,976	322,977	430,625
4/13/2023	17	17	7,732	115,380	23,196	346,173	461,553
Tag Code Totals			-	115,380	-	346,173	461,553

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/15			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/10/2023	23	23	15,837	-	47,595	-	63,432
4/11/2023	23	23	32,515	48,352	97,617	145,212	193,564
4/12/2023	23	23	34,801	83,153	104,475	249,687	332,840
4/13/2023	23	23	22,013	105,166	66,135	315,822	420,988
Tag Code Totals			-	105,166	-	315,822	420,988

Hatchery staff inventoried fish and 25% of them were marked/tagged in raceway's 3-4, 6-8,10-14, 16, 18-22, 24-28

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/94			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/21/2023	3	3	22,913	-	-	-	271,863
3/22/2023	3	3	61,083	83,996	-	-	332,946
Tag Code Totals			-	83,996	-	248,950	332,946

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/95			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/22/2023	4	4	44,819	-	-	-	323,186
3/23/2023	4	4	48,450	93,269	-	-	371,636
Tag Code Totals			-	93,269	-	278,367	371,636

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/98			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/23/2023	7	7	30,936	-	-	-	326,590
3/24/2023	7	7	41,178	72,114	-	-	367,768
3/24/2023	7	7	26,870	98,984	-	-	394,638
Tag Code Totals			-	98,984	-	295,654	394,638

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/99			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/27/2023	8	8	32,242	-	-	-	370,193
3/27/2023	8	8	69,017	101,259	-	-	439,210
3/28/2023	8	8	11,523	112,782	-	-	450,733
Tag Code Totals			-	112,782	-	337,951	450,733

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/97			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/28/2023	6	6	37,344	-	-	-	347,243
3/28/2023	6	6	61,958	99,302	-	-	409,201
3/29/2023	6	6	7,818	107,120	-	-	417,019
Tag Code Totals			-	107,120	-	309,899	417,019

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/02			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/29/2023	10	10	28,169	-	-	-	353,635
3/29/2023	10	10	66,062	94,231	-	-	419,697
3/30/2023	10	10	18,742	112,973	-	-	438,439
Tag Code Totals			-	112,973	-	325,466	438,439

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/03			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/30/2023	11	11	34,643	-	-	-	288,185
3/30/2023	11	11	53,009	87,652	-	-	341,194
Tag Code Totals			-	87,652	-	253,542	341,194

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/04			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/29/2023	12	12	43,464	-	-	-	381,055
3/30/2023	12	12	60,872	104,336	-	-	441,927
3/31/2023	12	12	12,590	116,926	-	-	454,517
Tag Code Totals			-	116,926	-	337,591	454,517

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/05			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/31/2023	13	13	49,993	-	-	-	292,115
3/31/2023	13	13	33,690	83,683	-	-	325,805
Tag Code Totals			-	83,683	-	242,122	325,805

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/06			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/3/2023	14	14	24,134	-	-	-	359,338
4/3/2023	14	14	64,729	88,863	-	-	424,067
4/4/2023	14	14	27,313	116,176	-	-	451,380
Tag Code Totals			-	116,176	-	335,204	451,380

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/10			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/4/2023	18	18	52,660	-	-	-	382,517
4/5/2023	18	18	58,163	110,823	-	-	440,680
Tag Code Totals			-	110,823	-	329,857	440,680

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/11			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/5/2023	19	19	45,845	-	-	-	378,080
4/6/2023	19	19	57,128	102,973	-	-	435,208
4/6/2023	19	19	14,420	117,393	-	-	449,628
Tag Code Totals			-	117,393	-	332,235	449,628

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/08			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/6/2023	16	16	59,161	-	-	-	375,922
4/6/2023	16	16	51,981	111,142	-	-	427,903
Tag Code Totals			-	111,142	-	316,761	427,903

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/16			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/13/2023	24	24	15,679	-	-	-	291,254
4/14/2023	24	24	37,776	53,455	-	-	329,030
4/14/2023	24	24	42,830	96,285	-	-	371,860
Tag Code Totals			-	96,285	-	275,575	371,860

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/12			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/17/2023	20	20	26,111	-	-	-	320,129
4/17/2023	20	20	52,715	78,826	-	-	372,844
4/18/2023	20	20	25,240	104,066	-	-	398,084
Tag Code Totals			-	104,066	-	294,018	398,084

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/17			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/17/2023	25	25	26,234	-	-	-	342,891
4/18/2023	25	25	54,714	80,948	-	-	397,605
4/19/2023	25	25	28,863	109,811	-	-	426,468
Tag Code Totals			-	109,811	-	316,657	426,468

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/13			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/18/2023	21	21	19,539	-	-	-	288,888
4/18/2023	21	21	36,175	55,714	-	-	325,063
4/19/2023	21	21	40,278	95,992	-	-	365,341
Tag Code Totals			-	95,992	-	269,349	365,341

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/18			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/19/2023	26	26	17,166	-	-	-	321,264
4/20/2023	26	26	68,352	85,518	-	-	389,616
4/20/2023	26	26	20,970	106,488	-	-	410,586
Tag Code Totals			-	106,488	-	304,098	410,586

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/14			Size: 108K			Trailer # CA1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/19/2023	22	22	56,179	-	-	-	383,710
4/20/2023	22	22	58,713	114,892	-	-	442,423
Tag Code Totals			-	114,892	-	327,531	442,423

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/19			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/21/2023	27	27	20,776	-	-	-	244,819
4/24/2023	27	27	30,242	51,018	-	-	275,061
4/25/2023	27	27	26,971	77,989	-	-	302,032
Tag Code Totals			-	77,989	-	224,043	302,032

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/67/20			Size: 108K			Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/25/2023	28	28	34,661	-	-	-	269,919
4/26/2023	28	28	47,711	82,372	-	-	317,630
Tag Code Totals			-	82,372	-	235,258	317,630

	Tagged	Untagged	Total
Hatchery Totals	2,915,018	8,514,312	11,429,330

Retention Range: 97.78%-100%

Retention Average: 99.79%

Table 1b. Summary of Hatchery Tag Codes and Tag Retention Study

Coleman National Fish Hatchery - Fall Run Chinook										
Tag Code Size and Location			Tag Code Totals			Retention Calculations				
Tag Code	Size	Raceway	Total Tagged	Number Untagged	Total Processed	# of Fish Held	Days Held	% Retention	# Retaining Tags	Calculated Untagged
05/66/75	30K	31	21,602	64,845	86,447	402	21	100.00%	21,602	64,845
05/66/92	108K	1	107,953	324,033	431,986	395	21	98.99%	106,860	325,126
05/66/93	108K	2	98,768	296,715	395,483	381	21	99.74%	98,509	296,974
05/66/94	108K	3	83,996	248,950	332,946	393	21	99.75%	83,782	249,164
05/66/95	108K	4	93,269	278,367	371,636	395	21	100.00%	93,269	278,367
05/66/96	108K	5	115,468	346,746	462,214	392	21	100.00%	115,468	346,746
05/66/97	108K	6	107,120	309,899	417,019	385	21	100.00%	107,120	309,899
05/66/98	108K	7	98,984	295,654	394,638	389	21	100.00%	98,984	295,654
05/66/99	108K	8	112,782	337,951	450,733	386	21	100.00%	112,782	337,951
05/67/01	108K	9	100,633	302,070	402,703	391	21	100.00%	100,633	302,070
05/67/02	108K	10	112,973	325,466	438,439	440	21	100.00%	112,973	325,466
05/67/03	108K	11	87,652	253,542	341,194	389	21	99.74%	87,427	253,767
05/67/04	108K	12	116,926	337,591	454,517	383	21	100.00%	116,926	337,591
05/67/05	108K	13	83,683	242,122	325,805	393	21	99.75%	83,470	242,335
05/67/06	108K	14	116,176	335,204	451,380	393	21	100.00%	116,176	335,204
05/67/07	108K	15	109,234	327,780	437,014	363	21	100.00%	109,234	327,780
05/67/08	108K	16	111,142	316,761	427,903	378	21	100.00%	111,142	316,761
05/67/09	108K	17	115,380	346,173	461,553	375	21	100.00%	115,380	346,173
05/67/10	108K	18	110,823	329,857	440,680	389	21	100.00%	110,823	329,857
05/67/11	108K	19	117,393	332,235	449,628	393	21	99.75%	117,094	332,534
05/67/12	108K	20	104,066	294,018	398,084	277	21	100.00%	104,066	294,018
05/67/13	108K	21	95,992	269,349	365,341	323	21	100.00%	95,992	269,349
05/67/14	108K	22	114,892	327,531	442,423	323	21	100.00%	114,892	327,531
05/67/15	108K	23	105,166	315,822	420,988	366	21	100.00%	105,166	315,822
05/67/16	108K	24	96,285	275,575	371,860	277	21	100.00%	96,285	275,575
05/67/17	108K	25	109,811	316,657	426,468	313	21	100.00%	109,811	316,657
05/67/18	108K	26	106,488	304,098	410,586	270	21	97.78%	104,122	306,464
05/67/19	108K	27	77,989	224,043	302,032	265	21	99.62%	77,695	224,337
05/67/20	108K	28	82,372	235,258	317,630	252	21	98.81%	81,391	236,239
Hatchery Totals			2,915,018	8,514,312	11,429,330	Retention Average		99.79%	2,909,074	8,520,256

Feather River Fish Hatchery



Table 2a. Daily Spring-Run Tagging Rates at Feather River Hatchery

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/30/61		Size: 320K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/13/2023	H2	H6	20,340	-	20,340
2/13/2023	H2	H6	36,400	56,740	56,740
2/14/2023	H2	H6	39,738	96,478	96,478
2/14/2023	H2	H6	45,089	141,567	141,567
2/15/2023	H2	H6	54,028	195,595	195,595
2/15/2023	H2	H6	52,597	248,192	248,192
2/16/2023	H2	H6	58,351	306,543	306,543
2/16/2023	H2	H6	52,179	358,722	358,722
2/17/2023	H2	H6	7,770	366,492	366,492
Tag Code Total			-	-	366,492

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/30/62		Size: 320K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/17/2023	H2	H1	22,290	-	22,290
2/17/2023	H2	H1	30,266	52,556	52,556
2/21/2023	H2	H1	55,250	107,806	107,806
2/21/2023	H2	H1	53,591	161,397	161,397
2/22/2023	H2	H1	58,692	220,089	220,089
2/22/2023	H2/H4	H1	59,812	279,901	279,901
2/23/2023	H4	H1	47,547	327,448	327,448
2/23/2023	H4	H1	37,832	365,280	365,280
Tag Code Total			-	-	365,280

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/30/63		Size: 320K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/24/2023	G2	G6	47,855	-	47,855
2/24/2023	G2	G6	46,158	94,013	94,013
2/27/2023	G2	G6	52,150	146,163	146,163
2/27/2023	G2	G6	51,203	197,366	197,366
2/28/2023	G2	G6	53,715	251,081	251,081
2/28/2023	G2	G6	55,987	307,068	307,068
3/1/2023	G2	G6	56,186	363,254	363,254
3/1/2023	G2	G6	2,980	366,234	366,234
Tag Code Total			-	-	366,234

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/30/64		Size: 320K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/1/2023	G2	G1	44,313	-	44,313
3/2/2023	G2	G1	54,627	98,940	98,940
3/2/2023	G2	G1	53,954	152,894	152,894
3/3/2023	G2	G1	54,892	207,786	207,786
3/3/2023	G2	G1	39,216	247,002	247,002
3/6/2023	G4	G1	41,852	288,854	288,854
3/6/2023	G4	G1	52,008	340,862	340,862
3/7/2023	G4	G1	21,481	362,343	362,343
Tag Code Total			-	-	362,343

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/30/65		Size: 320K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/7/2023	G4	G3	39,822	-	39,822
3/7/2023	G4	G3	66,742	106,564	106,564
3/8/2023	G4	G3	58,518	165,082	165,082
3/8/2023	G4	G3	52,462	217,544	217,544
3/9/2023	G4	G3	54,461	272,005	272,005
3/9/2023	G4	G3	50,345	322,350	322,350
3/10/2023	G4	G3	43,881	366,231	366,231
Tag Code Total			-	-	366,231

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/30/66		Size: 320K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/10/2023	G4	H3	12,462	-	12,462
3/10/2023	G4	H3	49,678	62,140	62,140
3/13/2023	G4/H4	H3	40,619	102,759	102,759
3/13/2023	H4	H3	38,911	141,670	141,670
3/14/2023	H4	H3	50,875	192,545	192,545
3/14/2023	H4	H3	45,378	237,923	237,923
3/15/2023	H4	H3	38,840	276,763	276,763
3/15/2023	H4	H3	47,658	324,421	324,421
3/16/2023	H4	H3	39,981	364,402	364,402
Tag Code Total			-	-	364,402

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/23/08		Size: 50K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/16/2023	H4	G3	56,594	-	56,594
Tag Code Total			-	-	56,594

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/07/91		Size: 60K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/16/2023	H4	H3	66,593	-	66,593
Tag Code Total			-	-	66,593

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/23/69		Size: 20K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/17/2023	H4	G3	21,342	-	21,342
Tag Code Total			-	-	21,342

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/20/81		Size: 10K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/17/2023	H4	G3	6,818	-	6,818
Tag Code Total			-	-	6,818

Hatchery Total

2,342,329

Retention Range: 98.67% - 99.56%

Retention Average: 99.19%

Table 2b. Summary of Hatchery Spring-Run Tag Codes and Tag Retention Study

Feather River Fish Hatchery - Spring Run Chinook										
Tag Code Size and Location			Tag Code Totals			Retention Calculations				
Tag Code	Size	Raceway	Total Tagged	Number Untagged	Total Processed	# of Fish Held	Days Held	% Retention	# Retaining Tags	Calculated Untagged
06/30/61	320K	H6	366,492	-	366,492	900	21	99.00%	362,827	3,665
06/30/62	320K	H1	365,280	-	365,280	900	21	99.11%	362,029	3,251
06/30/63	320K	G6	366,234	-	366,234	973	21	98.76%	361,693	4,541
06/30/64	320K	G1	362,343	-	362,343	910	17	98.68%	357,560	4,783
06/30/65	320K	G3	366,231	-	366,231	900	21	98.22%	359,712	6,519
06/30/66	320K	H3	364,402	-	364,402	900	22	99.40%	362,216	2,186
06/23/08	50K	G3	84,754	-	84,754	900	21	98.86%	83,788	966
06/07/91	60K	H3	66,593	-	66,593	900	21	98.86%	65,834	759
Hatchery Totals			2,342,329	0	2,275,736	Retention Average		98.86%	2,249,824	25,912

Table 2c. Daily Fall-Run Tagging Rates at Feather River Hatchery

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/21			Size: 225K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/20/2023	F1	CH4	40,721	-	122,316	-	163,037
3/21/2023	F1/F2	CH4	31,681	72,402	95,145	217,461	289,863
3/21/2023	F2	CH4	37,151	109,553	111,531	328,992	438,545
3/22/2023	F2	CH4	37,109	146,662	111,372	440,364	587,026
3/22/2023	F2/F4	CH4	35,613	182,275	106,899	547,263	729,538
3/23/2023	F4	CH4	31,769	214,044	95,382	642,645	856,689
3/23/2023	F4	CH4	36,973	251,017	111,018	753,663	1,004,680
Tag Code Totals			-	251,017	-	753,663	1,004,680

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/20			Size: 225K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/24/2023	F4	CH3	30,945	-	92,901	-	123,846
3/24/2023	F4	CH3	36,667	67,612	110,112	203,013	270,625
3/27/2023	F6	CH3	17,886	85,498	53,748	256,761	342,259
3/27/2023	F6	CH3	38,279	123,777	114,966	371,727	495,504
3/28/2023	F6	CH3	31,592	155,369	94,881	466,608	621,977
3/28/2023	F6	CH3	36,456	191,825	109,479	576,087	767,912
3/29/2023	E2	CH3	30,212	222,037	90,699	666,786	888,823
3/29/2023	E2	CH3	28,594	250,631	85,947	752,733	1,003,364
Tag Code Totals			-	250,631	-	752,733	1,003,364

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/19			Size: 225K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/30/2023	E2	CH2	31,376	-	94,194	-	125,570
3/30/2023	E2	CH2	37,804	69,180	113,487	207,681	276,861
3/31/2023	E2/E4	CH2	39,082	108,262	117,303	324,984	433,246
3/31/2023	E4	CH2	36,208	144,470	108,702	433,686	578,156
4/3/2023	E4	CH2	36,561	181,031	109,848	543,534	724,565
4/3/2023	E4	CH2	41,106	222,137	123,399	666,933	889,070
4/4/2023	E4/E6	CH2	30,124	252,261	90,528	757,461	1,009,722
Tag Code Totals			-	252,261	-	757,461	1,009,722

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/09/73			Size: 225K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/6/2023	D4	CH1	19,578	-	58,737	-	78,315
4/6/2023	D4	CH1	36,498	56,076	109,584	168,321	224,397
4/7/2023	D4	CH1	32,363	88,439	97,164	265,485	353,924
4/7/2023	D4	CH1	37,025	125,464	111,153	376,638	502,102
4/10/2023	D4/D6	CH1	30,938	156,402	92,883	469,521	625,923
4/10/2023	D6	CH1	32,433	188,835	97,350	566,871	755,706
4/11/2023	D6	CH1	38,521	227,356	115,602	682,473	909,829
4/11/2023	D6	CH1	24,760	252,116	74,328	756,801	1,008,917
Tag Code Totals			-	252,116	-	756,801	1,008,917

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/06/60			Size: 115K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/4/2023	E6	H2	42,629	-	128,067	-	170,696
4/5/2023	E6	H2	35,671	78,300	107,088	235,155	313,455
4/5/2023	E6	H2	37,583	115,883	112,833	347,988	463,871
4/6/2023	E6	H2	11,051	126,934	33,189	381,177	508,111
Tag Code Totals			-	126,934	-	381,177	508,111

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/83			Size: 115K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/11/2023	D6	G2	7,907	-	23,724	-	31,631
4/12/2023	D2/D6	G2	34,376	42,283	103,188	126,912	169,195
4/12/2023	D2	G2	33,728	76,011	101,208	228,120	304,131
4/13/2023	D2	G2	37,974	113,985	113,994	342,114	456,099
4/13/2023	D2	G2	12,089	126,074	36,300	378,414	504,488
Tag Code Totals			-	126,074	-	378,414	504,488

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/07			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/13/2023	D2	H2	24,958	-	74,886	-	99,844
4/14/2023	D2/C2	H2	38,109	63,067	114,360	189,246	252,313
4/14/2023	C2	H2	23,023	86,090	69,117	258,363	344,453
Tag Code Totals			-	86,090	-	258,363	344,453

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/08			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/14/2023	C2	H4	3,151	-	9,456	-	12,607
4/17/2023	C2	H4	33,005	36,156	99,075	108,531	144,687
4/17/2023	C2	H4	40,045	76,201	120,204	228,735	304,936
4/18/2023	C2	H4	7,797	83,998	23,424	252,159	336,157
Tag Code Totals			-	83,998	-	252,159	336,157

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/09			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/18/2023	C2	H6	17,245	-	51,753	-	68,998
4/18/2023	C4	H6	34,500	51,745	103,626	155,379	207,124
4/19/2023	C4	H6	32,922	84,667	98,877	254,256	338,923
Tag Code Totals			-	84,667	-	254,256	338,923

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/10			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/19/2023	C4	D2	31,285	-	93,903	-	125,188
4/20/2023	C4	D2	34,004	65,289	102,041	195,944	261,233
4/20/2023	C6	D2	13,894	79,183	41,763	237,707	316,890
4/21/2023	C6	D2	5,803	84,986	17,481	255,188	340,174
Tag Code Totals			-	84,986	-	255,188	340,174

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/11			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/21/2023	C6	D4	13,578	-	40,776	-	54,354
4/21/2023	C6	D4	29,179	42,757	87,603	128,379	171,136
4/24/2023	C6	D4	30,761	73,518	92,346	220,725	294,243
4/24/2023	C6	D4	10,715	84,233	32,175	252,900	337,133
Tag Code Totals			-	84,233	-	252,900	337,133

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/12			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/25/2023	C6	D6	21,321	-	64,053	-	85,374
4/26/2023	C6/B2	D6	23,433	44,754	70,380	134,433	179,187
4/26/2023	B2	D6	28,643	73,397	85,992	220,425	293,822
4/26/2023	B2	D6	9,606	83,003	28,863	249,288	332,291
Tag Code Totals			-	83,003	-	249,288	332,291

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/13			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/28/2023	B2	G2	18,164	-	54,513	-	72,677
4/28/2023	B2	G2	30,668	48,832	92,037	146,550	195,382
5/1/2023	B2	G2	35,448	84,280	106,440	252,990	337,270
Tag Code Totals			-	84,280	-	252,990	337,270

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/14			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/1/2023	B2/B4	G4	22,712	-	68,217	-	90,929
5/2/2023	B4	G4	21,581	44,293	64,800	133,017	177,310
5/2/2023	B4	G4	33,045	77,338	99,264	232,281	309,619
5/3/2023	B4	G4	6,551	83,889	19,704	251,985	335,874
Tag Code Totals			-	83,889	-	251,985	335,874

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/15			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/3/2023	B4/B6	G6	20,542	-	61,632	-	82,174
5/3/2023	B46	G6	31,961	52,503	95,934	157,566	210,069
5/4/2023	B6	G6	32,060	84,563	96,348	253,914	338,477
Tag Code Totals			-	84,563	-	253,914	338,477

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/16			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/4/2023	B6	C2	32,194	-	96,645	-	128,839
5/5/2023	B6	C2	30,334	62,528	91,110	187,755	250,283
5/5/23	B6/A2	C2	22,228	84,756	66,777	254,532	339,288
Tag Code Totals			-	84,756	-	254,532	339,288

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/17			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/8/2023	A2	C4	26,996	-	81,039	-	108,035
5/8/2023	A2	C4	40,561	67,557	121,761	202,800	270,357
5/9/2023	A2	C4	13,958	81,515	41,904	244,704	326,219
Tag Code Totals			-	81,515	-	244,704	326,219

Feather River Fish Hatchery - Fall Run Chinook 100% Mark & Tag							
Tag Code: 06/00/22			Size: 185K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/9/2023	A2	B2	27,912	27,912	-	-	27,912
5/9/2023	A2	B2	56,608	84,520	-	-	84,520
5/10/2023	A2	B2	53,582	138,102	-	-	138,102
5/10/2023	A2	B2	63,330	201,432	-	-	201,432
Tag Code Totals			-	201,432	-	-	201,432

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/18			Size: 76K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/11/2023	A4	C6	33,344	-	100,068	-	133,412
5/11/2023	A4	C6	40,156	73,500	120,546	220,614	294,114
5/12/2023	A4	C6	9,939	83,439	29,874	250,488	333,927
Tag Code Totals			-	83,439	-	250,488	333,927

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/20/70			Size: 90K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/12/2023	A4	B4	16,363	-	49,101	-	65,464
5/12/2023	A4	B4	34,166	50,529	102,555	151,656	202,185
5/13/2023	A6	B4	32,102	82,631	96,345	248,001	330,632
5/13/2023	A6	B4	12,501	95,132	37,545	285,546	380,678
Tag Code Totals			-	95,132	-	285,546	380,678

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/15/50			Size: 90K			Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/15/2023	A6	B6	16,944	-	50,874	-	67,818
5/16/2023	A6	B6	34,289	51,233	102,903	153,777	205,010
5/16/2023	A6	B6	43,257	94,490	129,825	283,602	378,092
5/17/2023	A6	B6	1,095	95,585	3,285	286,887	382,472
Tag Code Totals			-	95,585	-	286,887	382,472

Hatchery Totals	2,660,601	7,383,449	10,044,050
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Retention Average:
98.84%

Retention Range:92.6%-100%

Table 2d. Summary of Hatchery Fall-Run Tag Codes and Retention Study

Feather River Fish Hatchery - Fall Run Chinook										
Tag Code Size and Location			Tag Code Totals			Retention Calculations				
Tag Code	Size	Raceway	Total Tagged	Number Untagged	Total Processed	# of Fish Held	Days Held	% Retention	# Retaining Tags	Calculated Untagged
06/00/21	225K	CH4	251,017	753,663	1,004,680	900	21	99.40%	249,511	755,169
06/00/20	225K	CH3	250,631	752,733	1,003,364	900	20	99.50%	249,378	753,986
06/00/19	225K	CH2	252,261	757,461	1,009,722	731	20	99.60%	251,252	758,470
06/09/73	225K	CH1	252,116	756,801	1,008,917	900	22	99.70%	251,360	757,557
06/06/60	115K	H2	126,934	381,177	508,111	900	4	99.66%	126,502	381,609
06/28/83	115K	G2	126,074	378,414	504,488	560	6	98.20%	123,805	380,683
06/00/07	76K	H2	86,090	258,363	344,453	268	26	97.00%	83,507	260,946
06/00/08	76K	H4	83,998	252,159	336,157	450	21	99.10%	83,242	252,915
06/00/09	76K	H6	84,667	254,256	338,923	450	21	98.80%	83,651	255,272
06/00/10	76K	D2	84,986	255,188	340,174	450	21	99.30%	84,391	255,783
06/00/11	76K	D4	84,233	252,900	337,133	750	21	99.87%	84,123	253,010
06/00/12	76K	D6	83,003	249,288	332,291	183	21	97.80%	81,177	251,114
06/00/13	76K	G2	84,280	252,990	337,270	500	21	92.60%	78,043	259,227
06/00/14	76K	G4	83,889	251,985	335,874	450	22	98.20%	82,379	253,495
06/00/15	76K	G6	84,563	253,914	338,477	450	21	98.67%	83,438	255,039
06/00/16	76K	C2	84,756	254,532	339,288	450	26	99.10%	83,993	255,295
06/00/17	70K	C4	81,515	244,704	326,219	330	21	99.40%	81,026	245,193
06/00/22	185K	B2	201,432	0	201,432	900	20	99.70%	200,828	604
06/00/18	76K	C6	83,439	250,488	333,927	395	14	100.00%	83,439	250,488
06/20/70	90K	B4	95,132	285,546	380,678	478	21	100.00%	95,132	285,546
06/15/50	90K	B6	95,585	286,887	382,472	482	19	100.00%	95,585	286,887
Hatchery Totals			2,660,601	7,383,449	10,044,050	Retention Average		98.84%	2,635,763	7,408,287

Feather River Fish Hatchery - Steelhead - 100% Mark Only					
Trailer # CA3					
Marking Date	Raceway Prior to Marking	Raceway Following Marking	Daily Marked Total	Cumulative Marked Total	Raceway Total
7/5/2023	F2	F4	63,635	-	63,635
7/5/2023	F2	F4	62,480	126,115	126,115
7/6/2023	F2	F4	75,059	201,174	201,174
7/6/2023	F2	F4	77,493	278,667	278,667
7/7/2023	F2	F4	21,378	300,045	300,045
7/7/2023	F2/E2	E4	37,831	-	37,831
7/7/2023	E2	E4	40,168	77,999	77,999
7/10/2023	E2	E4	62,537	140,536	140,536
7/10/2023	E2	E4	58,169	198,705	198,705
Hatchery Total			-	-	498,750

Merced Hatchery



Table 3a. Daily Tagging Rates at Merced Hatchery

Merced River Fish Hatchery - Fall Run Chinook - 25% Mark/Tag					
Tag Code: 06/15/53		Size: 100K		Trailer # Manual	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/3/2023	A9	A13	614	-	614
4/4/2023	A9	A13	2,274	2,888	2,888
4/5/2023	A9	A13	2,525	5,413	5,413
4/6/2023	A9	A13	2,949	8,362	8,362
4/7/2023	A9	A13	4,040	12,402	12,402
4/10/2023	A9	A13	3,472	15,874	15,874
4/11/2023	A9	A13	4,304	20,178	20,178
4/12/2023	A9	A13	2,963	23,141	23,141
4/13/2023	A9	A13	5,143	28,284	28,284
4/14/2023	A9	A13	5,635	33,919	33,919
4/17/2023	A9	A13	5,900	39,819	39,819
4/18/2023	A9	A13	7,403	47,222	47,222
4/19/2023	A9	A13	5,542	52,764	52,764
4/20/2023	A9	A13	9,177	61,941	61,941
4/28/2023	B1-B12	B16	1,945	63,886	1,945
5/1/2023	B1-B12	B16	6,818	70,704	8,763
5/2/2023	B1-B12	B16	8,165	78,869	16,928
5/3/2023	B1-B12	B16	8,556	87,425	25,484
5/4/2023	B1-B12	B16	8,498	95,923	33,982
5/5/2023	B1-B12	B16	4,041	99,964	38,023
5/8/2023	B1-B12	B16	5,611	105,575	43,634
5/9/2023	B1-B12	B16	3,408	108,983	47,042
5/10/2023	B1-B12	B16	4,239	113,222	51,281
5/11/2023	B1-B12	B16	731	113,953	52,012
Tag Code Total			-	113,953	-

Merced River Fish Hatchery - Fall Run Chinook - 25% Mark/Tag					
Tag Code: 06/19/34		Size: 50K		Trailer # Manual	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/21/2023	A2	A4	7,520	-	7,520
4/24/2023	A2	A4	6,701	14,221	14,221
4/25/2023	A2	A4	8,498	22,719	22,719
4/26/2023	A2	A4	8,543	31,262	31,262
4/27/2023	A2	A4	6,904	38,166	38,166
4/28/2023	A2	A4	1,178	39,344	39,344
Tag Code Total			-	-	39,344

Merced River Fish Hatchery - Fall Run Chinook - 25% Mark/Tag					
Tag Code: 06/05/74		Size: 50K		Trailer # Manual	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
5/9/2023	B1-B12	B16	4,441	-	4,441
5/10/2023	B1-B12	B16	11,355	15,796	15,796
5/11/2023	B1-B12	B16	9,803	25,599	25,599
5/12/2023	B1-B12	B16	8,380	33,979	33,979
5/15/2023	B1-B12	B16	4,813	38,792	38,792
5/16/2023	B1-B12	B16	9,018	47,810	47,810
5/17/2023	B1-B12	B16	7,435	55,245	55,245
Tag Code Total			-	-	55,245

Hatchery Totals: Untagged: 620,537 Tagged: 208,542 Total: 829,079

Retention Range: 97.00%-99.79% Retention Average: 98.10%

Table 3b. Summary of Merced River Fish Hatchery Fall-Run Tag Codes and Retention Study

Merced River Fish Hatchery - Spring Run Chinook										
Tag Code Size and Location			Tag Code Totals			Retention Calculations				
Tag Code	Size	Raceway	Total Tagged	Number Untagged	Total Processed	# of Fish Held	Days Held	% Retention	# Retaining Tags	Calculated Untagged
06/15/53	100K	A13, B16	113,953	-	113,953	498	21	97.50%	111,104	2,849
06/19/34	50K	A4	39,344	-	39,344	486	21	99.79%	39,261	83
06/05/74	50K	B16	55,245	-	55,245	787	21	97.00%	53,588	1,657
Hatchery Totals			208,542	625,126	829,079	Retention Average		98.10%	203,953	4,589

Mokelumne River Hatchery



Table 4a. Daily Tagging Rates at Mokelumne River Hatchery

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/03			Size: 100K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/13/2023	C	A	6,847	-	20,655	-	27,502
3/14/2023	C	A	41,190	48,037	123,642	144,297	192,334
3/15/2023	C	A	41,415	89,452	124,314	268,611	358,063
3/16/2023	C	A	20,834	110,286	62,661	331,272	441,558
Tag Code Totals			-	110,286	-	331,272	441,558

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/04			Size: 100K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/20/2023	D	B	23,494	-	70,518	-	94,012
3/20/2023	D	B	36,015	59,509	108,114	178,632	238,141
3/21/2023	D	B	31,696	91,205	95,118	273,750	364,955
3/21/2023	D	B	21,480	112,685	64,482	338,232	450,917
Tag Code Totals			-	112,685	-	338,232	450,917

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/05			Size: 100K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/21/2023	D/E	C	12,129	-	36,390	-	48,519
3/22/2023	E	C	37,547	49,676	112,695	149,085	198,761
3/22/2023	E	C	43,567	93,243	130,743	279,828	373,071
3/23/2023	E	C	18,452	111,695	55,416	335,244	446,939
Tag Code Totals			-	111,695	-	335,244	446,939

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code:06/30/27			Size: 110K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/23/2023	E/F	D	42,255	-	126,816	-	169,071
3/24/2023	F	D	30,168	72,423	90,540	217,356	289,779
3/24/2023	F	D	27,717	100,140	83,187	300,543	400,683
3/27/2023	F	D	12,628	112,768	37,950	338,493	451,261
3/27/2023	F	D	9,669	122,437	29,037	367,530	489,967
Tag Code Totals			-	122,437	-	367,530	489,967

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/28			Size: 110K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/27/2023	F/G	E	19,777	-	59,355	-	79,132
3/28/2023	G	E	32,859	52,636	98,643	157,998	210,634
3/28/2023	G	E	43,214	95,850	129,687	287,685	383,535
3/29/2023	G	E	16,822	112,672	50,511	338,196	450,868
3/29/2023	G	E	9,812	122,484	29,448	367,644	490,128
Tag Code Totals			-	122,484	-	367,644	490,128

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/06			Size: 100K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/29/2023	H	F	22,397	-	67,230	-	89,627
3/30/2023	H	F	27,862	50,259	83,661	150,891	201,150
3/30/2023	H	F	38,951	89,210	116,883	267,774	356,984
3/31/2023	H	F	24,209	113,419	72,663	340,437	453,856
Tag Code Totals			-	113,419	-	340,437	453,856

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/07			Size: 100K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/31/2023	H/I	G	14,219	-	42,660	-	56,879
4/3/2023	I	G	29,828	44,047	89,559	132,219	176,266
4/3/2023	I	G	41,025	85,072	123,093	255,312	340,384
4/4/2023	I	G	25,028	110,100	75,141	330,453	440,553
Tag Code Totals			-	110,100	-	330,453	440,553

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/08			Size: 100K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/4/2023	I/J	H	31,345	-	94,080	-	125,425
4/5/2023	J	H	34,014	65,359	102,069	196,149	261,508
4/5/2023	J	H	31,570	96,929	94,749	290,898	387,827
4/6/2023	J	H	13,696	110,625	41,157	332,055	442,680
Tag Code Totals			-	110,625	-	332,055	442,680

Mokelumne River Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 06/00/29		Size:150K		Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/6/2023	J	I	24,142	-	24,142
4/7/2023	J/K	I	58,107	82,249	82,249
4/8/2023	K	I	33,938	116,187	116,187
4/9/2023	K	I	24,138	140,325	140,325
4/10/2023	K	I	21,443	161,768	161,768
Tag Code Total			-	-	161,768

Mokelumne River Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 06/00/30		Size: 150K		Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/10/2023	K	I2	61,661	-	61,661
4/11/2023	K	I3	51,104	112,765	112,765
4/11/2023	K	I4	47,127	98,231	159,892
Tag Code Total			-	-	159,892

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code:06/00/31			Size: 170K Split Between J and K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/12/2023	K	J	30,784	-	92,382	-	123,166
4/12/2023	K/L	J	30,731	61,515	92,220	184,602	246,117
4/13/2023	L	J	32,323	93,838	97,017	281,619	375,457
4/14/2023	L	K	26,403	-	79,233	-	105,636
4/17/2023	L	K	29,984	56,387	90,000	169,233	225,620
4/17/2023	L	K	37,852	94,239	113,559	282,792	377,031
Tag Code Totals			-	188,077	-	564,411	752,488

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code:06/30/29			Size: 110K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/17/2023	L	L	644	-	1,932	-	2,576
4/18/2023	M	L	32,139	32,783	96,453	98,385	131,168
4/18/2023	M	L	31,538	64,321	94,629	193,014	257,335
4/19/2023	M//N	L	29,703	94,024	89,142	282,156	376,180
4/19/2023	N	L	31,422	125,446	94,278	376,434	501,880
Tag Code Totals			-	125,446	-	376,434	501,880

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/09			Size: 100K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/19/2023	N	M	817	-	2,451	-	3,268
4/20/2023	N	M	35,666	36,483	107,049	109,500	145,983
4/20/2023	N	M	36,131	72,614	108,393	217,893	290,507
4/21/2023	N/O	M	37,567	110,181	112,704	330,597	440,778
Tag Code Totals			-	110,181	-	330,597	440,778

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/30			Size: 110K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/21/2023	O	N	1,533	-	4,599	-	6,132
4/24/2023	O	N	32,905	34,438	98,772	103,371	137,809
4/24/2023	O	N	30,873	65,311	92,622	195,993	261,304
4/25/2023	O	N	32,326	97,637	96,978	292,971	390,608
4/26/2023	P	N	21,397	119,034	64,233	357,204	476,238
Tag Code Totals			-	119,034	-	357,204	

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/12/90			Size: 40K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/26/2023	P	N	30,574	-	91,722	-	122,296
Tag Code Totals			-	30,574	-	91,722	598,534

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/30/26			Size: 100K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/26/2023	P	O	786	-	2,358	-	3,144
4/27/2023	P	O	31,374	32,160	94,179	96,537	128,697
4/28/2023	P	O	30,573	62,733	91,755	188,292	251,025
5/1/2023	Q	O	26,055	88,788	78,222	266,514	355,302
5/1/2023	Q	O	22,069	110,857	66,207	332,721	443,578
Tag Code Totals			-	110,857	-	332,721	443,578

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/06/59			Size: 90K			Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/1/2023	Q	P	3,009	-	9,027	-	12,036
5/2/2023	Q	P	38,526	41,535	115,644	124,671	166,206
5/2/2023	Q	P	31,635	73,170	94,905	219,576	292,746
5/3/2023	Q	P	12,239	85,409	36,750	256,326	341,735
Tag Code Totals			-	85,409	-	256,326	341,735

Hatchery Totals:

2,004,969

5,052,282

7,057,251

Retention Range: 97.74% - 100.00%

Retention Average: 99.11%

Table 4b. Summary of Hatchery Tag Codes and Tag Retention Studies

Mokelumne River Fish Hatchery - Fall Run Chinook										
Tag Code Size and Location			Tag Code Totals			Retention Calculations				
Tag Code	Size	Raceway	Total Tagged	Number Untagged	Total Processed	# of Fish Held	Days Held	% Retention	# Retaining Tags	Calculated Untagged
06/30/03	100K	A	110,286	331,272	441,558	400	21	100.00%	110,286	331,272
06/30/04	100K	B	112,685	338,232	450,917	384	20	99.74%	112,392	338,525
06/30/05	100K	C	111,695	335,244	446,939	408	23	99.02%	110,600	336,339
06/30/27	110K	D	122,437	367,530	489,967	400	21	99.50%	121,825	368,142
06/30/28	110K	E	122,484	367,644	490,128	400	21	99.20%	121,504	368,624
06/30/06	100K	F	113,419	340,437	453,856	400	21	98.70%	111,945	341,911
06/30/07	100K	G	110,100	330,453	440,553	400	21	98.75%	108,724	331,829
06/30/08	100K	H	110,625	332,055	442,680	401	21	98.50%	108,966	333,714
06/00/29	150K	I1	161,768	0	161,768	401	21	99.50%	160,959	809
06/00/30	150K	I2	159,892	0	159,892	400	21	99.00%	158,293	1,599
06/00/31	170K	J/K	188,077	564,411	752,488	800	23	98.96%	186,121	566,367
06/00/31	110K	L	125,446	376,434	501,880	402	21	98.75%	123,878	378,002
06/30/09	100K	M	110,181	330,597	440,778	395	21	98.98%	109,057	331,721
06/30/30	110K	N	119,034	357,204	476,238	399	21	97.74%	116,344	359,894
06/12/90	40K	N	30,574	91,722	122,296	400	21	99.11%	30,302	91,994
06/30/26	100K	O	110,857	332,721	443,578	393	22	99.74%	110,569	333,009
06/06/59	90K	P	85,409	256,326	341,735	400	21	99.75%	85,195	256,540
Hatchery Totals			2,004,969	5,052,282	7,057,251	Retention Average		99.11%	1,986,960	5,070,291

Mokelumne River Fish Hatchery - Steelhead - 100% Mark/Tag					
Tag Code: 06/19/43		Size: 60k		Trailer # CFG-1	
Marking Date	Raceway Prior to Marking	Raceway Following Marking	Daily Marked Total	Cumulative Marked Total	Raceway Total
6/26/2023	L	M	14,769	-	14,769
6/27/2023	L	M	16,347	31,116	31,116
6/28/2023	L	M	1,186	32,302	32,302
6/27/2023	L	N	25,019	-	25,019
6/28/2023	L	N	6,242	31,261	31,261
6/28/2023	L	N	913	32,174	32,174
Tag Code Total			-	64,476	-

Mokelumne River Fish Hatchery - Steelhead - 100% Mark Only					
Trailer # CFG-1					
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
6/28/2023	K	O	35,106	-	35,106
6/29/2023	K	P	35,071	70,177	35,071
6/29/2023	L	Q	12,314	82,491	
6/30/2023	L	Q	19,521	102,012	
7/5/2023	L	Q	3,179	105,191	35,014
7/5/2023	L	R	23,058	128,249	23,058
7/6/2023	L	R	28,085	156,334	51,143

Hatchery Totals	Tagged	64,476	Mark Only	156,334
		Total Processed		220,810

Nimbus Hatchery



Table 5a. Daily Tagging Rates at Nimbus Hatchery

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/04/77			Size: 200K			Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/11/2023	A4	A1	40,683	-	122,187	-	162,870
4/12/2023	A4	A1	36,562	77,245	109,731	231,918	309,163
4/17/2023	A4	A1	30,213	107,458	90,696	322,614	430,072
4/18/2023	A4	A1	44,344	151,802	133,068	455,682	607,484
4/19/2023	A4	A1	38,171	189,973	114,582	570,264	760,237
4/20/2023	A4	A1	23,874	213,847	71,676	641,940	855,787
Tag Code Totals			-	213,847	-	641,940	855,787

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/26			Size: 186K			Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/24/2023	B4	B1	25,624	-	76,944	-	102,568
4/25/2023	B4	B1	41,886	67,510	125,727	202,671	270,181
4/26/2023	B4	B1	35,111	102,621	105,381	308,052	410,673
4/27/2023	B4	B1	45,674	148,295	137,061	445,113	593,408
4/28/2023	B4	B1	20,684	168,979	62,106	507,219	676,198
5/1/2023	B4	B1	27,427	196,406	82,326	589,545	785,951
5/2/2023	B4	B1	10,219	206,625	30,693	620,238	826,863
Tag Code Totals			-	206,625	-	620,238	826,863

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/87/40			Size: 10K			Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/2/2023	B4	B1	9,767	-	29,301	-	39,068
Tag Code Totals			-	9,767	-	29,301	39,068

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/23			Size: 150K			Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/3/2023	C4	C1	42,366	-	127,137	-	169,503
5/4/2023	C4	C1	37,334	79,700	112,047	239,184	318,884
5/8/2023	C4	C1	32,643	112,343	97,980	337,164	449,507
5/9/2023	C4	C1	32,941	145,284	98,868	436,032	581,316
5/10/2023	C4	C1	22,575	167,859	67,761	503,793	671,652
Tag Code Totals			-	167,859	-	503,793	671,652

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/24			Size: 150K			Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/10/2023	D4	D1	466	-	1,398	-	1,864
5/11/2023	D4	D1	30,834	31,300	92,502	93,900	125,200
5/12/2023	D4	D1	31,692	62,992	95,109	189,009	252,001
5/15/2023	D4	D1	37,835	100,827	113,556	302,565	403,392
5/16/2023	D4	D1	38,778	139,605	116,370	418,935	558,540
5/17/2023	D4	D1	28,684	168,289	86,076	505,011	673,300
Tag Code Totals			-	168,289	-	505,011	673,300

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/25			Size: 150K			Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/18/2023	E4	E1	32,514	-	97,584	-	130,098
5/22/2023	E4	E1	34,039	66,553	102,150	199,734	266,287
5/23/2023	E4	E1	35,364	101,917	106,122	305,856	407,773
5/24/2023	E4	E1	39,292	141,209	117,906	423,762	564,971
5/25/2023	E4	E1	26,512	167,721	79,536	503,298	671,019
Tag Code Totals			-	167,721	-	503,298	671,019

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/15/68			Size: 40K			Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/25/2023	E4	E1	10,723	-	32,193	-	42,916
5/26/2023	E4	E1	12,195	22,918	36,603	68,796	91,714
5/30/2023	E4	E1	8,285	31,203	24,876	93,672	124,875
Tag Code Totals			-	31,203	-	93,672	124,875

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/00/27			Size: 186K			Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/30/2023	F4	F1	16,432	-	49,296	-	65,728
5/31/2023	F4	F1	43,511	59,943	130,557	179,853	239,796
6/1/2023	F4	F1	39,032	98,975	117,123	296,976	395,951
6/2/2023	F4	F1	17,114	116,089	51,372	348,348	464,437
6/5/2023	F4	F1	29,698	145,787	89,130	437,478	583,265
6/6/2023	F4	F1	28,414	174,201	85,281	522,759	696,960
6/7/2023	F4	F1	23,487	197,688	70,497	593,256	790,944
Tag Code Totals			-	197,688	-	593,256	790,944

Hatchery Totals:

1,162,999

3,490,509

4,653,508

Retention Range: 99.30% - 99.70%

Retention Average: 99.48%

Table 5b. Summary of Fall-Run Tag Codes and Tag Retention Studies

Nimbus Fish Hatchery - Fall Run Chinook										
Tag Code Size and Location			Tag Code Totals			Retention Calculations				
Tag Code	Size	Raceway	Total Tagged	Number Untagged	Total Processed	# of Fish Held	Days Held	% Retention	# Retaining Tags	Calculated Untagged
06/04/77	200K	A	213,847	641,940	855,787	900	21	99.30%	212,350	643,437
06/00/26	186K	B	216,392	649,539	865,931	900	21	99.57%	215,462	650,469
06/87/40	10K	B	9,767	29,301	39,068	900	21	99.57%	9,725	29,343
06/00/23	150K	C	167,859	503,793	671,652	902	21	99.40%	166,852	504,800
06/00/24	150K	D	168,289	505,011	673,300	900	21	99.30%	167,111	506,189
06/00/25	150K	E	167,721	503,298	671,019	900	21	99.50%	166,882	504,137
06/15/68	40K	E	31,203	93,672	124,875	900	21	99.50%	31,047	93,828
06/00/27	186k	F	197,688	593,256	790,944	900	21	99.70%	197,095	593,849
Hatchery Totals			1,172,766	3,519,810	4,692,576	Retention Average		99.48%	1,166,524	3,526,052

Nimbus Fish Hatchery - Steelhead - 100% Mark Only					
Trailer # CA4					
Marking Date	Raceway Prior to Marking	Raceway Following Marking	Daily Marked Total	Cumulative Marked Total	Raceway Total
6/12/2023	Lot 1	A3	1463	-	1463
6/13/2023	Lot 1,2	A3	22,437	23,900	23,900
6/14/2023	Lot 2,3	A3	28,000	51,900	51,900
6/15/2023	Lot3	A3	19,546	71,446	71,446
6/16/2023	Lot3	A3	13,733	85,179	85,179
6/20/2023	Lot 4	A2	27,558	112,737	27,558
6/21/2023	Lot 4,5	A2	26,199	138,936	53,757
6/22/2022	Lot 5	A2	33,937	172,873	87,694
6/22/2023	Lot 5	B3	11,856	184,729	11,856
6/23/2023	Lot 6	B3	46,373	231,102	58,229
6/26/2023	Lot 6,7	B3	29,823	260,925	88,052
6/27/2023	Lot 7	B2	56,373	317,298	56,373
6/28/2023	Lot 7,8	B2	3,764	321,062	60,137
7/5/2023	Lot 8	B2	25,159	346,221	85,296
7/6/2023	Lot 8,9	A1	43,165	389,386	43,165
7/7/2023	Lot 9	A1	43,836	433,222	87,001
7/12/2023	Lot 11	A1	2,725	435,947	89,726
7/7/2023	Lot 9	B1	5,614	441,561	5,614
7/10/2023	Lot 10	B1	29,022	470,583	34,636
7/11/2023	Lot 10,11	B1	41,991	512,574	76,627
7/12/2023	Lot 11	B1	12,873	525,447	89,500
7/12/2023	Lot 11	B1	462	525,909	89,962
Hatchery Total			-	-	525,909

San Joaquin Fish Hatchery

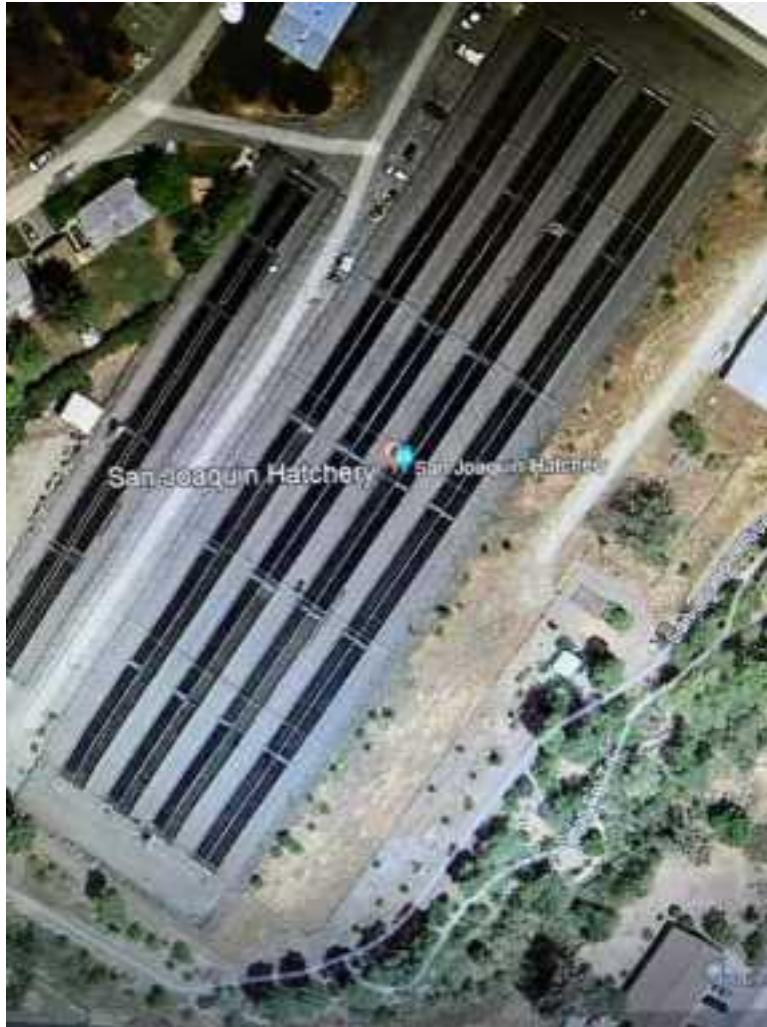


Table 6a. Daily Tagging Rates at San Joaquin Fish Hatchery

San Joaquin Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/31/70		Size: 50K		Trailer # CADFG	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/21/2023	OT61-62	OT61	7,040	-	7,040
2/22/2023	OT63-66	OT62-65, OT61	43,892	-	50,932
Tag Code Total			-	-	50,932

San Joaquin Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/31/69		Size: 150K		Trailer # CADFG	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/22/2023	OT161	OT161	10,042	-	10,042
2/23/2023	OT161	OT161	60,306	-	70,348
2/24/2023	OT161	OT61-6	29,488	-	99,836
2/27/2023	OT20-21	MS-6-1-4	40,064	-	139,900
Tag Code Total			-	-	139,900

Hatchery
Total

190,832

Table 6b. Summary of Spring-Run Tag Codes and Tag Retention Studies

San Joaquin Fish Hatchery - Spring Run Chinook - 100% Mark/Tag										
Tag Code Size and Location			Tag Code Totals			Retention Calculations				
Tag Code	Size	Raceway	Total Tagged	Number Untagged	Total Processed	# of Fish Held	Days Held	% Retention	# Retaining Tags	Calculated Untagged
06/31/70	50K	OT6-1, OT6-2-6	50,932	-	50,932	200	21	99.00%	50,423	509
06/31/69	150K	OT16-1, OT6-1,6 OT20-1	139,900	-	139,900	200	21	99.00%	138,501	1,399
Hatchery Totals			190,832	0	190,832	Retention Average		99.00%	188,924	1,908

Warm Springs Fish Hatchery



Table 7a. Daily Tagging Rates at Warm Springs Fish Hatchery

Warm Springs Fish Hatchery - Steelhead - 100% Mark Only					
Trailer # CA2					
Marking Date	Raceway Prior to Marking	Raceway Following Marking	Daily Marked Total	Cumulative Marked Total	Raceway Total
7/10/2023	2	1	29,272	29,272	29,272
7/11/2023	3	2	26,765	56,037	26,765
7/11/2023	6	7	22,845	78,882	22,845
7/12/2023	6	7	2,338	81,220	25,183
7/12/2023	5	6	25,444	106,664	25,444
7/13/2023	9	12	26,304	132,968	26,304
7/13/2023	10	9	9,481	142,449	9,481
7/17/2023	10	9	16,757	159,206	26,238
7/17/2023	11	10	20,769	179,975	20,769
7/18/2023	11	10	6,596	186,571	27,365
7/18/2023	15	13	21,070	207,641	21,070
7/19/2023	18	17	19,349	226,990	19,349
7/19/2023	19	18	28,067	255,057	28,067
7/26/2023	20	19	25,914	280,971	25,914
7/26/2023	16	15	7,797	288,768	7,797
7/27/2023	14	16	26,054	314,822	26,054
Hatchery Totals			-	-	314,822