

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

**Fall-run Chinook Salmon
Spring-run Chinook Salmon
Steelhead**

2022 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 2022. 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 assisted with the manual tagging operations at Merced River Fish Hatchery during the 2022 tagging season.

The AutoFish Trailers were also used in the 2011 through 2022 seasons to adipose fin-clip and coded-wire tag 100% of the spring-run Chinook salmon reared at the Feather River Fish Hatchery. For the 2022 season, we adipose fin-clipped and coded-wire tagged ~~~59.8860~~59.8860% of the spring-run Chinook salmon due to the fish being more than a month behind in growth and having half of the crewmembers that were needed. We also adipose fin-clipped 100% of the steelhead reared at Coleman National Fish Hatchery, Feather River Fish Hatchery, Mokelumne River Fish Hatchery, and Nimbus 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 2022 (Brood Year 2021 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, ~~30,163,152~~30,163,15230,775,037 fish. Of the fall-run Chinook salmon total, approximately ~~29.272671~~29.272671% were coded-wire tagged and adipose fin-clipped (~~8,830,1138,218,939~~8,830,1138,218,939 fish). In addition, the program marked and coded-wire tagged ~~59.8860~~59.8860% of the spring-run Chinook salmon produced at the Feather River Fish Hatchery, a total of ~~1,447,7871,015,954~~1,447,7871,015,954 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, and Nimbus Fish Hatchery, a total of ~~1,647,8211,969,057~~1,647,8211,969,057 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 ocean and inland areas. 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 2022, 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 2022, 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 2022. Marking allows selective harvest of hatchery-reared steelhead in sport fisheries.

This report covers the sixteenth year of the CFM program's marking/tagging activities at four major Central Valley hatcheries in the spring/summer of 2022 (Brood Year 2021 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 2021 spring-run Chinook salmon reared at the Feather River Fish Hatchery, and marking of steelhead reared at Feather River Fish Hatchery, Mokelumne River Fish Hatchery, and Nimbus Fish Hatchery. Coleman National Fish Hatchery steelhead and 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% in 2007 through 2022. Coded-wire tags for the 2022 season were ordered from Northwest Marine Technology in November 2021. Tags used in the program were all 1.1 mm standard length tags.

The program was conducted 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 was critical 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 February 14th at Coleman National Fish Hatchery and ended at Nimbus Fish Hatchery on ~~May~~14th~~April~~. Marking/tagging of hatchery-produced fall-run Chinook salmon in 2022 therefore spanned a ~~1410~~-week period. The spring-run Chinook salmon marking/tagging season began on ~~March~~~~February~~ 14th and was completed at Feather River Hatchery on ~~April~~~~March~~ 4th for a total of ~~three~~~~four~~ weeks. The Central Valley steelhead marking was conducted intermittently based on the number of fish that were the appropriate size to process through the AutoFish Trailers, from the ~~second~~~~first~~ week of May through the ~~third~~~~last~~ week of ~~July~~~~June~~ for a total of ~~ten~~~~nine~~ 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 was used in studies at these facilities due to the large number of tag codes used at each

facility. 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 were summarized for submission to [the Regional Mark Processing Center \(RMPC\)](http://www.rmhc.org), operated by the Pacific States Marine Fisheries Commission (<http://www.rmhc.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 2022 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 2022 production releases of fall-run Chinook salmon from the Central Valley hatcheries (totaling 30,163,152~~30,775,037~~ fish). The 25% target rate for marking/tagging was achieved for Brood Year 2021~~0~~ (approximately 29.27~~26.71~~% were CWT/ad-clipped, 8,830,113~~8,218,939~~ fish). The AutoFish Trailers also marked and tagged 1,447,787~~1,015,954~~ Brood Year 2021 spring-run Chinook salmon reared at the Feather River Fish Hatchery.

The AutoFish Trailers marked 100% of the steelhead reared at Coleman National Fish Hatchery, Feather River Fish Hatchery, Mokelumne River Fish Hatchery, and Nimbus 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: 94.84~~98.50~~% - 100% with an average of 99.05~~99.81~~%
- Feather River Fish Hatchery: 99.00~~98.33~~% - 100% with an average of 99.78~~99.49~~%
- Mokelumne River Fish Hatchery: 99.75~~98.28~~% - 100% with an average of 99.94~~99.69~~%
- Nimbus Fish Hatchery: 99.34~~98.89~~% - 100~~99.89~~% with an average of 99.5~~93~~%
- Merced River Fish Hatchery: 99.12 – 99.84~~99.25~~% with an average of 99.48%

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: 98.54~~96.68~~% - 98.90~~98.89~~% with an average of 98.72~~98.06~~%

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.rmnp.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 2022 tagging season. After many months of having the job recruitments open and contacting every applicant that applied, we still were only able to hire approximately half the number of crewmembers that were needed. At the northern four hatcheries, the program had five Trailer Operators and four Trailer Assistants employed at the start of the 2022 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 sixteenth 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. Ron Stone (USFWS - Coleman National Fish Hatchery), Penny Booth-Crawshaw (CDFW - Feather River Fish Hatchery), Anna Kastner (CDFW - Feather River Fish Hatchery), Gary Novak (CDFW - Nimbus Fish Hatchery), Darrick Baker (CDFW- Mokelumne River Hatchery), William Smith (CDFW - Mokelumne River 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, and Chris Townsend (PSMFC) for their work on the data and maintenance work 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 sixteenth 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 Nathan Bailey (PSMFC), Evan Baron (PSMFC), Chris Childers (PSMFC), Emily Jonagan, (PSMFC), Brian Krempasky (~~CDFW~~PSMFC), Steven Janssen (PSMFC), Lue Lo (PSMFC), Francisco Vargas (PSMFC), Blaine Shively (PSMFC), Ingrid Roughton (PSMFC), and Chris Townsend (PSMFC). Tagging Trailer Assistants included seasonal PSMFC staff members Pamella Asnata~~Taylor Anderson-Simpson~~ (PSMFC), Maddie Pyorre~~Bruce Branstad~~ (PSMFC), Matthew Xiong~~Monica Burnett~~ (PSMFC), Josue Lopez (PSMFC), Ashton Espino~~Reena Manohar~~ (PSMFC), Amanda Nordstrom (PSMFC), Renee M. Goss~~Alex Smith~~ (PSMFC), Noelle Takamori (PSMFC), and Kelsey Zimmerer~~John Vang~~ (PSMFC).

Schedule of Mark Events

- December 22nd~~January 14th~~ - January 26~~th~~~~nd~~ Clipping/Tagging winter-run Chinook at Livingston Stone National Fish Hatchery
- December 1~~3~~~~5~~~~th~~ - March 10th~~February 3rd~~ Clipping/Tagging winter-run Chinook at Coleman National Fish Hatchery
- March 14th~~February 16th~~ -- April 4th~~March 9th~~ Clipping/Tagging spring-run Chinook at Feather River Fish Hatchery
- February 14th~~23rd~~ - April 7th~~14th~~ Clipping/Tagging fall-run Chinook at Coleman National Fish Hatchery
- April 4th~~March 10th~~ -- May 20th~~April 26th~~ Clipping/Tagging fall-run Chinook at Feather River Fish Hatchery
- March 21st~~15th~~ - May 11th~~6th~~ Clipping/Tagging fall-run Chinook at Mokelumne River Fish Hatchery
- February 23rd~~March 1st~~ - April 21st~~March 19th~~ Clipping/Tagging fall-run Chinook at Merced Fish Hatchery
- April 11th~~March 29th~~ -- May 25th~~April 28th~~ Clipping/Tagging fall-run Chinook at Nimbus Fish Hatchery
- May 10th~~4th~~ - June 9th Clipping steelhead at Coleman National Fish Hatchery
- May 23rd~~14th~~ - June 12th~~5th~~ Clipping/Tagging late-fall-run Chinook at Coleman National Fish Hatchery
- June 27th~~22nd~~ - July 21st~~June 29th~~ Clipping steelhead at Mokelumne River Fish Hatchery
- June May 1st~~10th~~ - June 23rd~~17th~~ Clipping steelhead at Nimbus Fish Hatchery
- June 13th~~7th~~ - June 24th~~30th~~ Clipping steelhead at Feather River Fish Hatchery

Figure 1. Hatchery Locations: Central Valley Constant Fractional Marking Program (2022)

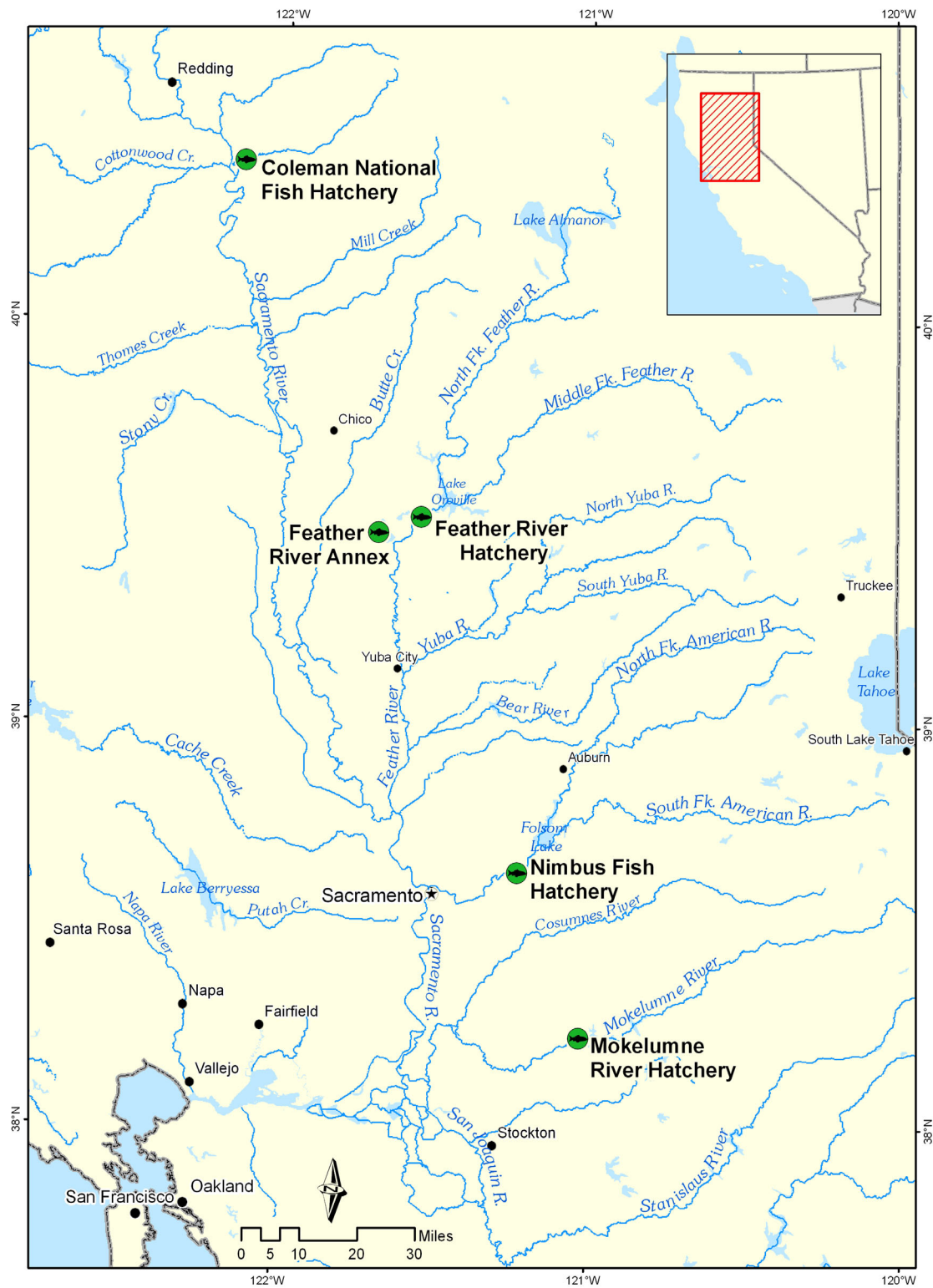
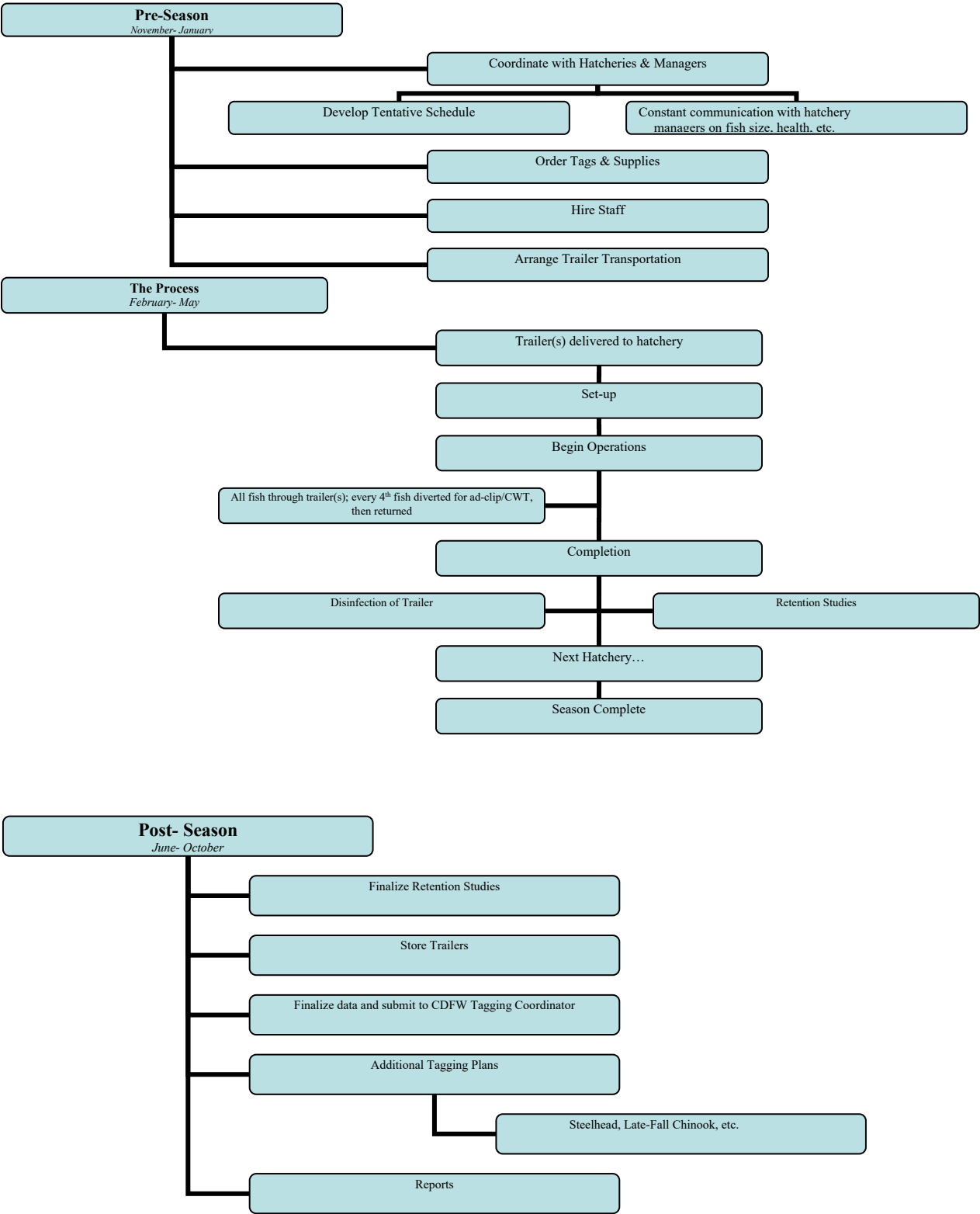


Figure 2. Constant Fractional Marking Program Annual Work Flow Summary



Appendix

Coleman National Fish Hatchery



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

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/99			Size: 110K			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
2/14/2022	1	1	12,531	-	38,088	-	50,619
2/15/2022	1	1	16,982	29,513	51,249	89,337	118,850
2/16/2022	1	1	28,782	58,295	87,018	176,355	234,650
2/17/2022	1	1	33,804	92,099	101,871	278,226	370,325
2/18/2022	1	1	10,762	102,861	32,502	310,728	413,589
Tag Code Totals			-	102,861	-	310,728	413,589

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/01			Size: 110K			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
3/3/2022	2	2	32,382	-	97,245	-	129,627
3/3/2022	2	2	48,563	80,945	145,785	243,030	323,975
3/4/2022	2	2	20,467	101,412	61,497	304,527	405,939
Tag Code Totals			-	101,412	-	304,527	405,939

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/02			Size: 110K			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
3/1/2022	3	3	41,691	-	125,217	-	166,908
3/2/2022	3	3	36,496	78,187	109,632	234,849	313,036
3/3/2022	3	3	28,246	106,433	84,891	319,740	426,173
Tag Code Totals			-	106,433	-	319,740	426,173

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/03			Size: 110K			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
2/22/2022	4	4	34,290	-	103,263	-	137,553
2/23/2022	4	4	24,251	58,541	72,963	176,226	234,767
2/23/2022	4	4	21,182	79,723	63,918	240,144	319,867
2/24/2022	4	4	4,735	84,458	14,325	254,469	338,927
Tag Code Totals			-	84,458	-	254,469	338,927

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/04			Size: 110K			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
2/24/2022	5	5	28,462	-	85,713	-	114,175
2/25/2022	5	5	24,535	52,997	73,668	159,381	212,378
2/25/2022	5	5	10,263	63,260	31,044	190,425	253,685
2/28/2022	5	5	26,183	89,443	78,729	269,154	358,597
2/28/2022	5	5	18,247	107,690	54,978	324,132	431,822
3/1/2022	5	5	13,848	121,538	41,706	365,838	487,376
Tag Code Totals			-	121,538	-	365,838	487,376

Hatchery staff inventoried fish and ~25% of them were marked/tagged in raceway's 6-28

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/05			Size: 110K			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
3/7/2022	6	6	42,482	-	-	-	358,155
3/7/2022	6	6	36,565	79,047	-	-	394,720
3/8/2022	6	6	26,493	105,540	-	-	421,213
Tag Code Totals			-	105,540	-	315,673	421,213

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/06			Size: 110K			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
3/8/2022	7	7	22,833	-	-	-	314,370
3/8/2022	7	7	55,497	78,330	-	-	369,867
3/9/2022	7	7	19,266	97,596	-	-	389,133
Tag Code Totals			-	97,596	-	291,537	389,133

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/07			Size: 110K			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
3/9/2022	8	8	33,700	-	-	-	367,146
3/9/2022	8	8	53,133	86,833	-	-	420,279
3/10/2022	8	8	24,723	111,556	-	-	445,002
Tag Code Totals			-	111,556	-	333,446	445,002

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/08			Size: 110K			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
3/10/2022	9	9	12,223	-	-	-	327,558
3/10/2022	9	9	58,514	70,737	-	-	386,072
3/11/2022	9	9	34,637	105,374	-	-	420,709
Tag Code Totals			-	105,374	-	315,335	420,709

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/09			Size: 110K			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
3/11/2022	10	10	46,155	-	-	-	330,526
3/13/2022	10	10	49,137	95,292	-	-	379,663
Tag Code Totals			-	95,292	-	284,371	379,663

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/10			Size: 110K			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
3/14/2022	11	11	32,948	-	-	-	368,251
3/14/2022	11	11	70,164	103,112	-	-	438,415
3/15/2022	11	11	8,923	112,035	-	-	447,338
Tag Code Totals			-	112,035	-	335,303	447,338

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/11			Size: 110K			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
3/15/2022	12	12	35,357	-	-	-	349,335
3/15/2022	12	12	69,959	105,316	-	-	419,294
Tag Code Totals			-	105,316	-	313,978	419,294

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/12			Size: 110K			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
3/16/2022	13	13	53,678	-	-	-	391,022
3/16/2022	13	13	59,436	113,114	-	-	450,458
Tag Code Totals			-	113,114	-	337,344	450,458

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/13			Size: 110K			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
3/17/2022	14	14	60,551	-	-	-	380,830
3/17/2022	14	14	46,739	107,290	-	-	427,569
Tag Code Totals			-	107,290	-	320,279	427,569

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/14			Size: 110K			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
3/18/2022	15	15	51,277	-	-	-	366,057
3/19/2022	15	15	54,032	105,309	-	-	420,089
Tag Code Totals			-	105,309	-	314,780	420,089

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/15			Size: 110K			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
3/21/2022	16	16	46,880	-	-	-	336,667
3/21/2022	16	16	50,483	97,363	-	-	387,150
Tag Code Totals			-	97,363	-	289,787	387,150

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/16			Size: 110K			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
3/22/2022	17	17	45,797	-	-	-	378,470
3/22/2022	17	17	65,735	111,532	-	-	444,205
Tag Code Totals			-	111,532	-	332,673	444,205

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/17			Size: 110K			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
3/23/2022	18	18	57,098	-	-	-	347,671
3/23/2022	18	18	40,136	97,234	-	-	387,807
Tag Code Totals			-	97,234	-	290,573	387,807

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/18			Size: 110K			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
3/24/2022	19	19	58,026	-	-	-	362,718
3/24/2022	19	19	44,592	102,618	-	-	407,310
Tag Code Totals			-	102,618	-	304,692	407,310

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/19			Size: 110K			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
3/25/2022	20	20	49,264	-	-	-	342,934
3/25/2022	20	20	51,516	100,780	-	-	394,450
Tag Code Totals			-	100,780	-	293,670	394,450

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/20			Size: 110K			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
3/28/2022	21	21	47,815	-	-	-	360,619
3/29/2022	21	21	41,264	89,079	-	-	401,883
3/29/2022	21	21	15,444	104,523	-	-	417,327
Tag Code Totals			-	104,523	-	312,804	417,327

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/21			Size: 110K			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
3/29/2022	22	22	51,332	-	-	-	388,967
3/30/2022	22	22	62,121	113,453	-	-	451,088
Tag Code Totals			-	113,453	-	337,635	451,088

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/22			Size: 110K			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
3/30/2022	23	23	67,154	-	-	-	405,517
3/31/2022	23	23	45,420	112,574	-	-	450,937
Tag Code Totals			-	112,574	-	338,363	450,937

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/23			Size: 110K			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
3/31/2022	24	24	76,372	-	-	-	403,714
4/1/2022	24	24	33,552	109,924	-	-	437,266
Tag Code Totals			-	109,924	-	327,342	437,266

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/24			Size: 110K			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
4/4/2022	25	25	38,027	-	-	-	359,802
4/4/2022	25	25	63,905	101,932	-	-	423,707
4/5/2022	25	25	8,067	109,999	-	-	431,774
Tag Code Totals			-	109,999	-	321,775	431,774

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/25			Size: 110K			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
4/5/2022	26	26	48,548	-	-	-	367,388
4/5/2022	26	26	58,152	106,700	-	-	425,540
Tag Code Totals			-	106,700	-	318,840	425,540

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/26			Size: 110K			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
4/6/2022	27	27	63,219	-	-	-	400,772
4/6/2022	27	27	49,598	112,817	-	-	450,370
Tag Code Totals			-	112,817	-	337,553	450,370

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/66/27			Size: 110K			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
4/7/2022	28	28	64,472	-	-	-	407,359
4/7/2022	28	28	50,362	114,834	-	-	457,721
Tag Code Totals			-	114,834	-	342,887	457,721

Coleman National Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 05/66/28		Size: 85K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/4/2022	32	33	30,671	-	30,671
3/7/2022	32	33	56,884	-	87,555
Tag Code Total			-	-	87,555

Coleman National Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 05/66/29		Size: 85K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/7/2022	31	32	51,699	-	51,699
3/8/2022	31	32	35,525	-	87,224
Tag Code Total			-	-	87,224

Coleman National Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 05/66/30		Size: 85K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/8/2022	30	31	18,785	-	18,785
3/8/2022	30	31	56,621	-	75,406
3/9/2022	30	31	8,853	-	84,259
Tag Code Total			-	-	84,259

Coleman National Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 05/66/31		Size: 85K		Trailer # CA3	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/9/2022	29	30	41,203	-	41,203
3/9/2022	29	30	39,233	-	80,436
Tag Code Total			-	-	80,436

Hatchery Totals	Tagged 3,308,949	Untagged 8,865,942	Total 12,174,891
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Retention Range: 94.84%-100%

Retention Average: 99.05%

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
05/65/99	110K	1	102,861	310,728	413,589	421	24	98.10%	100,907	312,682
05/66/01	110K	2	101,412	304,527	405,939	392	28	100.00%	101,412	304,527
05/66/02	110K	3	106,433	319,740	426,173	411	27	100.00%	106,433	319,740
05/66/03	110K	4	84,458	254,469	338,927	404	18	100.00%	84,458	254,469
05/66/04	110K	5	121,538	365,838	487,376	396	31	100.00%	121,538	365,838
05/66/05	110K	6	105,540	315,673	421,213	393	24	99.75%	105,276	315,937
05/66/06	110K	7	97,596	291,537	389,133	402	23	99.75%	97,352	291,781
05/66/07	110K	8	111,556	333,446	445,002	395	22	100.00%	111,556	333,446
05/66/08	110K	9	105,374	315,335	420,709	396	21	99.75%	105,111	315,598
05/66/09	110K	10	95,292	284,371	379,663	397	30	100.00%	95,292	284,371
05/66/10	110K	11	112,035	335,303	447,338	388	28	100.00%	112,035	335,303
05/66/11	110K	12	105,316	313,978	419,294	383	28	100.00%	105,316	313,978
05/66/12	110K	13	113,114	337,344	450,458	380	27	99.47%	112,519	337,939
05/66/13	110K	14	107,290	320,279	427,569	392	26	100.00%	107,290	320,279
05/66/14	110K	15	105,309	314,780	420,089	378	24	100.00%	105,309	314,780
05/66/15	110K	16	97,363	289,787	387,150	379	22	97.63%	95,051	292,099
05/66/16	110K	17	111,532	332,673	444,205	356	21	99.16%	110,592	333,613
05/66/17	110K	18	97,234	290,573	387,807	391	29	98.21%	95,493	292,314
05/66/18	110K	19	102,618	304,692	407,310	393	28	98.47%	101,051	306,259
05/66/19	110K	20	100,780	293,670	394,450	406	27	99.51%	100,284	294,166
05/66/20	110K	21	104,523	312,804	417,327	407	23	94.84%	99,130	318,197
05/66/21	110K	22	113,453	337,635	451,088	403	22	99.50%	112,890	338,198
05/66/22	110K	23	112,574	338,363	450,937	387	21	100.00%	112,574	338,363
05/66/23	110K	24	109,924	327,342	437,266	395	28	99.49%	109,367	327,899
05/66/24	110K	25	109,999	321,775	431,774	397	24	99.75%	109,722	322,052
05/66/25	110K	26	106,700	318,840	425,540	375	24	97.33%	103,855	321,685
05/66/26	110K	27	112,817	337,553	450,370	376	23	99.20%	111,917	338,453
05/66/27	110K	28	114,834	342,887	457,721	386	22	98.70%	113,347	344,374
05/66/28	85K	33	87,555	-	87,555	200	29	99.00%	86,679	876
05/66/29	85K	32	87,224	-	87,224	200	28	96.50%	84,171	3,053
05/66/30	85K	31	84,259	-	84,259	198	27	97.98%	82,557	1,702
05/66/31	85K	30	80,436	-	80,436	200	27	97.50%	78,425	2,011
Hatchery Totals			3,308,949	8,865,942	12,174,891	Retention Average		99.05%	3,278,908	8,895,983

Feather River Fish Hatchery



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

Feather River Fish Hatchery - Spring Run Chinook								
Tag Code: 06/28/63			Size: 320K				Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Untagged Via Fish Counter	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/14/2022	H2	H6	30,858	-	-	4,188	-	35,046
3/15/2022	H2	H6	42,819	73,677	-	2,343	6,531	80,208
3/15/2022	H2	H6	37,389	111,066	-	-	6,531	117,597
3/16/2022	H2/G2	H6	48,480	159,546	-	3,372	9,903	169,449
3/16/2022	G4	H6	36,798	196,344	-	-	9,903	206,247
3/17/2022	G4	H6	55,508	251,852	-	1,553	11,456	263,308
3/17/2022	G4	H6	51,342	303,194	-	1,561	13,017	316,211
3/18/2022	G4	H6	47,773	350,967	-	1,477	14,494	365,461
3/18/2022	G4	H6	19,661	370,628	-	1,121	15,615	386,243
Tag Code Totals			-	370,628	355,106	-	15,615	741,349

Feather River Fish Hatchery - Spring Run Chinook								
Tag Code: 06/28/64			Size: 320K				Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Untagged Via Fish Counter	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/18/2022	G4	G6	14,335	-	-	218	-	14,553
3/21/2022	G4	G6	44,484	58,819	-	718	936	59,755
3/21/2022	G4/H4	G6	43,631	102,450	-	2,928	3,864	106,314
3/22/2022	H4	G6	51,158	153,608	-	1,623	5,487	159,095
3/22/2022	H4	G6	50,325	203,933	-	1,834	7,321	211,254
3/23/2022	H4	G6	55,260	259,193	-	1,839	9,160	268,353
3/23/2022	H4	G6	47,681	306,874	-	967	10,127	317,001
3/24/2022	H4	G6	51,877	358,751	-	3,326	13,453	372,204
Tag Code Totals			-	358,751	345,058	-	13,453	717,262

Feather River Fish Hatchery - Spring Run Chinook								
Tag Code: 06/28/65			Size: 320K				Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Untagged Via Fish Counter	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/24/2022	H4	G2	28,449	-	-	1,646	-	30,095
3/25/2022	H4	G2	54,856	83,305	-	2,210	3,856	87,161
3/25/2022	H4	G2	49,425	132,730	-	1,421	5,277	138,007
3/28/2022	H2	G2	53,566	186,296	-	1,823	7,100	193,396
3/28/2022	H2	G2	53,900	240,196	-	1,099	8,199	248,395
3/29/2022	H2	G2	60,987	301,183	-	1,818	10,017	311,200
3/29/2022	H2	G2	62,265	363,448	-	1,199	11,216	374,664
Tag Code Totals			-	363,448	105,729	-	11,216	480,393

Feather River Fish Hatchery - Spring Run Chinook								
Tag Code: 06/28/66			Size: 320K				Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Untagged Via Fish Counter	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/30/2022	H2	H1	59,870	-	-	2,895	-	62,765
3/30/2022	H2	H1	58,277	118,147	-	2,075	4,970	123,117
3/31/2022	H2	H1	62,268	180,415	-	2,400	7,370	187,785
3/31/2022	H2	H1	51,627	232,042	-	1,860	9,230	241,272
4/1/2022	H2	H1	58,043	290,085	-	1,645	10,875	300,960
4/1/2022	H2	H1	46,719	336,804	-	1,173	12,048	348,852
4/4/2022	G3	H1	18,156	354,960	-	6,142	18,190	373,150
Tag Code Totals			-	354,960	105,679	-	18,190	478,829

Hatchery Totals: 1,447,787 911,572 58,474 2,417,833

Retention Range: 98.54% - 98.90%

Retention Average: 98.72%

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	Untagged Via Counter	Number Untagged	Total Processed	# of Fish Held	Days Held	% Retention	# Retaining Tags	Calculated Untagged
06/28/63	320K	H6	370,628	355,106	15,615	741,349	910	10	98.90%	366,551	374,798
06/28/64	320K	G6	358,751	345,058	13,453	717,262	821	4	98.54%	353,513	363,749
06/28/65	320K	G2	363,448	105,729	11,216	480,393	-	-	98.72%	358,796	121,597
06/28/66	320K	H1	354,960	105,679	18,190	478,829	-	-	98.72%	350,417	128,412
Hatchery Totals			1,447,787	911,572	58,474	2,417,833	Retention Average		98.72%	1,429,277	988,556

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

Feather River Fish Hatchery - Fall Run Chinook 100% Mark/Tag					
Tag Code: 06/19/58		Size: 225K		Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/4/2022	E4	CH3	47,595	-	47,595
4/5/2022	E4	CH3	54,357	-	101,952
4/5/2022	E4	CH3	52,978	-	154,930
4/6/2022	E4	CH3	60,327	-	215,257
4/6/2022	E4	CH3	34,814	-	250,071
Tag Code Total			-	-	250,071

Feather River Fish Hatchery - Fall Run Chinook 100% Mark/Tag					
Tag Code: 06/19/54		Size: 225K		Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/6/2022	E4	CH1	14,146	-	14,146
4/7/2022	E4	CH1	60,557	-	74,703
4/7/2022	E4	CH1	55,735	-	130,438
4/8/2022	E4	CH1	38,402	-	168,840
4/8/2022	E4	CH1	52,133	-	220,973
4/11/2022	E4	CH1	33,213	-	254,186
Tag Code Total			-	-	254,186

Feather River Fish Hatchery - Fall Run Chinook 100% Mark/Tag					
Tag Code: 06/19/57		Size: 225K		Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/11/2022	E4	CH2	32,203	-	32,203
4/12/2022	E4	CH2	51,026	-	83,229
4/12/2022	E4	CH2	35,593	-	118,822
4/13/2022	E4	CH2	69,510	-	188,332
4/14/2022	E2	CH2	58,636	-	246,968
4/15/2022	E2	CH2	8,247	-	255,215
Tag Code Total			-	-	255,215

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/86			Size: 76K			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
4/15/2022	E2	E6	12,966	-	38,958	-	51,924
4/18/2022	E2	E6	28,919	41,885	87,066	126,024	167,909
4/18/2022	E2	E6	24,256	66,141	72,867	198,891	265,032
4/19/2022	E2	E6	17,512	83,653	52,758	251,649	335,302
Tag Code Totals			-	83,653	-	251,649	335,302

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/87			Size: 76K			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
4/19/2022	E2/D2	E4	18,267	-	54,870	-	73,137
4/20/2022	D2	E4	20,513	38,780	61,626	116,496	155,276
4/20/2022	D2	E4	22,135	60,915	66,498	182,994	243,909
4/21/2022	D2	E4	21,500	82,415	64,608	247,602	330,017
Tag Code Totals			-	82,415	-	247,602	330,017

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/88			Size: 76K			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
4/21/2022	D2	E2	27,408	-	82,278	-	109,686
4/22/2022	D2/D4	E2	35,874	63,282	107,808	190,086	253,368
4/22/2022	D4	E2	22,150	85,432	66,501	256,587	342,019
Tag Code Totals			-	85,432	-	256,587	342,019

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/89			Size: 76K			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
4/22/2022	D4	D2	2,485	-	7,455	-	9,940
4/25/2022	D4	D2	33,919	36,404	101,880	109,335	145,739
4/25/2022	D4	D2	38,265	74,669	114,870	224,205	298,874
4/26/2022	D4	D2	10,134	84,803	30,483	254,688	339,491
Tag Code Totals			-	84,803	-	254,688	339,491

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/90			Size: 76K			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
4/26/2022	D4	G2	16,463	-	49,458	-	65,921
4/26/2022	D4	G2	36,052	52,515	108,375	157,833	210,348
4/27/2022	D4	G2	31,479	83,994	94,641	252,474	336,468
Tag Code Totals			-	83,994	-	252,474	336,468

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/91			Size: 76K			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
4/27/2022	D4	H2	31,072	-	93,273	-	124,345
4/28/2022	D4	H2	17,671	48,743	53,076	146,349	195,092
4/28/2022	A2	H2	35,544	84,287	106,710	253,059	337,346
Tag Code Totals			-	84,287	-	253,059	337,346

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/92			Size: 76K			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
4/29/2022	A2	D4	41,161	-	123,708	-	164,869
4/29/2022	A2/B4	D4	35,698	76,859	107,175	230,883	307,742
5/2/2022	B4	D4	6,526	83,385	19,656	250,539	333,924
Tag Code Totals			-	83,385	-	250,539	333,924

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/93			Size: 76K			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
5/2/2022	B4	D6	28,936	-	86,832	-	115,768
5/2/2022	B4	D6	37,007	65,943	111,126	197,958	263,901
5/3/2022	B4	D6	17,987	83,930	54,018	251,976	335,906
Tag Code Totals			-	83,930	-	251,976	335,906

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/94			Size: 76K			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
5/3/2022	B6	A6	13,871	-	41,613	-	55,484
5/3/2022	B6	A6	36,092	49,963	108,399	150,012	199,975
5/4/2022	B6	A6	776	50,739	2,326	152,338	203,077
5/4/2022	B6/B2	A6	33,672	84,411	101,064	253,402	337,813
Tag Code Totals			-	84,411	-	253,402	337,813

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/19/48			Size: 85K			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
5/4/2022	B2	B6	39,172	-	117,627	-	156,799
5/5/2022	B2	B6	39,238	78,410	117,816	235,443	313,853
5/5/2022	B2	B6	15,548	93,958	46,686	282,129	376,087
Tag Code Totals			-	93,958	-	282,129	376,087

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/19/51			Size: 85K			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
5/5/2022	B2	B4	14,951	-	44,880	-	59,831
5/6/2022	B2/C4	B4	32,205	47,156	96,660	141,540	188,696
5/6/2022	C4	B4	35,335	82,491	106,110	247,650	330,141
5/9/2022	C4	B4	16,477	98,968	49,506	297,156	396,124
Tag Code Totals			-	98,968	-	297,156	396,124

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/95			Size: 76K			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
5/9/2022	C4	B2	11,048	-	33,156	-	44,204
5/9/2022	C4	B2	38,028	49,076	114,177	147,333	196,409
5/10/2022	C4/C6	B2	34,797	83,873	104,487	251,820	335,693
Tag Code Totals			-	83,873	-	251,820	335,693

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/96			Size: 76K			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
5/10/2022	C6	G4	23,782	-	71,472	-	95,254
5/11/2022	C6	G4	36,090	59,872	108,378	179,850	239,722
5/11/2022	C6	G4	24,405	84,277	73,314	253,164	337,441
Tag Code Totals			-	84,277	-	253,164	337,441

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/28/97			Size: 76K			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
5/11/2022	C6	G6	4,678	-	14,139	-	18,817
5/12/2022	C6/A4	G6	33,622	38,300	100,932	115,071	153,371
5/12/2022	A4	G6	36,343	74,643	109,137	224,208	298,851
5/13/2022	A4	G6	9,341	83,984	28,065	252,273	336,257
Tag Code Totals			-	83,984	-	252,273	336,257

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/06/80			Size: 80K			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
5/13/2022	A4	H4	18,910	-	56,781	-	75,691
5/13/2022	A4	H4	27,532	46,442	82,689	139,470	185,912
5/16/2022	A4/C2	H4	28,839	75,281	86,616	226,086	301,367
5/16/2022	C2	H4	13,495	88,776	40,533	266,619	355,395
Tag Code Totals			-	88,776	-	266,619	355,395

Feather River Fish Hatchery - Fall Run Chinook 100% Mark/Tag					
Tag Code: 06/23/84		Size: 185K		Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
5/16/2022	C2	C6	15,001	-	15,001
5/17/2022	C2	C6	41,993	-	56,994
5/17/2022	C2	C6	43,827	-	100,821
5/18/2022	C2	C6	43,268	-	144,089
5/18/2022	C2	C6	48,149	-	192,238
5/19/2022	C2	C6	883	-	193,121
5/19/2022	C2	C6	7,005	-	200,126
Tag Code Total			-	-	200,126

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/15/32			Size: 80K			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
5/19/2022	C2	H6	23,280	-	69,906	-	93,186
5/19/2022	C2	H6	40,873	64,153	122,679	192,585	256,738
5/20/2022	C2	H6	22,735	86,888	68,334	260,919	347,807
Tag Code Totals			-	86,888	-	260,919	347,807

Hatchery Totals: 2,336,632 4,136,056 6,472,688

Retention Range: 99.00% - 100.00%

Retention Average: 99.78%

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
06/19/58	225K	CH3	250,071	-	250,071	891	21	100.00%	250,071	0
06/19/54	225K	CH1	254,186	-	254,186	904	30	99.23%	252,218	1,968
06/19/57	225K	CH2	255,215	-	255,215	900	25	99.61%	254,227	988
06/28/86	76K	E6	83,653	251,649	335,302	400	23	100.00%	83,653	251,649
06/28/87	76K	E4	82,415	247,602	330,017	400	21	100.00%	82,415	247,602
06/28/88	76K	E2	85,432	256,587	342,019	400	20	99.75%	85,218	256,801
06/28/89	76K	D2	84,803	254,688	339,491	400	21	99.25%	84,167	255,324
06/28/90	76K	G2	83,994	252,474	336,468	400	21	99.00%	83,154	253,314
06/28/91	76K	H2	84,287	253,059	337,346	400	21	99.75%	84,076	253,270
06/28/92	76K	D4	83,385	250,539	333,924	400	21	99.75%	83,177	250,747
06/28/93	76K	D6	83,930	251,976	335,906	400	21	99.25%	83,301	252,605
06/28/94	76K	A6	84,411	253,402	337,813	400	24	100.00%	84,411	253,402
06/19/48	85K	B6	93,958	282,129	376,087	400	21	100.00%	93,958	282,129
06/19/51	85K	B4	98,968	297,156	396,124	400	24	100.00%	98,968	297,156
06/28/95	76K	B2	83,873	251,820	335,693	400	22	100.00%	83,873	251,820
06/28/96	76K	G4	84,277	253,164	337,441	400	22	100.00%	84,277	253,164
06/28/97	76K	G6	83,984	252,273	336,257	400	21	100.00%	83,984	252,273
06/06/80	80K	H4	88,776	266,619	355,395	400	21	100.00%	88,776	266,619
06/23/84	185K	C6	200,126	-	200,126	600	25	100.00%	200,126	0
06/15/32	80K	H6	86,888	260,919	347,807	400	18	100.00%	86,888	260,919
Hatchery Totals			2,336,632	4,136,056	6,472,688	Retention Average		99.78%	2,330,937	4,141,751

Feather River 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
6/13/2022	F4	E2	17,942	-	17,942
6/14/2022	F4	E2	57,256	75,198	75,198
6/15/2022	F4/F2	E2	45,887	121,085	121,085
6/16/2022	F2	E2	57,993	179,078	179,078
6/17/2022	F2	E2	20,964	200,042	200,042
6/17/2022	F2	E4	19,824	219,866	19,824
6/21/2022	F2	E4	51,158	271,024	70,982
6/22/2022	F2	E4	48,811	319,835	119,793
6/23/2022	F2	E4	53,117	372,952	172,910
6/24/2022	F2	E4	36,552	409,504	209,462
Hatchery Total			-	409,504	409,504

Merced Hatchery



Table 3a. Daily Tagging Rates at Merced Hatchery

Merced Fish Hatchery - Fall Run Chinook				
Tag Code: 6/15/87		Size: 50K		Manual Trailer
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Raceway & Cumulative Tagged Total
2/23/2022	1	1	785	785
2/24/2022	1	1	939	1,724
2/25/2022	1	1	1,754	3,478
2/28/2022	1, 2	1	1,923	5,401
3/1/2022	2	1	3,742	9,143
3/2/2022	2	1	3,255	12,398
3/3/2022	2	1	3,246	15,644
3/4/2022	1,2	1	3,456	19,100
3/7/2022	3	1	2,858	21,958
3/8/2022	4	2	806	22,764
3/9/2022	2	2	1,415	24,179
3/14/2022	1, 2, 3, 5	2	2,198	26,377
3/15/2022	5	2	2,855	29,232
3/16/2022	5	2	2,893	32,125
3/17/2022	6	2	3,175	35,300
3/18/2022	6	2	3,267	38,567
3/21/2022	6	2	3,387	41,954
3/22/2022	6	2	3,158	45,112
3/23/2022	4	2	1,912	47,024
3/24/2022	8	3	2,216	49,240
3/25/2022	8	3	2,312	51,552
3/28/2022	7, 8	3	2,004	53,556
Tag Code Total:				53,556

Merced Fish Hatchery - Fall Run Chinook				
Tag Code: 6/15/27		Size: 50K		Manual Trailer
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Raceway & Cumulative Tagged Total
3/25/2022	8	3	1,057	1,057
3/28/2022	7, 8	3	456	1,513
3/29/2022	7	3	3,953	5,466
3/30/2022	7	3	2,675	8,141
3/31/2022	7	3	2,859	11,000
4/1/2022	1, 2, 3, 4, 7, 9	3, 4	1,298	12,298
4/4/2022	9	4	2,614	14,912
4/5/2022	9, 5	4	2,870	17,782
4/6/2022	6, 8	4	2,732	20,514
4/7/2022	7, 10	4	2,810	23,324
4/8/2022	10	4	2,412	25,736
4/11/2022	1, 2, 3, 4, 5, 6, 7, 9, 10	4	3,256	28,992
4/12/2022	8, 9, 11	4	914	29,906
4/13/2022	11	4	1,535	31,441
4/14/2022	1 through 11	4	974	32,415
4/21/2022	1 through 11	4	2,767	35,182
Tag Code Total:				35,182

Hatchery Totals:

88,738

Retention Range: 99.12% - 99.84%

Retention Average: 99.48%

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

Merced 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
06/15/87	50K	1,2,3	53,556	1,307	54,863	5,094	36	99.12%	53,085	1,778
06/15/27	50K	3,4	35,182	871	36,053	3,202	36	99.84%	35,126	927
Hatchery Totals			88738	2178	90916	Retention Average		99.48%	88210	2,706

Mokelumne River Hatchery



Table 4a. Daily Tagging Rates at Mokelumne River Hatchery

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/55			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
3/21/2022	C	A	3,841	-	11,577	-	15,418
3/22/2022	C	A	38,030	41,871	114,177	125,754	167,625
3/23/2022	C	A	40,249	82,120	121,065	246,819	328,939
3/24/2022	C/D	A	29,339	111,459	88,287	335,106	446,565
Tag Code Totals			-	111,459	-	335,106	446,565

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/56			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
3/25/2022	D	B	22,453	-	67,560	-	90,013
3/28/2022	D	B	17,844	40,297	53,589	121,149	161,446
3/29/2022	D	B	43,956	84,253	131,946	253,095	337,348
3/30/2022	D	B	12,732	96,985	38,232	291,327	388,312
3/30/2022	E	B	11,833	108,818	35,514	326,841	435,659
Tag Code Totals			-	108,818	-	326,841	435,659

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/57			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
3/30/2022	E	C	4,926	-	14,793	-	19,719
3/31/2022	E	C	38,144	43,070	114,459	129,252	172,322
4/1/2022	E	C	30,115	73,185	90,381	219,633	292,818
4/4/2022	E	C	23,419	96,604	70,299	289,932	386,536
4/4/2022	F	C	12,251	108,855	36,762	326,694	435,549
Tag Code Totals			-	108,855	-	326,694	435,549

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/58			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
4/4/2022	F	D	1,154	-	3,462	-	4,616
4/5/2022	F	D	40,256	41,410	120,810	124,272	165,682
4/6/2022	F	D	40,478	81,888	121,467	245,739	327,627
4/7/2022	F	D	12,488	94,376	37,485	283,224	377,600
4/7/2022	G	D	14,846	109,222	44,550	327,774	436,996
Tag Code Totals			-	109,222	-	327,774	436,996

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/59			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
4/7/2022	G	E	6,894	-	20,700	-	27,594
4/8/2022	G	E	40,232	47,126	120,762	141,462	188,588
4/9/2022	G	E	24,327	71,453	73,011	214,473	285,926
4/11/2022	G/H	E	37,574	109,027	112,788	327,261	436,288
Tag Code Totals			-	109,027	-	327,261	436,288

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/60			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
4/11/2022	H	F	12,133	-	36,411	-	48,544
4/12/2022	H	F	41,160	53,293	123,546	159,957	213,250
4/12/2022	H	F	37,155	90,448	111,519	271,476	361,924
4/13/2022	O	F	18,539	108,987	55,758	327,234	436,221
Tag Code Totals			-	108,987	-	327,234	436,221

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/48			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
4/13/2022	I	G	37,661	-	113,064	-	150,725
4/14/2022	I	G	39,166	76,827	117,663	230,727	307,554
4/14/2022	I/J	G	40,455	117,282	121,416	352,143	469,425
4/15/2022	J	G	3,806	121,088	11,448	363,591	484,679
Tag Code Totals			-	121,088	-	363,591	484,679

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/49			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
4/15/2022	J	H	17,999	-	54,009	-	72,008
4/15/2022	J	H	22,435	40,434	67,338	121,347	161,781
4/18/2022	J	H	23,569	64,003	70,935	192,282	256,285
4/19/2022	K	H	35,566	99,569	106,749	299,031	398,600
4/19/2022	K	H	22,035	121,604	66,147	365,178	486,782
Tag Code Totals			-	121,604	-	365,178	486,782

Mokelumne River Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 06/29/52		Size: 150K		Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/19/2022	K	I1	29,183	-	29,183
4/20/2022	K	I1	61,408	-	90,591
4/20/2022	K	I1	69,032	-	159,623
Tag Code Total			-	-	159,623

Mokelumne River Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 06/29/53		Size: 150K		Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/21/2022	K/L	I2	61,680	-	61,680
4/21/2022	L	I2	64,593	-	126,273
4/22/2022	L	I2	36,030	-	162,303
Tag Code Total			-	-	162,303

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/54			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
4/22/2022	L	J	22,392	-	67,245	-	89,637
4/25/2022	L	J	17,634	40,026	52,995	120,240	160,266
4/25/2022	L/M	J	28,987	69,013	87,006	207,246	276,259
4/26/2022	M	J	24,762	93,775	74,349	281,595	375,370
4/26/2022	M	K	14,532	-	43,596	-	58,128
4/26/2022	M	K	32,791	47,323	98,412	142,008	189,331
4/27/2022	M/N	K	46,595	93,918	139,875	281,883	375,801
Tag Code Totals			-	187,693	-	563,478	751,171

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/15/33			Size: 80K			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
4/28/2022	O	L	30,429	-	91,302	-	121,731
4/28/2022	O	L	40,731	71,160	122,256	213,558	284,718
4/29/2022	O	L	17,746	88,906	53,286	266,844	355,750
Tag Code Totals			-	88,906	-	266,844	355,750

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/12/80			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
4/27/2022	N	L	32,920	-	98,814	-	131,734
4/28/2022	N	L	1,244	34,164	3,768	102,582	136,746
Tag Code Totals			-	34,164	-	102,582	136,746

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/61			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
5/2/2022	O	M	21,563	-	64,776	-	86,339
5/2/2022	P	M	36,724	58,287	110,226	175,002	233,289
5/3/2022	P	M	37,062	95,349	111,228	286,230	381,579
5/3/2022	P	M	13,782	109,131	41,388	327,618	436,749
Tag Code Totals			-	109,131	-	327,618	436,749

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/64			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
5/3/2022	P	N	20,946	-	62,844	-	83,790
5/4/2022	P/Q	N	37,381	58,327	112,182	175,026	233,353
5/4/2022	Q	N	38,414	96,741	115,284	290,310	387,051
5/5/2022	Q	N	12,564	109,305	37,719	328,029	437,334
Tag Code Totals			-	109,305	-	328,029	437,334

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/50			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
5/5/2022	Q	O	20,857	-	62,571	-	83,428
5/5/2022	Q	O	25,570	46,427	76,761	139,332	185,759
5/6/2022	R	O	18,122	64,549	54,429	193,761	258,310
5/6/2022	R	O	23,114	87,663	69,390	263,151	350,814
5/9/2022	R	O	27,162	114,825	81,546	344,697	459,522
5/10/2022	R	O	5,214	120,039	15,687	360,384	480,423
Tag Code Totals			-	120,039	-	360,384	480,423

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/19/36			Size: 50K			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
5/10/2022	R	P	26,695	-	80,121	-	106,816
5/11/2022	R	P	28,882	55,577	86,703	166,824	222,401
Tag Code Totals			-	55,577	-	166,824	222,401

Hatchery Totals:

1,925,801

4,815,438

6,741,239

Retention Range: 99.75% - 100.00%

Retention Average: 99.94%

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
06/29/55	100K	A	111,459	335,106	446,565	403	21	100.00%	111,459	335,106
06/29/56	100K	B	108,818	326,841	435,659	403	21	100.00%	108,818	326,841
06/29/57	100K	C	108,855	326,694	435,549	398	21	100.00%	108,855	326,694
06/29/58	100K	D	109,222	327,774	436,996	399	21	99.75%	108,949	328,047
06/29/59	100K	E	109,027	327,261	436,288	401	21	100.00%	109,027	327,261
06/29/60	100K	F	108,987	327,234	436,221	399	21	100.00%	108,987	327,234
06/29/48	110K	G	121,088	363,591	484,679	399	20	100.00%	121,088	363,591
06/29/49	110K	H	121,604	365,178	486,782	400	21	100.00%	121,604	365,178
06/29/52	150K	I1	159,623	-	159,623	400	21	99.75%	159,224	399
06/29/53	150K	I2	162,303	-	162,303	400	19	99.75%	161,897	406
06/29/54	170K	J/K	187,693	563,478	751,171	401	21	100.00%	187,693	563,478
06/15/33	80K	L	88,906	266,844	355,750	411	25	100.00%	88,906	266,844
06/12/80	40K	L	34,164	102,582	136,746	411	25	100.00%	34,164	102,582
06/29/61	100K	M	109,131	327,618	436,749	477	16	99.79%	108,902	327,847
06/29/64	100K	N	109,305	328,029	437,334	400	14	100.00%	109,305	328,029
06/29/50	110K	O	120,039	360,384	480,423	324	22	100.00%	120,039	360,384
06/19/36	50K	P	55,577	166,824	222,401	399	20	100.00%	55,577	166,824
Hatchery Totals			1,925,801	4,815,438	6,741,239	Retention Average		99.94%	1,924,494	4,816,745

Mokelumne River Fish Hatchery - Steelhead - 100% Mark Only					
Trailer # CFG-1					
Marking Date	Raceway Prior to Marking	Raceway Following Marking	Daily Marked Total	Cumulative Marked Total	Raceway Total
6/27/2022	Lot 3,4,5	O	16,380	-	16,380
6/28/2022	Lot 5,6	P	21,437	37,817	21,437
7/18/2022	HATCH BLD	Q	23,100	60,917	23,100
7/19/2022	HATCH BLD	R	41,015	101,932	41,015

Mokelumne River Fish Hatchery - Steelhead - 100% Mark/Tag					
Tag Code: 06/20/87		Size: 40K		Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
7/20/2022	S	N	25,152	-	25,152
7/20/2022	S	M	19,364	44,516	19,364
Tag Code Total			-	44,516	-

Mokelumne River Fish Hatchery - Steelhead - 100% Mark/Tag					
Tag Code: 06/87/89		Size: 10K		Trailer # CFG-1	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
7/21/2022	S/O	M	7,234	-	7,234
Tag Code Total			-	7,234	7,234

Hatchery Totals	Tagged	51,750	Mark Only	101,932
		Total Processed		153,682

Nimbus Hatchery



Table 5a. Daily Tagging Rates at Nimbus Hatchery

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/65			Size: 150K			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
4/11/2022	A	A	3,249	-	9,858	-	13,107
4/12/2022	A	A	28,085	31,334	84,423	94,281	125,615
4/13/2022	A	A	40,506	71,840	121,620	215,901	287,741
4/14/2022	A	A	36,564	108,404	109,818	325,719	434,123
4/15/2022	A	A	28,364	136,768	85,197	410,916	547,684
4/18/2022	A	A	25,739	162,507	77,331	488,247	650,754
4/19/2022	A	A	3,797	166,304	11,457	499,704	666,008
Tag Code Totals			-	166,304	-	499,704	666,008

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/69			Size: 186K			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
4/19/2022	B	B	24,083	-	72,396	-	96,479
4/20/2022	B	B	43,253	67,336	129,885	202,281	269,617
4/21/2022	B	B	46,369	113,705	139,314	341,595	455,300
4/22/2022	B	B	32,426	146,131	97,377	438,972	585,103
4/25/2022	B	B	25,796	171,927	77,475	516,447	688,374
4/26/2022	B/C	B	38,145	210,072	114,519	630,966	841,038
Tag Code Totals			-	210,072	-	630,966	841,038

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/67			Size: 150K			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
4/27/2022	C	C	46,133	-	138,501	-	184,634
4/28/2022	C	C	45,652	91,785	137,043	275,544	367,329
4/29/2022	C	C	33,706	125,491	101,202	376,746	502,237
5/1/2022	C/D	C	41,534	167,025	124,830	501,576	668,601
Tag Code Totals			-	167,025	-	501,576	668,601

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/68			Size: 186K			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
5/3/2022	D	D	38,338	-	115,304	-	153,642
5/4/2022	D	D	38,861	77,199	116,718	232,022	309,221
5/5/2022	D	D	38,578	115,777	115,848	347,870	463,647
5/6/2022	D	D	32,549	148,326	97,731	445,601	593,927
5/9/2022	D	D	25,872	174,198	77,691	523,292	697,490
5/10/2022	D	D	38,404	212,602	109,556	632,848	845,450
Tag Code Totals			-	212,602	-	632,848	845,450

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/86/65			Size: 20K			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
5/10/2022	D	D	5,743	-	22,972	-	28,715
Tag Code Totals			-	5,743	-	22,972	28,715

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/66			Size: 150K			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
5/11/2022	E	E	14,690	-	44,130	-	
5/12/2022	E	E	35,183	49,873	105,612	149,742	199,615
5/13/2022	E	E	38,943	88,816	116,898	266,640	355,456
5/16/2022	E	E	37,075	125,891	111,306	377,946	503,837
5/17/2022	E	E	43,865	169,756	126,300	504,246	674,002
Tag Code Totals			-	169,756	-	504,246	674,002

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/82/08			Size: 10K			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
5/17/2022	E	E	5,343	-	21,372	-	26,715
Tag Code Totals			-	5,343	-	21,372	26,715

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/29/70			Size: 186K			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
5/18/2022	F	F	38,762	-	116,340	-	155,102
5/19/2022	F	F	40,718	79,480	122,214	238,554	318,034
5/20/2022	F	F	35,654	115,134	107,001	345,555	460,689
5/23/2022	F	F	32,423	147,557	97,320	442,875	590,432
5/24/2022	F	F	40,138	187,695	120,468	563,343	751,038
5/25/2022	F	F	34,147	221,842	102,480	665,823	887,665
Tag Code Totals			-	221,842	-	665,823	887,665

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/12/09			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
5/25/2022	F	F	11,306	-	33,918	-	45,224
Tag Code Totals			-	11,306	-	33,918	45,224

Hatchery Totals: 1,169,993 3,513,425 4,683,418

Retention Range: 99.34% - 100%

Retention Average: 99.59%

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
06/29/65	150K	A	166,304	499,704	666,008	907	10	99.67%	165,755	500,253
06/29/69	186K	B	210,072	630,966	841,038	894	21	100.00%	210,072	630,966
06/29/67	150K	C	167,025	501,576	668,601	901	21	100.00%	167,025	501,576
06/29/68	186K	D	212,602	638,591	851,193	885	17	99.55%	211,645	639,548
06/86/65	20K	D	5,743	17,229	22,972	-	-	99.55%	5,717	17,255
06/29/66	150K	E	169,756	509,589	679,345	900	17	99.44%	168,805	510,540
06/82/08	10K	E	5,343	16,029	21,372	-	-	99.44%	5,313	16,059
06/29/70	186K	F	221,842	665,823	887,665	906	13	99.34%	220,378	667,287
06/12/09	30K	F	11,306	33,918	45,224	-	-	99.34%	11,231	33,993
Hatchery Totals			1,169,993	3,513,425	4,683,418	Retention Average		99.59%	1,165,942	3,517,476

Nimbus Fish Hatchery - Steelhead - 100% Mark Only					
Trailer # CA1					
Marking Date	Raceway Prior to Marking	Raceway Following Marking	Daily Marked Total	Cumulative Marked Total	Raceway Total
6/1/2022	Lot 1,2,3	A	32,754	-	32,754
6/2/2022	Lot 3	A	47,246	80,000	80,000
6/2/2022	Lot 3	B	1,003	81,003	1,003
6/3/2022	Lot 3,4	B	39,534	120,537	40,537
6/6/2022	Lot 4,5	B	36,966	157,503	77,503
6/6/2022	Lot 4,5	C	12,436	169,939	12,436
6/7/2022	Lot 5,6	C	68,201	238,140	80,637
6/8/2022	Lot 6,7	D	46,447	284,587	46,447
6/9/2022	Lot 7	D	31,403	315,990	77,850
6/21/2022	Lot 9	E	40,852	356,842	40,852
6/22/2022	Lot 8,9	E	38,240	395,082	79,092
6/22/2022	Lot 8,9	F	10,323	405,405	10,323
6/23/2022	Lot 9,10	F	52,780	458,185	63,103
Hatchery Total			-	-	458,185