

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

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

2021 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 2021. 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 2021 tagging season.

The AutoFish Trailers were also used in the 2011 through 2021 seasons to adipose fin-clip and coded-wire tag 100% of the spring-run Chinook salmon reared at the Feather River Fish Hatchery, and adipose fin-clip 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 2021 (Brood Year 2020 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, 30,775,037 fish. Of the fall-run Chinook salmon total, approximately 26.71% were coded-wire tagged and adipose fin-clipped (8,218,939 fish). In addition, the program marked and coded-wire tagged 100% of the spring-run Chinook salmon produced at the Feather River Fish Hatchery, a total of 1,015,954 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 1,969,057 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 2021, 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 2021, 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 2021. Marking allows selective harvest of hatchery-reared steelhead in sport fisheries.

This report covers the fifteenth year of the CFM program's marking/tagging activities at four major Central Valley hatcheries in the spring/summer of 2021 (Brood Year 2020 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 2020 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 2021. Coded-wire tags for the 2021 season were ordered from Northwest Marine Technology in November 2020. 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 the last week of February at Coleman National Fish Hatchery and ended at Nimbus Fish Hatchery the last week of April. Marking/tagging of hatchery-produced fall-run Chinook salmon in 2021 therefore spanned a 10-week period. The spring-run Chinook salmon marking/tagging season began the third week of February and was completed at Feather River Hatchery the second week of March for a total of 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 first week of May through the last week of June for a total of 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.rmipc.org), operated by the Pacific States Marine Fisheries Commission (<http://www.rmipc.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 2021 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 2021 production releases of fall-run Chinook salmon from the Central Valley hatcheries (totaling 30,775,037 fish). The 25% target rate for marking/tagging was achieved for Brood Year 2020 (approximately 26.71% were CWT/ad-clipped, 8,218,939 fish). The AutoFish Trailers also marked and tagged 1,015,954 Brood Year 2020 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: 98.50% - 100% with an average of 99.81%
- Feather River Fish Hatchery: 98.33% - 100% with an average of 99.49%
- Mokelumne River Fish Hatchery: 98.28% - 100% with an average of 99.69%
- Nimbus Fish Hatchery: 98.89% - 99.89% with an average of 99.53%
- Merced River Fish Hatchery: 99.25%

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: 96.68% - 98.89% with an average of 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.rmipc.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 continued to be a challenge during the 2021 tagging season. At the northern four hatcheries, the program had seven Trailer Operators and nine Trailer Assistants employed at the start of the 2021 season. At Merced River Hatchery, one crew leader and four 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.

The marking crew was only able to adipose fin-clip part of the steelhead at Nimbus before the water temperatures increased enough to create concern with fish handling and there were also some fish health issues present. It was determined that the best approach was to move all of the Nimbus steelhead to Mokelumne River Hatchery since their water temperatures were much lower than Nimbus. This created a three week delay in marking operations for the Nimbus steelhead but the crew was able to complete the marking of the steelhead at Mokelumne River Hatchery.

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. These groups of fish are included in separate annual reports.

Acknowledgements

The Constant Fractional Marking Program would not have existed or successfully completed fifteen years 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 (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 Grantton Henley (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 fifteenth 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), Grantton Henley (PSMFC), Brian Krempasky (PSMFC), Jesse McNeil (PSMFC), and Richard Prentice (PSMFC). Tagging Trailer Assistants included seasonal PSMFC staff members Tailor Anderson-Simpson (PSMFC), Bruce Branstad (PSMFC), Monica Burnett (PSMFC), Michaela Leyva (PSMFC), Reena Manohar (PSMFC), Amanda Nordstrom (PSMFC), Alex Smither (PSMFC), Noelle Takamori (PSMFC), and John Vang (PSMFC).

Schedule of Mark Events

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

Figure 1. Hatchery Locations: Central Valley Constant Fractional Marking Program (2021)

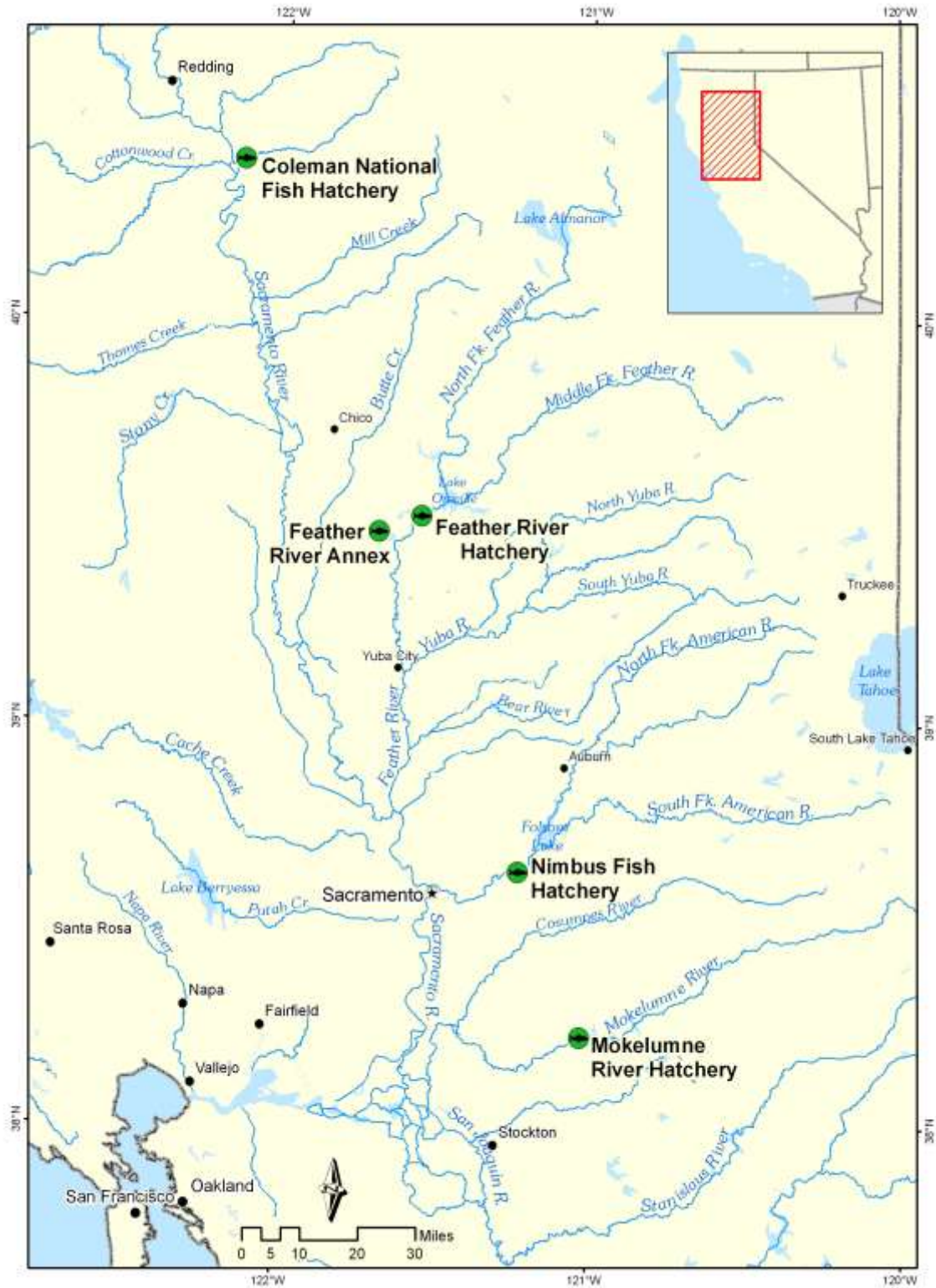
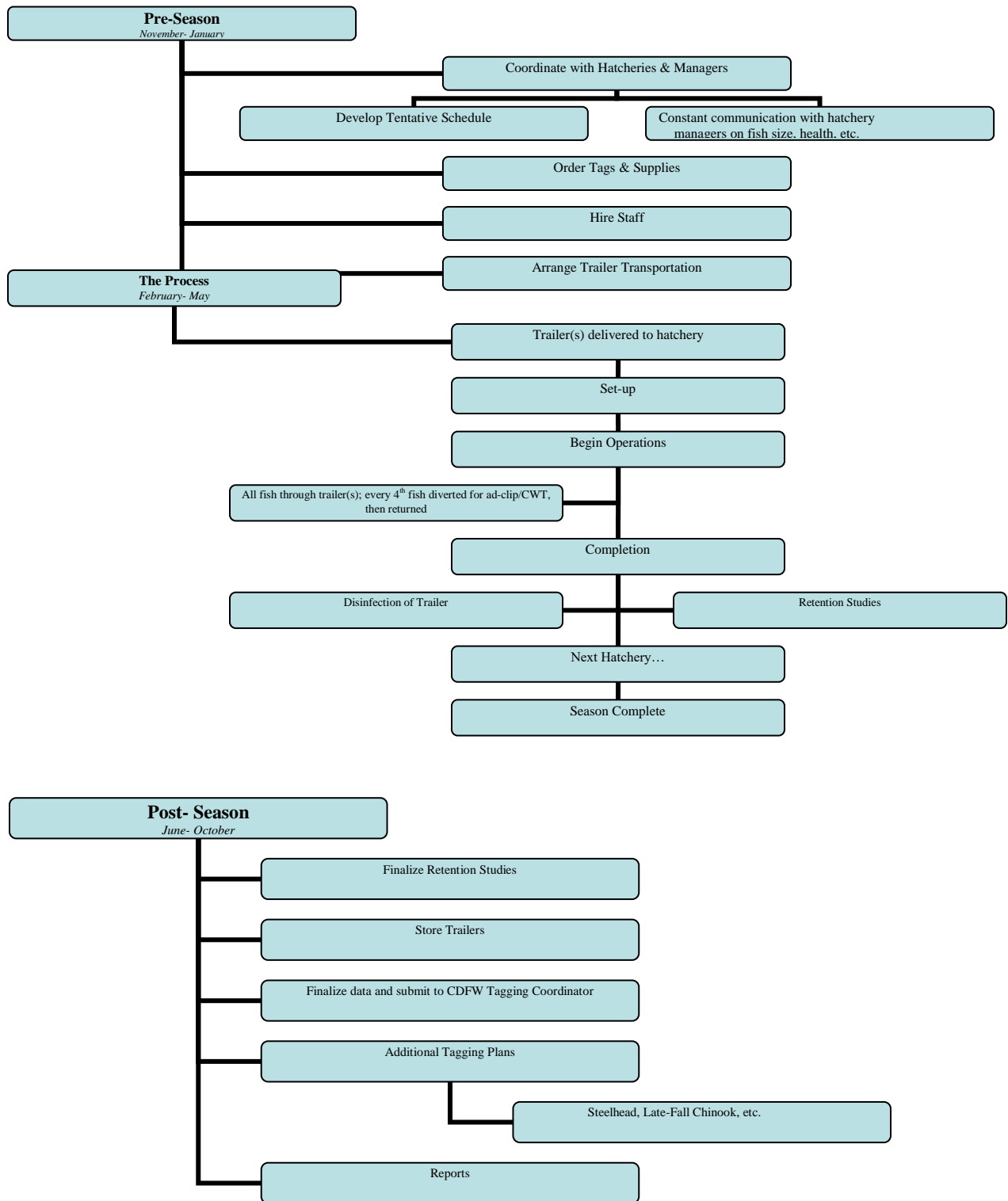


Figure 2. Constant Fractional Marking Program Annual Work Flow Summary



Appendix

Coleman National Fish Hatchery



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

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/42			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
2/23/2021	28	28	28,145	-	84,639	-	112,784
2/23/2021	28	28	34,631	62,776	103,959	188,598	251,374
2/24/2021	28	28	38,307	101,083	115,068	303,666	404,749
2/24/2021	28	28	1,667	102,750	5,001	308,667	411,417
Tag Code Totals			-	102,750	-	308,667	411,417

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/43			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
2/24/2021	27	27	27,174	-	81,573	-	108,747
2/25/2021	27	27	26,285	53,459	78,921	160,494	213,953
2/25/2021	27	27	16,316	69,775	48,987	209,481	279,256
2/26/2021	27	27	8,212	77,987	24,693	234,174	312,161
2/26/2021	27	27	27,950	105,937	83,892	318,066	424,003
Tag Code Totals			-	105,937	-	318,066	424,003

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/44			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
2/26/2021	26	26	6,462	-	19,434	-	25,896
3/1/2021	26	26	25,725	32,187	77,625	97,059	129,246
3/2/2021	26	26	26,563	58,750	79,749	176,808	235,558
3/2/2021	26	26	39,326	98,076	118,131	294,939	393,015
3/3/2021	26	26	9,680	107,756	29,091	324,030	431,786
Tag Code Totals			-	107,756	-	324,030	431,786

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/45			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
3/3/2021	25	25	8,311	-	24,933	-	33,244
3/3/2021	25	25	33,241	41,552	99,840	124,773	166,325
3/4/2021	25	25	21,288	62,840	63,918	188,691	251,531
3/4/2021	25	25	53,635	116,475	161,037	349,728	466,203
Tag Code Totals			-	116,475	-	349,728	466,203

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/46			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
3/5/2021	24	24	30,235	-	90,771	-	121,006
3/5/2021	24	24	21,415	51,650	64,296	155,067	206,717
3/8/2021	24	24	37,473	89,123	112,494	267,561	356,684
3/8/2021	24	24	24,501	113,624	73,545	341,106	454,730
Tag Code Totals			-	113,624	-	341,106	454,730

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/47			Size: 110K			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
3/9/2021	23	23	28,277	-	84,894	-	113,171
3/9/2021	23	23	40,268	68,545	120,870	205,764	274,309
3/10/2021	23	23	37,684	106,229	113,136	318,900	425,129
3/10/2021	23	23	11,895	118,124	35,706	354,606	472,730
Tag Code Totals			-	118,124	-	354,606	472,730

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/48			Size: 110K			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
3/1/2021	22	22	24,330	-	73,197	-	97,527
3/2/2021	22	22	29,748	54,078	89,280	162,477	216,555
3/2/2021	22	22	42,034	96,112	126,222	288,699	384,811
3/3/2021	22	22	14,755	110,867	44,322	333,021	443,888
Tag Code Totals			-	110,867	-	333,021	443,888

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/49			Size: 110K			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
3/3/2021	21	21	39,029	-	117,210	-	156,239
3/4/2021	21	21	35,940	74,969	107,883	225,093	300,062
3/4/2021	21	21	40,534	115,503	121,701	346,794	462,297
Tag Code Totals			-	115,503	-	346,794	462,297

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/50			Size: 110K			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
3/10/2021	20	24	21,559	-	64,722	-	86,281
3/11/2021	20	24	38,275	59,834	114,894	179,616	239,450
3/11/2021	20	24	43,160	102,994	129,570	309,186	412,180
3/12/2021	20	24	13,645	116,639	40,971	350,157	466,796
Tag Code Totals			-	116,639	-	350,157	466,796

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/51			Size: 110K			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
3/5/2021	19	19	28,522	-	85,626	-	114,148
3/5/2021	19	19	24,511	53,033	73,572	159,198	212,231
3/8/2021	19	19	33,690	86,723	101,157	260,355	347,078
3/8/2021	19	19	24,889	111,612	74,808	335,163	446,775
Tag Code Totals			-	111,612	-	335,163	446,775

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/52			Size: 110K			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
3/12/2021	18	27	24,144	-	72,453	-	96,597
3/15/2021	18	27	34,947	59,091	104,919	177,372	236,463
3/15/2021	18	27	40,659	99,750	122,064	299,436	399,186
3/16/2021	18	27	15,399	115,149	46,254	345,690	460,839
Tag Code Totals			-	115,149	-	345,690	460,839

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/53			Size: 110K			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
3/16/2021	17	18	5,272	-	15,828	-	21,100
3/16/2021	17	18	43,224	48,496	129,750	145,578	194,074
3/17/2021	17	18	39,150	87,646	117,516	263,094	350,740
3/17/2021	17	18	26,788	114,434	80,445	343,539	457,973
Tag Code Totals			-	114,434	-	343,539	457,973

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/54			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
3/12/2021	16	20	29,690	-	89,151	-	118,841
3/15/2021	16	20	36,370	66,060	109,227	198,378	264,438
3/16/2021	16	20	41,644	107,704	125,031	323,409	431,113
3/17/2021	16	20	4,236	111,940	12,759	336,168	448,108
Tag Code Totals			-	111,940	-	336,168	448,108

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/55			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
3/11/2021	15	15	33,624	-	100,929	-	134,553
3/11/2021	15	15	46,826	80,450	140,568	241,497	321,947
3/12/2021	15	15	30,912	111,362	92,811	334,308	445,670
Tag Code Totals			-	111,362	-	334,308	445,670

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/56			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
3/9/2021	14	14	14,700	-	44,187	-	58,887
3/9/2021	14	14	43,224	57,924	129,759	173,946	231,870
3/10/2021	14	14	40,744	98,668	122,322	296,268	394,936
3/10/2021	14	14	15,401	114,069	46,257	342,525	456,594
Tag Code Totals			-	114,069	-	342,525	456,594

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/57			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
3/17/2021	13	13	20,118	-	60,432	-	80,550
3/18/2021	13	13	38,584	58,702	115,923	176,355	235,057
3/19/2021	13	13	27,514	86,216	82,608	258,963	345,179
3/22/2021	13	13	23,647	109,863	70,998	329,961	439,824
Tag Code Totals			-	109,863	-	329,961	439,824

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/58			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
3/23/2021	12	15	40,320	-	121,047	-	161,367
3/24/2021	12	15	40,822	81,142	122,532	243,579	324,721
3/25/2021	12	15	28,353	109,495	85,104	328,683	438,178
Tag Code Totals			-	109,495	-	328,683	438,178

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/59			Size: 110K			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
3/18/2021	11	11	53,202	-	159,759	-	212,961
3/19/2021	11	11	36,033	89,235	108,150	267,909	357,144
3/19/2021	11	11	24,355	113,590	73,134	341,043	454,633
Tag Code Totals			-	113,590	-	341,043	454,633

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/60			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
3/26/2021	10	16	27,185	-	81,603	-	108,788
3/29/2021	10	16	34,509	61,694	103,593	185,196	246,890
3/29/2021	10	16	39,418	101,112	118,314	303,510	404,622
3/30/2021	10	16	5,376	106,488	16,191	319,701	426,189
Tag Code Totals			-	106,488	-	319,701	426,189

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/61			Size: 110K			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
3/23/2021	9	8	13,695	-	41,130	-	54,825
3/24/2021	9	9	36,295	49,990	109,029	150,159	200,149
3/24/2021	9	9	42,229	92,219	126,741	276,900	369,119
3/25/2021	9	9	25,832	118,051	77,598	354,498	472,549
Tag Code Totals			-	118,051	-	354,498	472,549

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/62			Size: 110K			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
3/22/2021	8	8	24,832	-	74,562	-	99,394
3/22/2021	8	8	41,025	65,857	123,150	197,712	263,569
3/23/2021	8	8	34,111	99,968	102,384	300,096	400,064
3/23/2021	8	8	13,490	113,458	40,506	340,602	454,060
Tag Code Totals			-	113,458	-	340,602	454,060

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/63			Size: 110K			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
3/25/2021	7	7	43,115	-	129,447	-	172,562
3/26/2021	7	7	43,576	86,691	130,821	260,268	346,959
3/26/2021	7	7	17,162	103,853	51,522	311,790	415,643
Tag Code Totals			-	103,853	-	311,790	415,643

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/64			Size: 110K			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
3/30/2021	6	10	40,934	-	122,871	-	163,805
3/31/2021	6	10	40,151	81,085	120,540	243,411	324,496
3/31/2021	6	10	40,265	121,350	120,837	364,248	485,598
Tag Code Totals			-	121,350	-	364,248	485,598

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/65			Size: 110K			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
4/1/2021	5	6	29,615	-	88,884	-	118,499
4/1/2021	5	6	43,031	72,646	129,135	218,019	290,665
4/2/2021	5	6	32,888	105,534	98,715	316,734	422,268
Tag Code Totals			-	105,534	-	316,734	422,268

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/66			Size: 110K			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
4/2/2021	4	5	15,764	-	47,352	-	63,116
4/5/2021	4	5	34,311	50,075	103,107	150,459	200,534
4/5/2021	4	5	39,921	89,996	119,826	270,285	360,281
4/6/2021	4	5	32,277	122,273	96,903	367,188	489,461
Tag Code Totals			-	122,273	-	367,188	489,461

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/67			Size: 110K			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
4/6/2021	3	4	29,716	-	89,205	-	118,921
4/7/2021	3	4	36,340	66,056	109,089	198,294	264,350
4/7/2021	3	4	43,352	109,408	130,131	328,425	437,833
Tag Code Totals			-	109,408	-	328,425	437,833

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/68			Size: 110K			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
4/8/2021	2	3	31,716	-	95,244	-	126,960
4/8/2021	2	3	39,715	71,431	119,190	214,434	285,865
4/9/2021	2	3	40,639	112,070	121,995	336,429	448,499
Tag Code Totals			-	112,070	-	336,429	448,499

Coleman National Fish Hatchery - Fall Run Chinook							
Tag Code: 05/65/69			Size: 110K			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
4/9/2021	1	2	7,792	-	23,412	-	31,204
4/12/2021	1	2	31,277	39,069	93,912	117,324	156,393
4/12/2021	1	2	40,750	79,819	122,325	239,649	319,468
4/13/2021	1	2	30,402	110,221	91,269	330,918	441,139
Tag Code Totals			-	110,221	-	330,918	441,139

Coleman National Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 05/65/70		Size: 93K		Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/23/2021	29	33	46,270	-	46,270
2/23/2021	29	33	46,628	-	92,898
Tag Code Total			-	-	92,898

Coleman National Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 05/65/71		Size: 93K		Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/24/2021	30	34	59,443	-	59,443
2/24/2021	30	34	32,819	-	92,262
Tag Code Total			-	-	92,262

Coleman National Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 05/65/72		Size: 93K		Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/25/2021	31	36	11,752	-	11,752
2/26/2021	31	36	54,087	-	65,839
2/26/2021	31	36	28,576	-	94,415
Tag Code Total			-	-	94,415

Coleman National Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 05/65/73		Size: 93K		Trailer # CA4	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/24/2021	32	35	2,621	-	2,621
2/25/2021	32	35	60,004	-	62,625
2/25/2021	32	35	29,872	-	92,497
Tag Code Total			-	-	92,497

Hatchery Totals	Tagged 3,513,967	Untagged 9,433,788	Total 12,947,755
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Retention Range: 98.50%-100%

Retention Average: 99.81%

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
05/65/42	110K	28	102,750	308,667	411,417	375	21	100.00%	102,750	308,667
05/65/43	110K	27	105,937	318,066	424,003	388	19	99.74%	105,664	318,339
05/65/44	110K	26	107,756	324,030	431,786	367	20	100.00%	107,756	324,030
05/65/45	110K	25	116,475	349,728	466,203	384	19	100.00%	116,475	349,728
05/65/46	110K	24	113,624	341,106	454,730	337	46	100.00%	113,624	341,106
05/65/47	110K	23	118,124	354,606	472,730	385	26	100.00%	118,124	354,606
05/65/48	110K	22	110,867	333,021	443,888	380	33	100.00%	110,867	333,021
05/65/49	110K	21	115,503	346,794	462,297	406	32	99.75%	115,219	347,078
05/65/50	110K	24	116,639	350,157	466,796	382	24	100.00%	116,639	350,157
05/65/51	110K	19	111,612	335,163	446,775	395	28	99.75%	111,329	335,446
05/65/52	110K	27	115,149	345,690	460,839	388	20	99.74%	114,852	345,987
05/65/53	110K	18	114,434	343,539	457,973	405	37	99.51%	113,869	344,104
05/65/54	110K	20	111,940	336,168	448,108	330	37	99.70%	111,601	336,507
05/65/55	110K	15	111,362	334,308	445,670	395	24	99.75%	111,080	334,590
05/65/56	110K	14	114,069	342,525	456,594	403	26	100.00%	114,069	342,525
05/65/57	110K	13	109,863	329,961	439,824	336	32	100.00%	109,863	329,961
05/65/58	110K	15	109,495	328,683	438,178	329	29	100.00%	109,495	328,683
05/65/59	110K	11	113,590	341,043	454,633	375	35	99.73%	113,287	341,346
05/65/60	110K	16	106,488	319,701	426,189	397	24	99.75%	106,220	319,969
05/65/61	110K	8/9	118,051	354,498	472,549	314	29	100.00%	118,051	354,498
05/65/62	110K	8	113,458	340,602	454,060	386	31	100.00%	113,458	340,602
05/65/63	110K	7	103,853	311,790	415,643	375	28	100.00%	103,853	311,790
05/65/64	110K	10	121,350	364,248	485,598	348	23	100.00%	121,350	364,248
05/65/65	110K	6	105,534	316,734	422,268	371	21	100.00%	105,534	316,734
05/65/66	110K	5	122,273	367,188	489,461	386	24	100.00%	122,273	367,188
05/65/67	110K	4	109,408	328,425	437,833	426	23	100.00%	109,408	328,425
05/65/68	110K	3	112,070	336,429	448,499	409	21	99.51%	111,522	336,977
05/65/69	110K	2	110,221	330,918	441,139	366	31	98.91%	109,016	332,123
05/65/70	93K	33	92,898	-	92,898	200	28	100.00%	92,898	0
05/65/71	93K	34	92,262	-	92,262	200	27	98.50%	90,878	1,384
05/65/72	93K	36	94,415	-	94,415	200	25	99.50%	93,943	472
05/65/73	93K	35	92,497	-	92,497	200	26	100.00%	92,497	0
Hatchery Totals			3,513,967	9,433,788	12,947,755	Retention Average		99.81%	3,507,464	9,440,291

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: 06/22/90		Size: 225K		Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/16/2021	H2	H2	27,233	-	27,233
2/17/2021	H2	H2	42,385	-	69,618
2/18/2021	H2	H2	47,465	-	117,083
2/19/2021	H2	H2	51,416	-	168,499
2/22/2021	H2	H2	35,785	-	204,284
2/22/2021	H2	H2	39,445	-	243,729
2/23/2021	H2	H2	19,510	-	263,239
Tag Code Total			-	-	263,239

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/22/91		Size: 225K		Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
2/23/2021	H4	H4	39,594	-	39,594
2/24/2021	H4	H4	41,723	-	81,317
2/24/2021	H4	H4	32,132	-	113,449
2/25/2021	H4	H4	37,216	-	150,665
2/25/2021	H4/G2	H4	36,373	-	187,038
2/26/2021	G2	H4	36,628	-	223,666
2/26/2021	G2	H4	28,737	-	252,403
Tag Code Total			-	-	252,403

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/22/92		Size: 225K		Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/1/2021	G2	G2	35,404	-	35,404
3/1/2021	G2	G2	40,368	-	75,772
3/2/2021	G2	G2	37,143	-	112,915
3/2/2021	G4	G2	29,709	-	142,624
3/3/2021	G4	G2	43,346	-	185,970
3/3/2021	G4	G2	48,329	-	234,299
3/4/2021	G4	G2	16,139	-	250,438
Tag Code Total			-	-	250,438

Feather River Fish Hatchery - Spring Run Chinook - 100% Mark/Tag					
Tag Code: 06/22/93		Size: 225K		Trailer # CA2	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
3/4/2021	G4	G4	18,676	-	18,676
3/4/2021	G4	G4	33,590	-	52,266
3/5/2021	G4	G4	43,387	-	95,653
3/5/2021	G4	G4	40,500	-	136,153
3/8/2021	G4	G4	43,785	-	179,938
3/8/2021	G4	G4	37,928	-	217,866
3/9/2021	G4	G4	32,008	-	249,874
Tag Code Total			-	-	249,874

Hatchery Total

1,015,954

Retention Range: 96.68% - 98.89%

Retention Average: 98.06%

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
06/22/90	225K	H2	263,239	-	263,239	900	21	98.56%	259,448	3,791
06/22/91	225K	H4	252,403	-	252,403	844	20	96.68%	244,023	8,380
06/22/92	255K	G2	250,438	-	250,438	900	21	98.11%	245,705	4,733
06/22/93	225K	G4	249,874	-	249,874	900	21	98.89%	247,100	2,774
Hatchery Totals			1,015,954	0	1,015,954	Retention Average		98.06%	996,277	19,677

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

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/43			Size: 225K			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
3/10/2021	F2	CH3	35,833	-	107,574	-	143,407
3/11/2021	F2	CH3	25,180	61,013	75,873	183,447	244,460
3/11/2021	F2	CH3	31,018	92,031	93,117	276,564	368,595
3/12/2021	F2	CH3	19,890	111,921	59,889	336,453	448,374
3/12/2021	F4	CH3	39,534	151,455	118,908	455,361	606,816
3/15/2021	F4	CH3	25,254	176,709	75,876	531,237	707,946
3/15/2021	F4	CH3	26,273	202,982	78,909	610,146	813,128
3/16/2021	F4	CH3	22,290	225,272	66,951	677,097	902,369
3/16/2021	F4/E2	CH3	19,309	244,581	58,047	735,144	979,725
3/17/2021	E2	CH3	1,356	245,937	4,092	739,236	985,173
Tag Code Totals			-	245,937	-	739,236	985,173

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code:06/23/44			Size: 225K			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
3/17/2021	E2	CH2	27,994	-	84,105	-	112,099
3/17/2021	E2	CH2	33,567	61,561	100,812	184,917	246,478
3/18/2021	E2	CH2	35,464	97,025	106,467	291,384	388,409
3/18/2021	E2	CH2	32,532	129,557	97,701	389,085	518,642
3/19/2021	E4	CH2	31,752	161,309	95,367	484,452	645,761
3/19/2021	E4	CH2	30,188	191,497	90,870	575,322	766,819
3/22/2021	E4	CH2	2,329	193,826	6,987	582,309	776,135
3/22/2021	E4	CH2	19,807	213,633	59,493	641,802	855,435
3/22/2021	E4	CH2	28,397	242,030	85,317	727,119	969,149
3/23/2021	D2	CH2	13,816	255,846	41,529	768,648	1,024,494
Tag Code Totals			-	255,846	-	768,648	1,024,494

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/45			Size: 225K			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
3/23/2021	D2	CH1	36,673	-	110,094	-	146,767
3/24/2021	D2	CH1	29,628	66,301	88,971	199,065	265,366
3/24/2021	D2	CH1	31,245	97,546	93,837	292,902	390,448
3/25/2021	D2	CH1	17,914	115,460	53,796	346,698	462,158
3/25/2021	D4	CH1	29,106	144,566	87,471	434,169	578,735
3/26/2021	D4	CH1	24,716	169,282	74,241	508,410	677,692
3/26/2021	D4	CH1	18,818	188,100	56,523	564,933	753,033
3/29/2021	D4	CH1	15,655	203,755	47,178	612,111	815,866
3/29/2021	D4	CH1	26,683	230,438	80,118	692,229	922,667
3/30/2021	C2	CH1	32,206	262,644	96,930	789,159	1,051,803
Tag Code Totals			-	262,644	-	789,159	1,051,803

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/22/94			Size: 76K			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
3/30/2021	C2	D6	4,029	-	12,108	-	16,137
3/31/2021	C2	D6	20,553	24,582	61,899	74,007	98,589
3/31/2021	C2	D6	32,284	56,866	96,924	170,931	227,797
4/1/2021	C2	D6	20,997	77,863	63,426	234,357	312,220
4/2/2021	C2	D6	5,837	83,700	17,580	251,937	335,637
Tag Code Totals			-	83,700	-	251,937	335,637

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/22/95			Size: 76K			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
4/2/2021	C2	D4	8,717	-	26,163	-	34,880
4/5/2021	C4	D4	18,035	26,752	54,192	80,355	107,107
4/5/2021	C4	D4	28,308	55,060	84,981	165,336	220,396
4/6/2021	C4	D4	20,320	75,380	61,053	226,389	301,769
4/6/2021	C4	D4	10,792	86,172	32,439	258,828	345,000
Tag Code Totals			-	86,172	-	258,828	345,000

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/22/96			Size: 76K			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
4/6/2021	C4	D2	13,175	-	39,528	-	52,703
4/7/2021	C4	D2	24,485	37,660	73,542	113,070	150,730
4/7/2021	C4	D2	28,358	66,018	85,158	198,228	264,246
4/8/2021	B2	D2	19,917	85,935	59,892	258,120	344,055
Tag Code Totals			-	85,935	-	258,120	344,055

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/22/97			Size: 76K			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
4/8/2021	B2	C6	27,514	-	82,572	-	110,086
4/9/2021	B2	C6	23,677	51,191	71,121	153,693	204,884
4/9/2021	B2	C6	26,582	77,773	79,875	233,568	311,341
4/12/2021	B2	C6	8,688	86,461	26,178	259,746	346,207
Tag Code Totals			-	86,461	-	259,746	346,207

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/22/98			Size: 76K			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
4/12/2021	B2/B4	C4	36,657	-	110,130	-	146,787
4/13/2021	B4	C4	24,644	61,301	74,013	184,143	245,444
4/13/2021	B4	C4	24,681	85,982	74,112	258,255	344,237
Tag Code Totals			-	85,982	-	258,255	344,237

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/22/99			Size: 76K			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
4/14/2021	B4	C2	24,883	-	74,838	-	99,721
4/14/2021	B4	C2	29,882	54,765	89,721	164,559	219,324
4/15/2021	B4	C2	20,224	74,989	60,789	225,348	300,337
4/15/2021	B4	C2	10,564	85,553	31,734	257,082	342,635
Tag Code Totals			-	85,553	-	257,082	342,635

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/40			Size: 76K			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
4/15/2021	A2	B6	9,776	-	29,349	-	39,125
4/16/2021	A2	B6	24,279	34,055	72,918	102,267	136,322
4/16/2021	A2	B6	34,945	69,000	104,913	207,180	276,180
4/19/2021	A2	B6	17,125	86,125	51,450	258,630	344,755
Tag Code Totals			-	86,125	-	258,630	344,755

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/41			Size:76K			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
4/19/2021	A2/A4	B4	30,994	-	93,066	-	124,060
4/20/2021	A4	B4	27,300	58,294	81,954	175,020	233,314
4/20/2021	A4	B4	23,468	81,762	70,506	245,526	327,288
4/21/2021	A4	B4	4,710	86,472	14,199	259,725	346,197
Tag Code Totals			-	86,472	-	259,725	346,197

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/42			Size: 76			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
4/21/2021	A4	B2	13,003	-	39,060	-	52,063
4/21/2021	A6	B2	27,980	40,983	84,096	123,156	164,139
4/22/2021	A6	B2	26,922	67,905	80,874	204,030	271,935
4/22/2021	A6	B2	18,738	86,643	56,286	260,316	346,959
Tag Code Totals			-	86,643	-	260,316	346,959

Feather River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/76			Size: 30K			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
4/23/2021	A6	A1	30,510	-	91,713	-	122,223
Tag Code Totals			-	30,510	-	91,713	122,223

Feather River 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
6/7/2021	E	CH1	40,116	-	40,116
6/8/2021	E	CH1	38,180	78,296	78,296
6/9/2021	E	CH1	46,134	124,430	124,430
6/10/2021	E	CH1	46,936	171,366	171,366
6/11/2021	E	CH1	35,782	207,148	207,148
6/14/2021	E	CH1	18,730	225,878	225,878
6/15/2021	F	CH1	40194	266,072	266,072
6/16/2021	F	E	40,432	-	40,432
6/17/2021	F	E	39,935	80,367	80,367
6/18/2021	F	E	41,840	122,207	122,207
6/21/2021	F	E	27,334	149,541	149,541
6/22/2021	F	E	52,618	202,159	202,159
6/23/2021	F	E	45,697	247,856	247,856
6/24/2021	F	E	50,164	298,020	298,020
6/25/2021	F	E	42,540	340,560	340,560
6/28/2021	F	E	51,278	391,838	391,838
6/29/2021	F	E	36,328	428,166	428,166
6/30/2021	F	E	4,875	433,041	433,041
Hatchery Total			-	-	699,113

Merced Hatchery



Table 3a. Daily Tagging Rates at Merced Hatchery

Daily Tagging Rates at Merced Hatchery				
Merced Fish Hatchery - Fall Run Chinook				
Tag Code: 06/15/74		Size: 100K		Manual Trailer
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Raceway & Cumulative Tagged Total
3/1/2021	1	A10	2,571	2,571
3/2/2021	1	A10	3,578	6,149
3/3/2021	2, 3	A10	4,144	10,293
3/4/2021	2, 3	A10	4,743	15,036
3/5/2021	2, 3	A10	4,076	19,112
3/8/2021	2, 3	A10	4,604	23,716
3/9/2021	4	A10	4,545	28,261
3/10/2021	4	A10	3,872	32,133
3/11/2021	4	A10	5,707	37,840
3/12/2021	4	A10	7,953	45,793
3/15/2021	5	B10	6,009	51,802
3/16/2021	5	B10	5,124	56,926
3/17/2021	5	B10	6,293	63,219
3/18/2021	6	B10	6,874	70,093
3/19/2021	7	B10	5,382	75,475
Tag Code Total				75,475

	Tagged	Untagged	Total
Hatchery Totals:	75,475	190,819	266,294

Retention Average: 99.25%

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

Merced 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
06/15/74	100K	A10/B10	75,475	190,819	266,294	800	27	99.25%	74,909	191,385
Hatchery Totals			75,475	190,819	266,294	Retention Average		99.25%	74,909	191,385

Mokelumne River Hatchery



Table 4a. Daily Tagging Rates at Mokelumne River Hatchery

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/50			Size: 100K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/15/2021	B	A	22,621	-	67,947	-	90,568
3/16/2021	B	A	32,483	55,104	97,641	165,588	220,692
3/16/2021	B	A	34,815	89,919	104,496	270,084	360,003
3/17/2021	B	A	15,081	105,000	45,318	315,402	420,402
3/17/2021	C	A	6,729	111,729	20,310	335,712	447,441
Tag Code Totals			-	111,729	-	335,712	447,441

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/51			Size: 100K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/17/2021	C	B	37,197	-	111,633	-	148,830
3/18/2021	C	B	30,660	67,857	92,160	203,793	271,650
3/18/2021	C	B	29,108	96,965	87,366	291,159	388,124
3/22/2021	D	B	13,048	110,013	39,255	330,414	440,427
Tag Code Totals			-	110,013	-	330,414	440,427

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/59			Size: 110K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/22/2021	D	C	35,404	-	106,257	-	141,661
3/23/2021	D	C	37,173	72,577	111,642	217,899	290,476
3/23/2021	D/E	C	32,757	105,334	98,325	316,224	421,558
3/24/2021	E	C	14,576	119,910	43,779	360,003	479,913
Tag Code Totals			-	119,910	-	360,003	479,913

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/52			Size: 100K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/24/2021	E	D	17,470	-	52,422	-	69,892
3/24/2021	E	D	33,770	51,240	101,358	153,780	205,020
3/25/2021	E/F	D	36,877	88,117	110,679	264,459	352,576
3/25/2021	F	D	23,955	112,072	71,901	336,360	448,432
Tag Code Totals			-	112,072	-	336,360	448,432

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/53			Size: 100K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/25/2021	F	E	6,059	-	18,177	-	24,236
3/26/2021	F	E	32,568	38,627	97,758	115,935	154,562
3/26/2021	F	E	38,304	76,931	114,966	230,901	307,832
3/29/2021	G	E	33,664	110,595	101,130	332,031	442,626
Tag Code Totals			-	110,595	-	332,031	442,626

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/54			Size: 100K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/29/2021	G	F	18,836	-	56,526	-	75,362
3/30/2021	G	F	36,013	54,849	108,105	164,631	219,480
3/30/2021	G/H	F	36,307	91,156	108,993	273,624	364,780
3/31/2021	H	F	19,823	110,979	59,523	333,147	444,126
Tag Code Totals			-	110,979	-	333,147	444,126

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/60			Size: 110K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
3/31/2021	H	G	12,581	-	37,749	-	50,330
3/31/2021	H	G	37,547	50,128	112,707	150,456	200,584
4/1/2021	H	G	18,456	68,584	55,446	205,902	274,486
4/7/2021	N	G	12,008	80,592	36,030	241,932	322,524
4/7/2021	N	G	36,586	117,178	109,833	351,765	468,943
4/8/2021	N	G	5,118	122,296	15,399	367,164	489,460
Tag Code Totals			-	122,296	-	367,164	489,460

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/58			Size: 170K RWY's H/I same code			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/1/2021	J	H	6,801	-	20,439	-	27,240
4/2/2021	J	H	27,216	34,017	81,705	102,144	136,161
4/2/2021	J	H	26,861	60,878	80,604	182,748	243,626
4/5/2021	J	H	33,016	93,894	99,165	281,913	375,807
Tag Code Totals			-	93,894	-	281,913	375,807

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/58			Size: 170K RWY's H/I same code			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/5/2021	J	I	4,102	-	12,333	-	16,435
4/6/2021	J/K	I	38,500	42,602	115,560	127,893	170,495
4/6/2021	K	I	34,722	77,324	104,235	232,128	309,452
4/7/2021	K	I	16,502	93,826	49,554	281,682	375,508
Tag Code Totals			-	93,826	-	281,682	375,508

Mokelumne River Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 06/15/80		Size: 150K		Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/8/2021	K	J1	46,206	-	46,206
4/8/2021	K	J1	66,128	-	112,334
4/9/2021	K	J1	44,109	-	156,443
4/9/2021	K	J1	6,464	-	162,907
Tag Code Total			-	-	162,907

Mokelumne River Fish Hatchery - Fall Run Chinook - 100% Mark/Tag					
Tag Code: 06/15/81		Size: 150K		Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
4/9/2021	K	J2	20,636	-	20,636
4/12/2021	L	J2	28,325	-	48,961
4/12/2021	L	J2	67,039	-	116,000
4/13/2021	L	J2	44,553	-	160,553
Tag Code Total			-	-	160,553

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/61			Size: 110K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/13/2021	L	K	41,965	-	125,955	-	167,920
4/14/2021	L/M	K	35,669	77,634	107,073	233,028	310,662
4/14/2021	M	K	30,573	108,207	91,779	324,807	433,014
4/15/2021	M	K	18,691	126,898	56,124	380,931	507,829
Tag Code Totals			-	126,898	-	380,931	507,829

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/82/07			Size: 10K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/15/2021	M	K	2,424	-	7,278	-	9,702
Tag Code Totals			-	2,424	-	7,278	9,702

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/55			Size: 100K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/15/2021	N	L	34,663	-	104,046	-	138,709
4/16/2021	N/O	L	24,120	58,783	72,426	176,472	235,255
4/16/2021	O	L	29,622	88,405	88,950	265,422	353,827
4/19/2021	O	L	24,248	112,653	72,804	338,226	450,879
Tag Code Totals			-	112,653	-	338,226	450,879

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/15/44			Size: 110K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/19/2021	O	M	32,817	-	98,502	-	131,319
4/20/2021	O/P	M	34,770	67,587	104,403	202,905	270,492
4/20/2021	P	M	39,461	107,048	118,422	321,327	428,375
4/21/2021	P	M	16,863	123,911	50,640	371,967	495,878
Tag Code Totals			-	123,911	-	371,967	495,878

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/56			Size: 100K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/21/2021	P/Q	N	31,055	-	93,204	-	124,259
4/22/2021	Q	N	37,594	68,649	112,833	206,037	274,686
4/22/2021	Q	N	39,001	107,650	117,060	323,097	430,747
4/23/2021	Q	N	5,952	113,602	17,913	341,010	454,612
Tag Code Totals			-	113,602	-	341,010	454,612

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/57			Size: 100K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
4/23/2021	Q	O	21,535	-	64,653	-	86,188
5/3/2021	R	O	19,374	40,909	58,179	122,832	163,741
5/3/2021	R	O	37,721	78,630	113,220	236,052	314,682
5/4/2021	R	O	34,740	113,370	104,298	340,350	453,720
Tag Code Totals			-	113,370	-	340,350	453,720

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/14/03			Size: 100K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/4/2021	R/S	P	29,651	-	89,025	-	118,676
5/5/2021	S	P	35,929	65,580	107,859	196,884	262,464
5/5/2021	S	P	44,078	109,658	132,300	329,184	438,842
Tag Code Totals			-	109,658	-	329,184	438,842

Mokelumne River Fish Hatchery - Fall Run Chinook							
Tag Code: 06/03/83			Size: 30K			Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Daily Untagged Total	Cumulative Untagged Total	Raceway Total
5/6/2021	S	P	15,149	-	45,525	-	60,674
Tag Code Totals			-	15,149	-	45,525	60,674

Hatchery Totals: 2,026,439 5,112,897 7,139,336

Retention Range: 98.28% - 100.00%

Retention Average: 99.69%

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
06/23/50	100K	A	111,729	335,712	447,441	398	21	100.00%	111,729	335,712
06/23/51	100K	B	110,013	330,414	440,427	398	21	99.75%	109,738	330,689
06/23/59	110K	C	119,910	360,003	479,913	482	21	99.79%	119,658	360,255
06/23/52	100K	D	112,072	336,360	448,432	411	21	99.27%	111,254	337,178
06/23/53	100K	E	110,595	332,031	442,626	406	21	98.28%	108,693	333,933
06/23/54	100K	F	110,979	333,147	444,126	399	21	99.25%	110,147	333,979
06/23/60	110K	G	122,296	367,164	489,460	404	26	99.50%	121,685	367,775
06/23/58	170K	H	93,894	281,913	375,807	396	27	99.49%	93,415	282,392
06/23/58	170K	I	93,826	281,682	375,508	396	27	99.49%	93,347	282,161
06/15/80	150K	J1	162,907	-	162,907	400	25	100.00%	162,907	0
06/15/81	150K	J2	160,553	-	160,553	400	22	99.75%	160,152	401
06/23/61	110K	K	126,898	380,931	507,829	400	20	100.00%	126,898	380,931
06/82/07	10K	K	2,424	7,278	9,702	400	20	100.00%	2,424	7,278
06/23/55	100K	L	112,653	338,226	450,879	402	17	100.00%	112,653	338,226
06/15/44	110K	M	123,911	371,967	495,878	406	15	100.00%	123,911	371,967
06/23/56	100K	N	113,602	341,010	454,612	420	20	99.76%	113,329	341,283
06/23/57	100K	O	113,370	340,350	453,720	403	9	99.75%	113,087	340,633
06/14/03	100K	P	109,658	329,184	438,842	398	21	100.00%	109,658	329,184
06/03/83	30K	P	15,149	45,525	60,674	398	21	100.00%	15,149	45,525
Hatchery Totals			2,026,439	5,112,897	7,139,336	Retention Average		99.69%	2,019,833	5,119,503

Mokelumne River Fish Hatchery - Steelhead - 100% Mark/Tag					
Tag Code: 06/15/29		Size: 60K		Trailer # SCT6	
Tagging Date	Raceway Prior to Tagging	Raceway Following Tagging	Daily Tagged Total	Cumulative Tagged Total	Raceway Total
6/22/2021	M	N	29,453	-	29,453
6/23/2021	M	O	29,226	-	58,679
Tag Code Total			-	-	58,679

Mokelumne River Fish Hatchery - Steelhead - 100% Mark Only					
Trailer # SCT6					
Marking Date	Raceway Prior to Marking	Raceway Following Marking	Daily Marked Total	Cumulative Marked Total	Raceway Total
6/23/2021	M	P	7,924	-	7,924
6/24/2021	M	P	22,401	-	30,325
6/24/2021	M	Q	5,024	-	5,024
6/25/2021	M	Q	20,016	-	25,040
6/28/2021	M	Q	5,000	-	30,040
6/28/2021	M	R	22,926	-	22,926
6/29/2021	M	R	27,375	-	50,301
Hatchery Total			-	-	169,345

Nimbus Hatchery



Table 5a. Daily Tagging Rates at Nimbus Hatchery

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/15/36			Size: 160k			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
3/29/2021	A	A	2,718	-	8,220	-	10,938
3/30/2021	A	A	29,253	31,971	87,819	96,039	128,010
3/31/2021	A	A	34,907	66,878	104,829	200,868	267,746
4/1/2021	A	A	36,027	102,905	108,171	309,039	411,944
4/2/2021	A	A	31,282	134,187	93,903	402,942	537,129
4/5/2021	A/B	A	27,477	161,664	82,527	485,469	647,133
4/6/2021	B	A	5,456	167,120	16,416	501,885	669,005
Tag Code Totals			-	167,120	-	501,885	669,005

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/62			Size: 125k			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
4/6/2021	B	B	15,080	-	45,255	-	60,335
4/7/2021	B	B	33,988	49,068	102,057	147,312	196,380
4/8/2021	B	B	42,379	91,447	127,215	274,527	365,974
4/9/2021	B	B	22,835	114,282	68,556	343,083	457,365
4/12/2021	B	B	17,828	132,110	53,538	396,621	528,731
Tag Code Totals			-	132,110	-	396,621	528,731

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/75			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
4/6/2021	B	B	18,448	-	55,344	-	73,792
4/7/2021	B	B	15,035	33,483	45,105	100,449	133,932
4/8/2021	B	B	2,141	35,624	6,423	106,872	142,496
Tag Code Totals			-	35,624	-	106,872	142,496

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/04/61			Size: 160K			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
4/12/2021	B	C	11,910	-	35,751	-	47,641
4/13/2021	C	C	26,979	38,889	81,093	116,844	155,733
4/14/2021	C	C	46,307	85,196	138,972	255,816	341,012
4/15/2021	C	C	41,167	126,363	123,549	379,365	505,728
4/16/2021	C	C	27,199	153,562	81,675	461,040	614,602
4/19/2021	C	C	14,188	167,750	42,618	503,658	671,408
Tag Code Totals			-	167,750	-	503,658	671,408

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/63			Size: 125k			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
4/19/2021	D	D	29,822	-	89,511	-	119,333
4/20/2021	D	D	35,334	65,156	106,032	195,543	260,699
4/20/2021	D	D	37,203	102,359	111,639	307,182	409,541
4/21/2021	D	D	32,300	134,659	96,957	404,139	538,798
Tag Code Totals			-	134,659	-	404,139	538,798

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/74			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
4/19/2021	D	D	22485	-	67,455	-	89,940
4/20/2021	D	D	9,180	31,665	27,540	94,995	126,660
4/20/2021	D	D	3,772	35,437	11,316	106,311	141,748
Tag Code Totals			-	35,437	-	106,311	141,748

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/15/75			Size: 155K			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
4/21/2021	E	E	44,349	-	133,083	-	177,432
4/22/2021	E	E	39,983	84,332	120,018	253,101	337,433
4/22/2021	E	E	40,014	124,346	120,087	373,188	497,534
4/23/2021	E	E	28,708	153,054	86,166	459,354	612,408
4/23/2021	E	E	16,849	169,903	50,562	509,916	679,819
Tag Code Totals			-	169,903	-	509,916	679,819

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/23/64			Size: 125K			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
4/26/2021	F	F	13,372	-	40,191	-	53,563
4/26/2021	F	F	28,099	41,471	84,348	124,539	166,010
4/27/2021	F	F	465	41,936	1,395	125,934	167,870
4/27/2021	F	F	38,900	80,836	116,760	242,694	323,530
4/27/2021	F	F	40,105	120,941	120,357	363,051	483,992
4/28/2021	F	F	19,516	140,457	58,629	421,680	562,137
Tag Code Totals			-	140,457	-	421,680	562,137

Nimbus Fish Hatchery - Fall Run Chinook							
Tag Code: 06/20/94			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
4/26/2021	F	F	17,997	-	53,991	-	71,988
4/26/2021	F	F	12,989	30,986	38,967	92,958	123,944
4/27/2021	F	F	75	31,061	225	93,183	124,244
4/27/2021	F	F	3,801	34,862	11,403	104,586	139,448
Tag Code Totals			-	34,862	-	104,586	139,448

Hatchery Totals: 1,017,922 3,055,668 4,073,590

Retention Range: 98.89% - 99.89%

Retention Average: 99.52%

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
06/15/36	160k	A	167,120	501,885	669,005	900	13	99.56%	166,385	502,620
06/23/62	125k	B	132,110	396,621	528,731	900	15	98.89%	130,644	398,087
06/23/75	30k	B	35,624	106,872	142,496	900	15	98.89%	35,229	107,267
06/04/61	160k	C	167,750	503,658	671,408	900	21	99.33%	166,626	504,782
06/23/63	125k	D	134,659	404,139	538,798	900	21	99.89%	134,511	404,287
06/23/74	30k	D	35,437	106,311	141,748	900	21	99.89%	35,398	106,350
06/15/75	155k	E	169,903	509,916	679,819	900	20	99.67%	169,342	510,477
06/23/64	125k	F	140,457	421,680	562,137	900	20	99.78%	140,148	421,989
06/20/94	30k	F	34,862	104,586	139,448	900	20	99.78%	34,785	104,663
Hatchery Totals			1,017,922	3,055,668	4,073,590	Retention Average		99.52%	1,013,067	3,060,523

Nimbus Fish Hatchery - Steelhead - 100% Mark Only					
Trailer: CA1 at NFH					
Marking Date	Raceway Prior to Marking	Raceway Following Marking	Daily Marked Total	Cumulative Marked Total	Raceway Total
5/10/2021	Lot 1	A	16,816	16,816	16,816
5/11/2021	Lot 1 / Lot 2	A	38,703	55,519	55,519
5/12/2021	Lot 2	A	22,695	78,214	78,214
5/12/2021	Lot 3	A	3,103	81,317	81,317
5/12/2021	Lot 3	B	12,780	12,780	12,780
5/13/2021	Lot 3	B	35,885	48,665	48,665
5/14/2021	Lot 3	B	9,675	58,340	58,340
5/17/2021	Lot 4	B	20,693	79,033	79,033
5/18/2021	Lot 4	C	11,364	11,364	11,364
Trailer: SCT 6 at MRFH					
6/9/2021	E	G	45,530	45,530	45,530
6/10/2021	E	G	20,807	20,807	66,337
6/10/2021	E	H	25,313	25,313	25,313
6/11/2021	E	H	34,397	34,397	59,710
6/14/2021	F	E	28,539	28,539	28,539
6/15/2021	F	E	49,124	49,124	77,663
6/16/2021	F	E	6,436	6,436	84,099
6/16/2021	F1	F2	39,522	39,522	39,522
6/17/2021	F1	F2	34,109	73,631	73,631
Hatchery Total			-	-	455,491