

REF 90493

State of California  
The Resources Agency  
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT  
WARM SPRINGS SALMON AND STEELHEAD HATCHERY, 2000-01

by

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Central Coast Region

Wildlife and Inland Fisheries Division  
Administrative Report No.

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ABSTRACT

This report describes the operations of Warm Springs Salmon and Steelhead Hatchery from July 1, 2000, through June 30, 2001. Tables and Appendices presents daily record of water temperatures, daily numbers of salmon and steelhead entering the hatchery, and total number of salmoides reared and released.

Twenty-nine chinook salmon, Oncorhynchus tshawytscha, and 3,480 steelhead trout, O. mykiss, were trapped at the hatchery this season. There were 26,504 Eel River chinook, and 548,121 Dry Creek and Russian River yearling steelhead planted this season.

1/ Inland Fisheries Administrative Report No.

## INTRODUCTION

This is the 21st annual report for operation of the Warm Springs Salmon and Steelhead Hatchery. It describes the operation of the Hatchery from July 1, 2000, through June 30, 2001. Copies of previous annual reports are available upon request from the Wildlife and Inland Fisheries Division, Sacramento.

Warm Springs Hatchery is located on Dry Creek, 14 miles upstream from its confluence with the Russian River, 2 miles south of Healdsburg, Sonoma County. The Hatchery was constructed by the Department of the Army, Corps of Engineers, to compensate for spawning and nursery areas blocked by the Warm Springs Dam - Lake Sonoma Project. The Department of Fish and Game, under agreement with the Department of the Army, operates the fish hatchery and related facilities.

This report summarizes the number of fish trapped and spawned, production of eggs and fish, and water temperatures from July 1, 2000, through June 30, 2001.

## PRODUCTION SUMMARY

The ladder was opened October 15, 2000. The flows in Dry Creek were maintained between 90 and 300 cfs through most of the year, except for the winter months when flows were increased to 3,000 cfs. Twenty-nine chinook salmon, Oncorhynchus tshawytscha, and 3,480 steelhead trout, O. mykiss, were trapped at the hatchery this season. There were 26,504 Eel River chinook planted (Table 2), and 548,121 Dry Creek and Russian River yearling steelhead planted (Table 3).

All fish were started on Bio-Diet and then fed Bio Moist feed. A total of 152,459 lbs of fish was produced using 178,404 lbs. feed, giving a conversion rate (pounds of feed to produce 1 pound of fish) of 1.17.

TABLE 1. Warm Springs Hatchery Production Summary

Species	Adults trapped	Dry Creek		Other	Eggs shipped	Fingerlings planted	Yearlings planted	Total pounds released
		Females spawned	eggs taken	eggs rec'd				
DC-Chin salmon								
1999 BY								
2000 BY	29							
ER-Chin salmon								
1999 BY							26,504	4,274
2000 BY				36,000	14,364			
DC-Coho salmon								
1999 BY								
2000 BY								
DC-SH								
1999 BY							336,320	80,139
2000 BY	3,480	146	730,000					
RR-SH								
1999 BY							211,801	45,854
2000 BY				740,000				
Totals	3,509	146	730,000	776,000	14,364		574,661	130,267

## WATER QUALITY

This is the 21st season of propagation and rearing since Lake Sonoma has filled. The turbidity of the incoming water was consistently at 1.60 nephelometric turbidity units (N.T.U.s) most of the year. The highest occurred during February when it reached 2.4 N.T.U.s. The lowest turbidity recorded was .4 N.T.U.s, taken in May.

## DISEASE

There were no major disease problems at the Hatchery. Minor outbreaks of Flexibacter-Psychrophilus required treatments with Pen G (Penicillin G) or Terramycin-343. All fish are still being treated twice with Pen G, at swim-up stage and just prior to being released into ponds. This treatment has worked well and has minimized the outbreaks of Flexibacter-Psychrophilus.

CHINOOK SALMON PROGRAM  
History of the 2000-01 Season

There were twenty-nine chinook salmon trapped at the Hatchery this season: twenty-one adult male, five adult female, and three grilse. No females were spawned this season. A total of 26,504 Eel River chinook BY-99 yearlings was planted this season (Table 2).

TABLE 2. Chinook Salmon Plants, 2000-01

<u>Date</u>	<u>Strain</u>	<u>Release site</u>	<u>Average size/lb</u>	<u>Number</u>
11-15-00	Eel River	Van Arsdale	6.2	13,252
11-15-00	Eel River	Van Arsdale	6.2	13,252
Totals				26,504

Eel River chinook salmon were coded wire tagged this season. Tag codes were 06 - 51 - 30.

COHO SALMON PROGRAM  
History of the 2000-01 Season

There were no coho salmon trapped at the Hatchery this season. No coho salmon eggs from Noyo River were received this year.

STEELHEAD TROUT PROGRAM  
History of the 2000-01 Season

The first adult steelhead entered the trap on December 03, 2000, and the last on April 30, 2001. A total of 3,480 fish was trapped: 1,941 male, 1,537 female, and 2 half-pounder. The 146 females spawned produced 730,000 eggs, at an average of 5,000 eggs per female. All Russian River and Dry Creek steelhead were adipose fin clipped before being released. Sonoma County Water Agency biologists marked a total of 159 Dry Creek steelhead with dye on various fins. Three separate groups were released into the Russian River main stem, to see what impact an inflatable dam has on migrating steelhead. Surplus adult fish were planted in the Russian River at Cominsky Station by the Hatchery crew (Table 5). Steelhead trapped that were not adipose fin clipped, and displayed no fin erosion, were transported to Dry Creek or tributaries to Dry Creek (Table 6).

TABLE 3. Yearling Steelhead Trout Plants, 2000-01

Date	Strain	Release site	Average size/lb	Number
12-20-00	Dry Creek	Dry Creek	4.0	35,640
12-21-00	Dry Creek	Dry Creek	4.2	13,381
12-21-00	Dry Creek	Dry Creek	4.2	9,240
12-21-00	Dry Creek	Dry Creek	4.4	28,932
12-24-00	Russian River	Russian River E.B*	4.8	14,708
12-24-00	Russian River	Russian River E.B*	4.8	14,763
01-22-01	Dry Creek	Dry Creek	3.9	35,040
01-22-01	Dry Creek	Dry Creek	3.7	18,920
01-22-01	Russian River	Russian River E.B*	4.9	21,272
01-22-01	Russian River	Russian River E.B*	4.8	14,672
01-23-01	Dry Creek	Dry Creek	4.4	4,840
01-23-01	Dry Creek	Dry Creek	4.5	36,840
01-23-01	Dry Creek	Dry Creek	4.8	9,345
01-23-01	Russian River	Russian River E.B*	4.4	14,659
01-23-01	Russian River	Russian River E.B*	4.8	21,319
01-24-01	Russian River	Russian River E.B*	4.6	14,659
02-21-01	Russian River	Russian River E.B*	4.6	35,000
02-22-01	Dry Creek	Dry Creek	4.3	18,319
02-23-01	Russian River	Russian River E.B*	4.5	29,341
02-23-01	Dry Creek	Dry Creek	3.9	41,650
02-24-01	Dry Creek	Dry Creek	4.0	29,035
02-26-01	Dry Creek	Dry Creek	4.2	542
03-22-01	Russian River	Russian River E.B*	4.2	19,991
03-22-01	Russian River	Russian River E.B*	4.5	11,417
03-22-01	Dry Creek	Dry Creek	5.2	19,981
03-23-01	Dry Creek	Dry Creek	4.3	15,425
03-23-01	Dry Creek	Dry Creek	5.2	19,190
Total				548,121

\* Russian River, East Branch



TABLE 4. Russian River Yearling Steelhead Transferred to Coyote Valley Fish Facility, 2000-01

<u>Date</u>	<u>Pounds</u>	<u>Number</u>
12-08-00	3,400	16,320
12-09-00	2,200	10,560
12-26-00	6,200	35,215
12-27-00	6,400	38,920
12-28-00	2,400	16,080
01-26-01	6,800	29,920
01-29-01	2,700	14,580
01-30-01	2,600	14,040
02-01-01	500	2,700
02-02-01	3,400	19,380
02-05-01	1,700	9,690
<u>Total</u>	<u>38,300</u>	<u>207,405</u>

TABLE 5. Adult Steelhead Trout Plants, 2000-01

Date	Strain	Release site	Average size/ea	Number	
				Females	Males
01-28-01	Dry Creek	Comiskey Station	8-10 lbs	17	32
02-20-01	Dry Creek	Comiskey Station	8-10 lbs	144	76
02-22-01	Dry Creek	Comiskey Station	8-10 lbs	108	167
02-26-01	Dry Creek	Comiskey Station	8-10 lbs	123	127
03-01-01	Dry Creek	Comiskey Station	8-10 lbs	92	113
03-05-01	Dry Creek	Comiskey Station	8-10 lbs	84	91
03-08-01	Dry Creek	Comiskey Station	8-10 lbs	85	118
03-15-01	Dry Creek	Comiskey Station	8-10 lbs	100	102
03-22-01	Dry Creek	Comiskey Station	8-10 lbs	95	106
03-26-01	Dry Creek	Comiskey Station	8-10 lbs	77	113
03-29-01	Dry Creek	Comiskey Station	8-10 lbs	17	15
04-19-01	Dry Creek	Comiskey Station	8-10 lbs	11	30
04-30-01	Dry Creek	Comiskey Station	8-10 lbs	7	11
Total				960	1,101

TABLE 6. Adult Steelhead Trout Plants, 2000-01 (WILD)

Date	Strain	Release site	Average size/ea	Number Females	Males
01-27-01	Dry Creek	Dry Creek	8-10 lbs	3	3
02-25-01	Dry Creek	Pena Creek	8-10 lbs	1	0
02-26-01	Dry Creek	Wine Creek	8-10 lbs	0	1
02-26-01	Dry Creek	Pena Creek	8-10 lbs	0	1
03-05-01	Dry Creek	Wine Creek	8-10 lbs	1	0
03-12-01	Dry Creek	Wine Creek	8-10 lbs	0	1
03-18-01	Dry Creek	Dry Creek	8-10 lbs	1	0
04-04-01	Dry Creek	Dry Creek	8-10 lbs	0	1
04-05-01	Dry Creek	Wine Creek	8-10 lbs	1	0
Total				7	7

All visitors to the Hatchery must enter through the Visitor Center where they are counted. During the 2000-01 season, 69,193 people visited the Hatchery (Table 7).

TABLE 7. Warm Springs Hatchery Monthly Visitation Data, 2000-01

<u>Month</u>	<u>Number of visitors</u>
July	7,068
August	8,220
September	4,858
October	3,753
November	3,325
December	3,456
January	4,786
February	5,007
March	4,625
April	5,789
May	9,596
<u>June</u>	<u>8,710</u>
Total	69,193

<u>Week</u>	<u>Chinook salmon</u>		<u>Coho salmon</u>		<u>Steelhead trout</u>	
	<u>Adults</u>	<u>Grilse</u>	<u>Adults</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>
10/15/00-10/21/00	5	0	0	0	0	0
10/22/00-10/28/00	7	0	0	0	0	0
10/29/00-11/04/00	10	2	0	0	0	0
11/05/00-11/11/00	3	0	0	0	0	0
11/12/00-11/18/00	1	1	0	0	0	0
11/19/00-11/25/00	0	0	0	0	0	0
11/26/00-12/02/00	0	0	0	0	0	0
12/03/00-12/09/00	0	0	0	0	3	1
12/10/00-12/16/00	0	0	0	0	1	0
12/17/00-12/23/00	0	0	0	0	20	8
12/24/00-12/30/00	0	0	0	0	6	5
12/31/00-01/06/01	0	0	0	0	8	4
01/07/01-01/13/01	0	0	0	0	27	15
01/14/01-01/20/01	0	0	0	0	23	24
01/21/01-01/27/01	0	0	0	0	115	111
01/28/01-02/03/01	0	0	0	0	131	90
02/04/01-02/10/01	0	0	0	0	62	49
02/11/01-02/17/01	0	0	0	0	302	181
02/18/01-02/24/01	0	0	0	0	311	258
02/25/01-03/03/01	0	0	0	0	185	148
03/04/01-03/10/01	0	0	0	0	229	224
03/11/01-03/17/01	0	0	0	0	181	149
03/18/01-03/24/01	0	0	0	0	162	130
03/25/01-03/31/01	0	0	0	0	82	68
04/01/01-04/07/01	0	0	0	0	53	33
04/08/01-04/14/01	0	0	0	0	24	22
04/15/01-04/21/01	0	0	0	0	11	9
04/22/01-04/28/01	0	0	0	0	7	7
04/29/01-05/05/01	0	0	0	0	2	1
05/06/01-05/12/01	0	0	0	0	0	0
Season Totals	26	3	0	0	1,943	1,537

APPENDIX TABLE 2. Summary of Fish Runs to Warm Springs  
Salmon and Steelhead Hatchery

<u>Year</u>	<u>Chinook salmon</u>			<u>Coho salmon</u>			<u>Steelhead trout</u>		
	<u>Males</u>	<u>Females</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>	<u>Grilse</u>	<u>Males</u>	<u>Females</u>	<u>Half-pounders</u>
1980-81	0	0	0	0	0	0	148	185	
1981-82	0	0	0	2	2	0	124	235	
1982-83	1	0	0	512	227	194	322	242	
1983-84	2	1	1	0	1	8	1,039	923	
1984-85	7	1	0	32	44	0	369	468	
1985-86	65	0	0	0	0	0	812	484	4
1986-87	50	25	36	139	5	328	519	696	36
1987-88	176	4	124	164	155	257	660	375	10
1988-89	151	61	21	219	139	176	453	421	17
1989-90	8	6	3	35	35	70	428	260	15
1990-91	67	0	32	100	87	90	239	181	3
1991-92	77	46	2	53	20	89	750	834	7
1992-93	15	22	3	250	113	215	1,378	1,289	2
1993-94	8	0	13	110	62	277	856	895	9
1994-95	59	9	17	310	392	63	3,561	4,525	14
1995-96	18	12	3	13	13	36	2,135	1,958	12
1996-97	25	11	7	68	68	12	1,729	1,910	9
1997-98	16	14	19	1	3	0	656	687	1
1998-99	1	0	3	2	1	5	1,219	1,012	5
1999-00	2	0	0	1	0	0	1,509	1,794	11
2000-01	21	5	3	0	0	0	1,941	1,537	2

AVERAGE WATER TEMPERATURE BY MONTH

<u>DATE</u>	*	<u>LOW TEMP</u>	<u>HIGH TEMP</u>	<u>MEAN TEMP</u>
July 1-31/2000		54 degrees	54 degrees	54 degrees
August 1-31/2000		54 degrees	55 degrees	54 degrees
September 1-30/2000		54 degrees	55 degrees	55 degrees
October 1-31/2000		55 degrees	56 degrees	56 degrees
November 1-30/2000		53 degrees	56 degrees	55 degrees
December 1-31/2000		52 degrees	53 degrees	53 degrees
January 1-31/2001		51 degrees	52 degrees	52 degrees
February 1-29/2001		50 degrees	50 degrees	50 degrees
March 1-31/2001		50 degrees	50 degrees	50 degrees
April 1-30/2001		51 degrees	52 degrees	52 degrees
May 1-31/2001		52 degrees	52 degrees	52 degrees
June 1-30/2001		52 degrees	52 degrees	52 degrees

\* All temperatures are in degrees Fahrenheit