

ANNUAL REPORT  
TRINITY RIVER SALMON AND STEELHEAD HATCHERY, 2000-2001

by

Gary R. Ramsden  
Fisheries Programs Branch  
North Coast, Northern California Region

ABSTRACT

This report describes the operation of Trinity River Salmon and Steelhead Hatchery for the period July 1, 2000 through June 30, 2001. Chinook salmon (Oncorhynchus tshawytscha), coho salmon (O. kisutch), and steelhead (Salmo gairdnerii gairdnerii) were reared.

Tables present the numbers of adults spawned, eggs produced, and fish planted. The appendix tables present the numbers of eggs and fish liberated and received, and fish trapping data for the fiscal year.

---

1/ Inland Fisheries Administrative Report No.  
Submitted

## INTRODUCTION

This is the forty-third consecutive fiscal year report covering operation of the Trinity River Salmon and Steelhead Hatchery, located near Lewiston, Trinity County. The hatchery was constructed by the United States Bureau of Reclamation to compensate for spawning and rearing areas lost to the Trinity River Project. The California Department of Fish and Game began operation of the permanent installation on May 15, 1963. Operation and maintenance costs are paid by the Bureau to mitigate this loss. This report describes operation of the hatchery from July 1, 2000 through June 30, 2001.

## PRODUCTION SUMMARY

The ladder was opened on September 3, and spring run chinook salmon began entering the hatchery trap. The spring run continued through October 10, of which time the majority of the salmon arriving were fall run. The fall run continued until January 2, 2001.

Coho salmon were trapped from September 26, 2000, through January 8, 2001. Steelhead entered the hatchery from September 18, 2000, through March 29, 2001.

TABLE 1. Production Summary 2000-2001

Species	Number Trapped	Number females spawned	Eggs Taken	Number fingerlings planted	Number yearlings planted	Total pounds planted
Spring run chinook salmon	12,192	1,000	2,978,164	1,093,525	390,506	68,898
Fall run chinook salmon	27,028	1,983	6,003,740	2,113,804	863,267	88,750
Coho salmon	4,394	432	1,109,866	513,400	60,400	
Steelhead	842	137	771,774	822,505	237,152	
Total	44,456	3,552	10,863,544	3,207,329	2,589,678	455,200

### Hatchery Operations

During the 2000-2001 spawning season, both Chinook races and coho run satisfied established egg allotments and thus production goals for smolt and yearling stages. The winter steelhead egg allotment of two million green eggs suffered a dismal shortfall of 60%. Only 771,774 eggs were collected from the run. Projecting into the next fiscal report year, approximately 635,000 will be released of a 800,000 yearly goal.

After hatch, all salmon were nutritionally started on Bio-Moist Grower mash, then continued on Bio-Moist Feed pellet until liberation. Steelhead were initially fed BMG #1 starter mash to a size of 50 fish per pound, then converted to Bio-Dry 1000. Our demand feed system, exclusive to steelhead, dispersed the feed upon the will of the fish, until April release into the Trinity River. Salmon were presented feed by means of a mechanical blower or at times, by hand.

A combined total of 555,675 pounds of feed produced 455,200 pounds of fish for both smolt and yearling programs of all four fish varieties. Feed poundage was divided into 318,175 wet and 237,500 dry feed, produced by Bio-Oregon, Inc. of Warrington, Oregon. The conversion rate was calculated at 1.22 (pounds of feed required to rear one pound of fish).

There were no serious outbreaks of disease during this time frame. An assertive plan of quarantine and sterilization during spawning and egg handling, plus regular pond cleaning, has proved health effective. Prophylactic procedures and low pond densities have been essential to disease control including viral Infectious Hematopoietic Necrosis. Production yearlings were not vaccinated with Yersina Ruckeri Bacterin an enteric redmouth disease treatment. Department of Fish and Game regional pathology have determined this past treatment was successful and to abandon the costly process while monitoring the health of all production fish. Coho were spawned in two female egg lots and each lot tested for Bacterial Kidney Disease. Overall, Trinity River Hatchery fish health assessment was very good.

The Hoopa Valley Tribal Fisheries monitor fish migration and population studies as part of their management role in the Klamath River Basin. Data, from coded wire tagging, trapping sites, and hatchery statistics, is collected for run characteristics and regulation. "Constant fractional marking", a statistical strategy, has been implemented in cooperation with Humboldt State University to track hatchery releases. To calculate this constant, chinook production, both smolt and yearling, were inventoried prior to the coded wire tagging process. The inventory involves hand weighing fish in ten pound increments with frequent fish counts on designated bucket intervals. This operations modification effectively enumerates hatchery salmon production for release estimation. Prior ponding

procedure relied on eyed egg counts from incubator tray to series or early pond to pond inventories.

Visitor counts to the installation totaled 6,485. This was a 7% increase from the previous year. Guided tours were provided to schools or other interested groups upon request. Work experience and job shadowing opportunities were utilized by career seeking individuals, through sponsoring agencies, in all facets of our fish rearing operation. Approximately 1,086 fly fishers used the Trinity River fishing access in waters adjacent to the installation, from late April until mid September, a 30% usage increase.

### Chinook Salmon Maintenance Program The History of the 2000 Run

Chinook salmon began arriving at Trinity River Hatchery in mid May. The ladder and trap were opened for salmon entry on September 3, and sorting started on September 5. Eggs were collected through December 4.

#### Spring Run

A total of 12,192 spring run chinook were trapped between September 3 and October 10, 2000. This total included 5,385 females, 6,170 males and 637 grilse. Fish less than 55 cm, FL, were considered and counted as grilse. Spring females produced 2,978,164 green eggs, an average of 2,978/female. Egg size averaged 94/ounce.

#### Fall Run

During November and through January 2, 2001, the fall-run numbered 27,028 fish. This total included 11,676 females, 14,339 males and 1,013 grilse. Spawnd females produced 6,003,740 green eggs, an average of 3,028/female. Egg size averaged 90/ounce.

### Planting 1999 Brood Year Chinook Salmon

We planted a total of 1,253,773 chinook yearlings this fiscal year. (Table 2).

Table 2. Yearling Chinook Salmon Planted 2000-2001.

Date	Fish/lb.	Race	Release site	Number
10/3-6/00	10.3	Spring	TRH	259,272
	9.9	Spring	TRH	131,234
	14.7	Fall	TRH	198,318
	15.5	Fall	TRH	377,549
	17.1	Fall	TRH	287,400
			Total	1,253,773

### Planting 2000 Brood Year Chinook Salmon

A total of 3,207,329 chinook salmon fingerlings were planted in 2001 (Table 3).

Table 3. 2000 Brood Year Fingerling Chinook Salmon

Date	Fish/lb.	Race	Release Site	Number
6/6-13/01	42.0	Spring	TRH	380,772
	33.3	Spring	TRH	712,753
	56.5	Fall	TRH	1,501,770
	65.5	Fall	TRH	109,880
	86.0	Fall	TRH	502,154
			Total	3,207,329

## COHO SALMON MAINTENANCE PROGRAM

### History of the 2000 Run

Coho salmon entered the hatchery from September 26, 2000 to January 8, 2001. We trapped 4,394 fish: 1,699 males; 1,763 females; and 932 grilse. Coho females averaged 2,569 eggs @ 101/ounce. A total of 1,109,866 eggs were taken.

Planted 1999 Brood Year Coho Salmon

Table 4. Coho Salmon Yearling Planted in 2001

<u>Date</u>	<u>Size/lb.</u>	<u>Race</u>	<u>Release</u>	<u>Number</u>
3/15-22/01	8.5	Trinity	TRH	513,400
				Total 513,400

STEELHEAD MAINTENANCE PROGRAM

History of the 2000-2001 Run

The first steelhead entered the hatchery on September 26, 2000. We trapped through March 29, 2001, collecting 1,842 fish: 629 males and 213 females. Between January 22, 2001 and April 2, 2001, we spawned 137 females. They produced 771,774 eggs, with an average of 4,194/female. Eggs averaged 244/ounce.

Steelhead Planted

We planted a total 822,505 yearling steelhead in FY 2000-2001. (Table 5)

Table 5. Steelhead Planted in 2000-2001 FY

<u>Strain &amp; brood year</u>	<u>Date</u>	<u>Fish/lb.</u>	<u>Mark</u>	<u>Release site</u>	<u>Number</u>
TR-00	3/15-22/01	4.1	Ad	TRH	133,402
		3.5	Ad	TRH	269,101
		3.0	Ad	TRH	235,500
		3.5	Ad	TRH	160,100
		7.0	Ad	TRH	24,402
				Total	822,505

Appendix Table 1. Weekly Adult Salmon and Steelhead Trapping Dates for 2000-01

Week		Chinook		Coho		Steelhead	
		Adults	Grilse	Adults	Grilse	Male	Female
9/05/00	S	952	19	0	0	0	0
9/11/00	S	2,096	64	0	0	0	0
9/18/00	S	2,389	130	0	0	2	0
9/25/00	S	2,805	146	1	0	0	1
10/02/00	S	2,567	201	5	0	0	2
10/10/00	S	746	77	32	6	0	0
10/26/00	F	3,391	46	78	26	0	1
10/30/00	F	10,247	168	529	193	2	2
11/06/00	F	5,395	206	317	136	3	1
11/13/00	F	3,919	236	601	118	1	0
11/20/00	F	1,853	153	341	81	0	1
11/27/00	F	964	124	827	199	2	1
12/04/00	F	145	42	319	88	7	4
12/11/00	F	81	23	205	34	6	4
12/18/00	F	16	13	150	42	19	4
12/26/00	F	3	2	46	8	19	3
01/02/01	F	1	0	11	1	43	5
01/08/01		0	0	0	0	31	5
01/17/01		0	0	0	0	7	1
01/22/01		0	0	0	0	85	17
01/30/01		0	0	0	0	51	14
02/05/01		0	0	0	0	27	10
02/13/01		0	0	0	0	4	1
02/16/01		0	0	0	0	128	45
02/26/01		0	0	0	0	89	33
03/05/01		0	0	0	0	64	42
03/12/01		0	0	0	0	18	6
03/19/01		0	0	0	0	12	8
03/26/01		0	0	0	0	9	2
Totals		37,570	1,650	3,462	932	629	213



Appendix Table 2. Summary of Fish Runs to Trinity River Salmon and Steelhead Hatchery

Dates	Chinook			Coho		Steelhead	
	Males	Females	Grilse	Males	Females	Grilse	
1958-59	1,269	1,744	878	240	343	33	2,880
1959-60	1,716	2,833	2,701	49	44	26	2,071
1960-61	1,493	1,287	4,130	84	54	70	3,526
1961-62	885	1,613	2,899	158	160	37	3,243
1962-63	1,308	1,608	6,535	7	0	9	1,687
1963-64	1,569	2,627	2,539	32	40	11	894
1964-65	1,974	3,042	1,287	23	25	2	6,941
1965-66	477	1,077	1,521	2	1	9	992
1966-67	1,052	1,002	2,876	45	173	807	135
1967-68	1,620	1,250	1,746	287	519	59	232
1968-69	1,797	2,102	873	3	1	34	554
1969-70	624	832	1,130	153	132	1,711	241
1970-71	773	725	2,946	1,410	1,396	341	87
1971-72	3,648	4,645	928	28	11	8	242
1972-73	5,217	4,825	339	28	30	2,612	271
1973-74	2,483	1,152	1,577	3,808	3,787	468	162
1974-75	4,547	2,840	677	33	22	40	372
1975-76	2,958	3,405	860	68	109	2,060	175
1976-77	2,845	1,901	2,878	1,171	1,414	223	13
1977-78	1,841	1,318	2,562	381	317	1,230	285
1978-79	4,478	5,135	1,287	580	995	2,080	683
1979-80	1,138	1,480	1,452	1,241	1,547	1,253	382
1980-81	2,745	2,271	2,242	753	1,070	1,500	2,019
1981-82	2,214	2,514	1,146	830	1,164	2,529	1,007
1982-83	1,874	1,683	4,112	1,686	2,112	1,000	715
1983-84	2,764	3,256	903	223	256	227	603
1984-85	1,923	1,157	664	574	676	7,611	142
1985-86	6,548	2,821	14,533	3,729	3,919	4,138	461
1986-87	13,109	9,376	5,462	1,309	1,593	5,230	3,780
1987-88	12,374	8,593	5,273	9,165	11,243	2,930	3,007
1988-89	19,391	12,594	4,401	5,713	5,802	1,301	817
1989-90	8,218	7,728	426	2,509	2,324	136	4,765
1990-91	1,677	2,166	413	666	706	263	927
1991-92	1,837	2,088	447	1,430	1,056	202	350
1992-93	2,237	2,452	1,110	1,157	1,084	1,351	551
1993-94	1,483	1,744	997	1,136	920	138	882
1994-95	4,394	3,078	5,313	69	43	76	376
1995-96	9,740	13,879	623	2,091	2,414	276	646

Appendix Table 2. Summary of Fish Runs to Trinity River Salmon and Steelhead Hatchery – continued

Dates	Chinook			Coho			Steelhead
	Males	Females	Grilse	Males	Females	Grilse	
1996-97	4,902	6,229	571	4,895	4,682	538	4,046
1997-98	5,185	4,500	1,712	398	458	1,731	419
1998-99	8,397	7,226	3,790	1,950	1,862	1,036	438
1999-00	2,216	2,973	1,980	1,264	1,783	396	1,584
2000-01	20,509	17,061	1,650	1,699	1,763	932	842
Totals	179,449	163,832	102,389	53,077	58,050	46,664	54,445