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90097

State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
TRINITY RIVER SALMON AND STEELHEAD HATCHERY
1984-85

by

Gerald W. Bedell
Region 1, Inland Fisheries

Inland Fisheries
Administrative Report No. 87-5

1987

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ABSTRACT

This report describes the operation of Trinity River Salmon and Steelhead Hatchery for the period July 1, 1984 through June 30, 1985. Chinook salmon, Oncorhynchus tshawytscha, coho salmon, O. kisutch, and steelhead trout, Salmo gairdneri, were reared.

Tables present the numbers of adults spawned and eggs and fish produced and planted. The appendix tables present the numbers of eggs and fish shipped and received; and daily weather, water temperature, and fish trapping data for the fiscal year.

1/ Inland Fisheries Administrative Report No. 87-5

Submitted for publication September, 1985.

INTRODUCTION

This is the twenty-seventh 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 areas blocked by 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.

This report describes operation of the hatchery from July 1, 1984 through June 30, 1985. Copies of previous annual reports are available upon request from the Inland Fisheries Division, Rancho Cordova.

PRODUCTION SUMMARY

The ladder was opened and spring-run chinook salmon began entering the hatchery September 6, 1984. The run continued until about October 13th, at which time the majority of the salmon arriving were fall-run. The last of the chinook salmon entered the hatchery on November 21, 1984. Coho salmon were trapped from October 4, 1984 through January 10, 1985. Steelhead entered the hatchery from December 10, 1984 through April 7, 1985.

TABLE 1. Production Summary 1984-85

Species	Number trapped	Number females spawned	Eggs taken or received	Number fingerlings planted	Number yearlings planted	Total pounds planted	On Hand June 30, 1986
Chinook salmon	3,744	1,026	2,675,187	510,000	1,600,238	163,077	1,731,68
Coho salmon	8,861	605	1,708,505		156,150	23,424	1,227,61
Steelhead	142	53	649,142 ^{a/}		678,425	91,000	488,50
Totals	12,747	1,684	5,032,834	510,000	2,434,813	277,501	3,447,79

a/ 188,955 Trinity River stock; 460,187 received from Iron Gate Hatchery.

No fish or eggs were shipped to other facilities this fiscal year.

HATCHERY OPERATION

All production fish were reared on a diet of Oregon Moist Pellet (OMP). A total of 471,798 lbs of feed produced 277,501 lbs of fish during fiscal year 1984-85. The feed conversion rate (pounds of feed required to raise one pound of fish) was 1.7.

In anticipation of a hatchery pond and water supply modification planned for the spring of 1986 we, in cooperation with the Bureau of Reclamation, Shasta Division, designed and built an offsite rearing facility approximately 3 miles downstream at the Sawmill Site Fish and Wildlife area. Purpose of the facility is to enable us to carry over at least a portion of the salmon and steelhead fingerlings and return them to the new hatchery raceways when they are completed.

The poundage of fish planted in 1984-85 is the highest in the history of the hatchery. The conversion rate of 1.7 is also the best we've ever had. Both factors are directly attributable to the predator fencing completed about a year ago.

A total of 7,917 people visited Trinity River Hatchery in 1984-85. Guided tours were provided for several of the larger groups, most of which were from schools in the area.

CHINOOK SALMON MAINTENANCE PROGRAM

History of the 1984 Run

Chinook salmon were first seen in the upper river below Lewiston Dam on June 11. The ladder was opened August 31 and spawning operations began September 13.

Spring Run

Between September 6 and October 11, a total of 1,273 chinook salmon, mostly spring-run, were trapped at the hatchery. This number included 738 males, 367 females, and 168 grilse. Chinook salmon males <56 cm (22 inches) FL are considered grilse. The 305 females spawned during this period produced 720,709 eggs, an average of 2,363/female. Egg size averaged 108/oz.

Fall Run

There were 2,471 chinook salmon trapped from October 15 to November 21: 1,185 males, 790 females, and 496 grilse. All were assumed to be fall-run. The 721 females spawned produced 1,954,478 eggs, an average of 2,711/female. Egg size averaged 94/oz.

Marked Chinook Salmon Returns

There were 638 chinook salmon marked Ad and tagged with coded wire tags (CWT) trapped at the hatchery during the 1984 season (Appendix Table 4).

Planting 1983 Brood Year Chinook Salmon

We planted a total of 1,600,238 chinook salmon yearlings during this fiscal year (Table 2).

We planted a total of 2,575,335 chinook salmon (1983 brood year) as fingerlings during the last fiscal year. Of the 5,680,541 (spring and fall combined) brood year 1983 chinook salmon eggs taken, 4,175,573 (74%) were eventually planted as fish.

Table 2. Yearling Chinook Salmon Planted, 1984-85*

Date	Size/lb	Race	Release site	Number
9/26/84	14.0	Fall	Hatchery	183,400
9/27/84	14.5	Fall	Hatchery	198,650
10/01/84	9.0	Spring	Hatchery	116,325
10/02/84	10.4	Spring	Hatchery	176,800
10/03/84	9.2	Spring	Hatchery	45,632
10/03/84	11.0	Spring	Hatchery	95,700
10/04/84	12.5	Fall	Hatchery	189,624
10/07/84	11.4	Fall	Hatchery	193,515
10/12/84	14.1	Fall	Hatchery	122,529
10/16/84	12.1	Fall	Steel Bridge	26,015
10/17/84	13.4	Fall	Junction City	26,130
10/18/84	14.1	Fall	Lime Point	27,918
3/01/85	5.3	Fall	Hatchery	96,000
3/01/85	5.6	Fall	Hatchery	102,000
Total				1,600,238

* All fish were Trinity River stock.

Planting 1984 Brood Year Chinook Salmon

A total of 510,000 chinook salmon fingerlings was planted in 1985 (Table 3).

Table 3. 1984 Brood Year Fingerling Chinook Salmon Planted in 1985

Date	Size/lb	Race	Release site	Number
6/10/85	53	Fall	Hatchery	201,400
6/11/85	56	Fall	Steel Bridge	104,100
6/12/85	55	Fall	Junction City	104,500
6/14/85	53	Fall	Lime Point	100,000
Total				510,000

COHO SALMON MAINTENANCE PROGRAM

History of the 1984 Run

Coho salmon entered the hatchery from October 4, 1984 through January 10, 1985. We trapped 8,861 fish: 574 males, 676 females, and 7,611 grilse. We spawned 605 females from November 5 through December 20. They produced 1,708,505 eggs, an average of 2,824/female. Egg size averaged 111/oz.

Marked Coho Salmon Returns

A total of 1,690 of the coho salmon trapped was marked Ad and CWT (Appendix Table 4).

Planting 1983 Brood Year Coho Salmon

A total of 156,150 coho salmon was planted in 1985 (Table 4).

Table 4. Coho Salmon Yearlings Planted in 1985*

Date	Race	Size/lb	Number
3/21/85	Trinity	7.5	78,050
3/21/85	Trinity	6.0	78,100
Total			156,150

*All fish were planted at the hatchery.

STEELHEAD MAINTENANCE PROGRAM

History of the 1984-85 Steelhead Run

The steelhead run at Trinity River Hatchery extended from December 10, 1984 to April 7, 1985 and consisted of 142 fish: 71 males and 71 females. Because Iron Gate strain fish and the original Trinity strain have cross bred in natural matings over the past several years we no longer try to differentiate between the two stocks when spawning in the hatchery. From January 3 through March 24 we spawned 53 females. They produced 188,955 eggs, an average of 3,565/female. Egg size averaged 233/oz.

Steelhead Planted

We planted 678,425 steelhead in FY 1984-85 (Table 6).

Table 6. Steelhead Planted in 1984-85 FY

Strain and brood year	Date released	Average size/lb	mark	Release site	Number released
Trinity 1984	3/04/85	6.5	None	Hatchery	39,000
Trinity 1984	3/05/85	7.0	None	Hatchery	71,400
Trinity 1984	3/14/85	7.5	None	Hatchery	91,875
Trinity 1984	3/15/85	8.0	None	Hatchery	40,800
Trinity 1984	3/15/85	6.0	None	Hatchery	48,600
Trinity 1984	3/18/85	7.0	None	Hatchery	109,900
Trinity 1984	3/19/85	8.0	None	Hatchery	113,200
Trinity 1984	4/08/85	8.0	None	Hatchery	94,800
Trinity 1984	4/09/85	9.0	None	Hatchery	68,850
Total					678,425

Marked Steelhead Returns

Of the 142 trapped at Trinity River Hatchery during the 1984-85 season 61 (43%) were marked Ad. No other marks were seen.

BROWN TROUT MAINTENANCE PROGRAM

No brown trout were spawned or planted during fiscal year 1984-85.

Appendix Table 1

Eggs and Fish Shipped From and Received at
Trinity River Hatchery, July 1, 1984 - June 30, 1985

Species	Number received	Date	Origin
Winter run Steelhead eggs	172,000	3/13/85	Iron Gate Hatchery
Winter run Steelhead eggs	128,700	3/20/85	Iron Gate Hatchery
Winter run Steelhead eggs	67,200	3/29/85	Iron Gate Hatchery
Winter run Steelhead eggs	79,200	4/03/85	Iron Gate Hatchery
Winter run Steelhead eggs	13,087	4/10/85	Iron Gate Hatchery
Total	460,187		

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

Year	Chinook salmon			Coho salmon			Steelhead	Brown trout
	Males	Females	Grilse	Males	Females	Grilse		
1958-59	1,269	1,744	878	240	343	33	2,880	80
1959-60	1,716	2,833	2,701	49	44	26	2,071	52
1960-61	1,493	1,287	4,130	84	54	70	3,526	82
1961-62	885	1,613	2,899	158	160	37	3,243	35
1962-63	1,308	1,608	6,535	7	0	9	1,687	49
1963-64	1,569	2,627	2,539	32	40	11	894	34
1964-65	1,974	3,042	1,287	23	25	2	6,941	145
1965-66	477	1,077	1,521	2	1	9	992	100
1966-67	1,052	1,002	2,876	45	173	807	135	152
1967-68	1,620	1,250	1,746	287	519	59	232	231
1968-69	1,797	2,102	873	3	1	34	554	170
1969-70	624	832	1,130	153	132	1,711	241	70
1970-71	773	725	2,946	1,410	1,396	341	67	23
1971-72	3,648	4,645	928	28	11	8	242	7
1972-73	5,217	5,825	339	28	30	2,612	271	111
1973-74	2,483	1,152	1,577	3,808	3,787	486	162	39
1974-75	4,547	2,840	677	33	22	40	372	32
1975-76	2,958	3,405	860	68	109	2,060	175	24
1976-77	2,845	1,901	2,878	1,171	1,414	223	13	49
1977-78	1,841	1,318	2,562	381	317	1,230	285	0
1978-79	4,478	5,131	1,287	580	995	2,080	683	0
1979-80	1,138	1,480	1,452	1,241	1,547	1,253	382	0
1980-81	2,745	2,271	2,242	753	1,070	1,500	2,019	0
1981-82	2,214	2,514	1,146	830	1,164	2,529	1,007	0
1982-83	1,874	1,683	4,112	1,686	2,112	1,000	715	0
1983-84	2,764	3,256	903	223	256	227	603	0
1984-85	1,923	1,157	664	574	676	7,611	142	0

Appendix Table 3
 Trinity River Salmon and Steelhead Hatchery Weather,
 and Water Data, and Counts of Fish during Spawning
 Operations, July 1, 1984, through June 30, 1985

July	Temperature F		Flox of Trinity River at Lewiston (cfs)*	Fish trapped	
	Water			Chinook Salmon	Coho Salmon
	Air Maximum	Minimum		Adults	Grilse
1	103	56	458		
2	101	58	535		
3	106	54	540		
4	107	56	535		
5	103	57	541		
6	99	60	542		
7	97	58	541		
8	93	53	542		
9	95	48	549		
10	97	52	549		
11	96	53	571		
12	98	54	544		
13	101	55	548		
14	105	62	542		
15	106	61	541		
16	104	62	544		
17	94	68	542		
18	98	64	541		
19	98	61	543		
20	94	60	536		
21	89	52	519		
22	81	56	519		
23	84	48	518		
24	88	54	509		
25	86	51	510		
26	94	49	515		
27	94	52	518		
28	93	54	519		
29	95	53	519		
30	98	50	519		
31	95	54	519		

*From USGS records.

Appendix Table 3 (Continued)

August	Temperature F				Weather	Flow of Trinity River at Lewiston (cfs)*	Fish trapped			
	Air		Water				Chinook Salmon	Coho Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum			Adults	Grilse	Adults	
1	91	56	58	51	clear	519				
2	86	54	56	53	clear	519				
3	90	52	56	51	clear	518				
4	93	49	57	54	clear	518				
5	92	52	56	55	partly cloudy	518				
6	94	52	57	55	clear	517				
7	100	52	59	55	clear	517				
8	103	54	57	56	clear	513				
9	100	56	56	53	clear	510				
10	98	54	56	53	clear	510				
11	89	52	55	53	partly cloudy	511				
12	91	52	55	53	clear	512				
13	89	52	55	53	partly cloudy	511				
14	93	50	55	53	clear	511				
15	102	50	55	52	clear	507				
16	90	54	55	53	clear	506				
17	94	54	55	52	clear	510				
18	94	54	55	53	clear	510				
19	85	55	55	53	clear	508				
20	97	50	55	52	clear	505				
21	96	54	54	53	clear	508				
22	90	51	54	51	clear	511				
23	87	51	53	51	clear	510				
24	82	48	52	51	partly cloudy	510				
25	83	48	52	50	cloudy	509				
26	87	50	52	50	partly cloudy	505				
27	89	51	54	50	clear	510				
28	92	53	53	51	clear	505				
29	94	58	54	51	cloudy	505				
30	69	59	52	52	showers	504				
31	79	50	52	50	partly cloudy	506				

*From USGS records.

Appendix Table 3 (Continued)

September	Temperature F		Water		Weather	Flow of Trinity River at Lewiston (cfs)*	Fish trapped				
	Air						Chinook Salmon Adults	Grilse	Coho Salmon Adults	Grilse	Steelhead
	Maximum	Minimum	Maximum	Minimum							
1	90	44	52	50	clear	418					
2	92	46	53	51	partly cloudy	418					
3	91	50	53	50	clear	417					
4	93	48	53	50	clear	414					
5	90	50	53	51	clear	417					
6	88	54	53	51	clear	418	9	1			
7	89	49	53	51	clear	413					
8	99	51	54	52	clear	412					
9	100	55	54	52	clear	410					
10	94	48	54	50	clear	354					
11	84	48	53	50	clear	320	12	2			
12	68	40	53	49	clear	320					
13	94	42	52	49	clear	333	28	1			
14	80	44	52	50	overcast	322					
15	89	47	52	49	clear	313					
16	95	49	52	49	clear	316					
17	98	47	53	51	clear	315	74	3			
18	92	56	54	51	partly cloudy	315					
19	85	60	54	51	rain-cloudy	256					
20	84	58	54	52	rain-cloudy	314	64	5			
21	76	44	52	50	fog-clear	319					
22	80	39	51	50	partly cloudy	320					
23	78	38	51	49	clear	318					
24	74	34	51	49	clear	315	127	16			
25	81	33	51	50	clear	315					
26	85	36	51	49	clear	316					
27	87	39	52	49	clear	317	80	10			
28	88	40	52	49	clear	317					
29	90	41	52	49	clear	318					
30	79	47	52	50	rain-cloudy	313					
Totals							394	38			

*From USGS records.

Appendix Table 3 (Continued)

October	Temperature F				Weather	Flow of Trinity River at Lewiston (cfs)*	Fish trapped			
	Air		Water				Chinook Salmon	Coho Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum			Adults	Grilse	Adults	
1	80	40	52	50	clear	317	213	31		
2	80	40	52	50	clear	316				
3	86	40	51	50	partly cloudy	310				
4	71	46	52	51	partly cloudy	308	187	27		2
5	71	46	52	51	overcast	308				
6	79	45	52	51	partly cloudy	308				
7	80	47	52	51	cloudy-clear	308				
8	76	46	52	52	clear-rain	308				
9	74	46	53	52	cloudy-clear	308	228	55		2
10	52	44	52	51	cloudy-rain	311				
11	59	42	51	51	cloudy-rain	311	92	18	1	6
12	51	42	51	51	fog-rain	309				
13	65	44	51	51	partly cloudy	311				
14	65	37	51	50	fog-clear	309				
15	62	30	51	50	fog-clear	309	349	76	1	23
16	40	40	50	50	rain	309				
17	56	34	50	49	partly cloudy	308				
18	48	34	49	49	fog-rain	307	178	49	6	51
19	47	36	49	49	fog-rain	304				
20	64	36	50	48	partly cloudy	304				
21	59	41	49	49	partly cloudy	304				
22	64	40	50	49	fog-clear	304	405	83	3	90
23	68	42	50	49	fog-cloudy	304				
24	72	42	51	49	fog-clear	304				
25	68	40	51	49	fog-clear	304	273	72	4	64
26	60	50	51	51	partly cloudy	304				
27	60	30	50	49	fog-clear	304				
28	53	29	50	50	rain	305				
29	57	42	50	49	partly cloudy	304	297	104	15	134
30	58	44	50	49	fog-clearing	304				
31	60	34	49	48	fog-clear	304				
Totals							2,222	515	30	372
Cumulative Totals							2,616	553	30	372

*From USGS records.

Appendix Table 3 (Continued)

November	Temperature F		Flow of Trinity River at Lewiston (cfs)*	Fish trapped			
	Air			Chinook Salmon Adults	Coho Salmon Adults	Steelhead	
	Maximum	Minimum					
1	56	34	303	196	32	18	256
2	60	44	223				
3	60	44	177				
4	62	37	246				
5	57	40	299	165	42	66	441
6	49	40	257				
7	49	40	251				
8	50	42	255	58	18	140	920
9	46	35	279				
10	44	39	313				
11	47	36	319				
12	53	49	314	33	11	108	1,071
13	54	44	292				
14	54	36	257				
15	40	37	255	7	3	96	620
16	51	42	293				
17	50	40	318				
18	56	39	319				
19	50	40	319	3	4	129	988
20	46	42	320				
21	52	34	318	2	1	25	241
22	50	29	318				
23	45	36	317				
24	49	33	319				
25	49	30	318				
26	44	32	319				
27	45	36	321			154	777
28	50	34	321				
29	42	32	320				
30	50	37	319			76	460
Totals				464	111	812	5,774
Cumulative Totals				3,080	664	842	6,146

* From USGS record.

Appendix Table 3 (Continued)

December	Temperature F		Weather	Flow of Trinity River at Lewiston (cfs)*	Fish trapped			
	Air				Chinook Salmon Adults	Coho Salmon	Grilse	Steelhead
	Maximum	Minimum						
1	50	46	partly cloudy	306				
2	42	46	rain	307				
3	46	46	overcast	306	111	451		
4	46	46	overcast	306				
5	55	47	overcast	303				
6	44	46	fog-clear	304	62	254		
7	40	46	fog	304				
8	45	46	fog	304				
9	50	46	rain-cloudy	304				
10	50	47	rain	305	90	346	2	
11	43	46	partly cloudy	306				
12	50	45	overcast	306				
13	46	45	fog-clear	306	51	181	7	
14	46	45	fog-clear	304				
15	45	45	rain-cloudy	303				
16	41	45	fog-cloudy	303				
17	43	46	cloudy-clear	301	33	96	3	
18	40	45	snow-clearing	304				
19	38	45	fog-clear	306				
20	37	45	snow-clear	304	13	36		
21	43	45	fog-clear	303				
22	41	45	fog	303				
23	42	45	fog	303				
24	40	46	fog-clear	303	13	28	5	
25	40	45	fog-cloudy	302				
26	45	46	cloudy	301				
27	48	46	partly cloudy	304	9	35	1	
28	49	46	partly cloudy	304				
29	44	45	partly cloudy	303				
30	43	45	snow-cloudy	303				
31	50	45	overcast	303	9	15	9	
Totals					391	1,442	27	
Cumulative Totals					3,080	664	1,233	27

* From USGS records.

Appendix Table 3 (Continued)

January	Temperature F				Weather	Flow of Trinity River at Lewiston (cfs)*	Fish trapped				
	Air		Water				Chinook Salmon		Coho Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum			Adults	Grilse	Adults	Grilse	
1	46	29	46	45	fog-clear	306					
2	52	30	46	45	fog-clear	307					
3	50	30	46	45	fog-clear	306		10	7	8	
4	46	30	46	45	fog-overcast	306					
5	48	32	46	45	fog-cloudy	303					
6	50	37	46	45	cloudy	304					
7	50	37	46	45	cloudy	304		6	11	9	
8	46	40	46	45	overcast	304					
9	50	40	46	45	rain-cloudy	304					
10	48	38	46	45	overcast-clear	305		1	5	9	
11	48	34	46	45	fog-clear	306					
12	51	32	46	45	partly cloudy	306					
13	50	30	46	45	fog-clear	306					
14	50	30	45	45	fog-clear	304				1	
15	50	32	46	45	fog-clear	303					
16	56	32	45	45	fog-clear	303					
17	58	32	46	45	fog-clear	301				1	
18	54	36	45	45	fog-clear	304					
19	57	33	45	45	fog-clear	306					
20	57	34	46	45	fog-clear	304				1	
21	55	33	46	45	fog-clear	303					
22	58	28	46	45	fog-clear	303					
23	56	28	46	45	fog-clear	303					
24	54	28	46	45	partly cloudy	303				8	
25	48	29	45	45	fog-cloudy	302					
26	56	32	46	45	fog-clear	301					
27	56	26	46	45	partly cloudy	304					
28	52	35	46	45	fog-clearing	304					
29	53	28	46	45	fog-clear	303					
30	55	25	46	45	fog-clear	303					
31	56	23	45	44	clear	303					
Totals								17	23	37	
Cumulative Totals							3,080	664	1,250	7,611	64

* From USGS records.

Appendix Table 3 (Continued)

February	Temperature F				Weather	Flow of Trinity River at Lewiston (cfs)*	Fish trapped					
	Air		Water				Chinook Salmon		Coho Salmon		Steelhead	
	Maximum	Minimum	Maximum	Minimum			Adults	Grilse	Adults	Grilse		
1	46	23	45	44	fog-cloudy	302						
2	48	22	45	44	partly cloudy	300						
3	44	27	45	44	partly cloudy	300						
4	51	26	45	44	fog-clear	321						
5	58	26	45	44	partly cloudy	338						
6	51	27	45	44	partly cloudy	339						
7	38	33	44	44	snow	345						
8	47	33	44	43	clear	698						
9	46	29	44	43	snow flurries	822						1
10	52	28	44	43	partly cloudy	820						
11	43	34	44	43	cloudy-rain	596						
12	57	37	45	44	fog-clear	328						
13	60	38	45	44	fog-clear	307						
14	64	36	47	45	fog-clear	307						1
15	68	36	47	45	fog-clear	308						
16	61	39	47	45	partly cloudy	308						
17	67	34	48	46	fog-clear	307						
18	68	30	48	45	fog-clear	307						
19	64	34	47	46	fog-clear	307						1
20	60	27	47	46	clear	305						6
21	71	28	48	45	clear	304						6
22	72	32	47	45	fog-clear	303						
23	74	33	48	46	fog-clear	303						
24	72	35	48	46	fog-clear	302						
25	67	36	48	46	fog-clear	303						1
26	62	28	48	46	partly cloudy	307						4
27	70	34	48	46	clear	305						
28	75	28	48	46	clear	305						
Totals												20
Cumulative Totals						3,080	664	1,250	7,611			84

*From USGS records.

Appendix Table 3 (Continued)

March	Temperature F				Weather	Flow of Trinity River at Lewiston (cfs)*	Fish trapped				
	Air		Water				Chinook Salmon		Coho Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum			Adults	Grilse	Adults	Grilse	
1	58	32	46	46	fog-clear-rain	305					2
2	47	24	46	46	clear	306					
3	61	20	47	45	clear	306					
4	50	36	46	45	partly cloudy	307					4
5	42	30	45	45	lite snow-rain	307					1
6	44	30	45	45	overcast	308					2
7	45	33	45	45	partly cloudy	308					
8	56	30	46	45	fog-clear	305					
9	62	30	47	45	clear	304					
10	55	40	46	45	lite rain	304					
11	66	40	47	45	overcast-clear	307					1
12	64	36	47	46	fog-clear	312					
13	70	30	49	46	fog-clear	315					3
14	72	29	49	46	fog-clear	315					
15	74	32	50	47	fog-clear	314					4
16	62	33	50	47	partly cloudy	315					
17	63	40	50	48	cloudy	315					7
18	74	40	50	48	partly cloudy	314					1
19	74	36	51	48	fog-clear	314					5
20	70	32	50	48	clear	317					
21	58	28	50	48	clear	318					7
22	62	26	50	48	partly cloudy	316					5
23	63	38	50	49	partly cloudy	316					
24	52	39	49	49	partly cloudy	315					7
25	54	28	49	48	clear	315					2
26	32	30	48	47	snow	312					1
27	42	29	47	47	snow showers	320					2
28	51	30	48	47	snow showers	315					
29	56	29	48	47	fog-clear	313					
30	69	32	48	47	fog-clear	315					1
31	66	32	49	48	fog-clear	316					
Totals											55
Cumulative Total:							3,080	664	1,250	7,611	139

*From USGS reports.

Appendix Table 3 (Continued)

April	Temperature F		Flow of Trinity River at Lewiston (cfs)*	Fish trapped				
	Air			Chinook Salmon	Coho Salmon			
	Maximum	Minimum		Adults	Grilse			
1	80	38	316					
2	84	38	313					
3	81	39	319					
4	78	42	330		1			
5	88	39	330					
6	80	44	331					
7	83	47	330		2			
8	86	44	329					
9	80	42	317					
10	70	46	311					
11	74	40	311					
12	82	40	311					
13	93	42	311					
14	85	44	327					
15	74	48	315					
16	66	41	317					
17	70	44	317					
18	62	38	316					
19	56	36	316					
20	55	36	314					
21	53	41	316					
22	68	36	315					
23	70	47	313					
24	66	34	310					
25	64	32	311					
26	77	32	310					
27	81	40	310					
28	77	42	310					
29	80	48	311					
30	84	42	310					
Totals					3			
Cumulative Totals				3,080	664	1,250	7,611	142

*From USGS records.

Appendix Table 3 (Continued)

May	Temperature F				Weather	Flow of Trinity River at Lewiston (cfs)*	Fish trapped			
	Air		Water				Chinook Salmon	Coho Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum			Adults	Grilse	Adults	
1	80	48	56	54	partly cloudy	307				
2	80	43	54	54	clear	307				
3	64	44	55	52	clear	310				
4	76	32	54	52	clear	310				
5	83	36	55	53	clear	310				
6	72	38	54	53	partly cloudy	310				
7	66	44	54	53	overcast	309				
8	70	34	54	52	clear	311				
9	72	34	54	52	clear	310				
10	62	44	53	52	light rain	309				
11	67	34	53	52	partly cloudy	310				
12	78	34	53	52	clear	314				
13	85	39	55	52	clear	314				
14	78	40	54	52	clear	311				
15	79	44	56	55	clear	310				
16	75	40	56	54	partly cloudy	312				
17	72	48	56	55	partly cloudy	314				
18	84	41	57	55	clear	316				
19	83	44	57	56	clear	314				
20	80	44	58	56	clear	314				
21	85	44	59	57	partly cloudy	313				
22	87	50	60	57	overcast	315				
23	83	52	60	57	clear	313				
24	83	50	60	57	clear	312				
25	80	47	61	58	partly cloudy	314				
26	76	49	58	58	partly cloudy	317				
27	72	52	59	58	rain	317				
28	58	48	58	57	rain	316				
29	67	40	58	55	light rain	314				
30	75	41	59	57	partly cloudy	314				
31	68	49	57	56	partly cloudy	313				

*From USGS records.

Appendix Table 3 (Continued)

June	Temperature F				Weather	Flow of Trinity River at Lewiston (cfs)*	Fish trapped				
	Air		Water				Chinook Salmon		Coho Salmon		Steelhead
	Maximum	Minimum	Maximum	Minimum			Adults	Grilse	Adults	Grilse	
1	58	43	56	56	drizzles	314					
2	74	47	59	56	partly cloudy	313					
3	82	44	59	57	partly cloudy	314					
4	77	56	59	57	partly cloudy	313					
5	78	50	59	57	partly cloudy	316					
6	84	60	59	57	partly cloudy	314					
7	77	52	59	58	partly cloudy	316					
8	90	48	61	59	clear	316					
9	91	49	61	49	clear	317					
10	94	49	61	59	clear	316					
11	98	50	62	59	clear	316					
12	98	54	63	60	clear	314					
13	94	51	62	61	clear	317					
14	94	52	62	61	clear	340					
15	99	54	64	62	clear	473					
16	102	52	67	65	clear	473					
17	104	58	65	61	clear	463					
18	102	63	65	62	clear	461					
19	94	67	68	62	partly cloudy	461					
20	99	60	68	62	clear	462					
21	100	56	65	60	clear	464					
22	92	58	59	59	clear	463					
23	88	57	60	59	clear	464					
24	83	44	60	60	clear	462					
25	86	45	62	59	clear	461					
26	92	46	61	59	clear	458					
27	92	50	60	59	partly cloudy	457					
28	94	51	61	58	clear	454					
29	85	50	60	59	clear	447					
30	84	45	60	59	partly cloudy	448					

*From USGS records.

1984

APPENDIX TABLE 4. Coded-Wire-Tag (CWT) Recoveries for Trinity River Hatchery (TRH), with Release Data. 1/

CWT Code	Race	Egg Source	Brood Year	Date	RELEASE DATA		Site	RECOVERY DATA			
					Number	Size #/lb		Actual CWT Recoveries	Expanded Recoveries	Mean Male FL (cm)	Mean Female FL (cm)
6-61-32	Spring chinook	TRH	79	6/2/80	187,494	67.7	TRH	18	18	51 (16) ^{a/}	---
								110	110	67 (56)	65 (52)
								36	36	70 (18)	69 (18)
								1	1	---	75 (1)
6-61-34	Spring chinook	TRH	79	10/15/80	86,594	13.6	TRH	53	53	44 (49)	---
								265	265	62 (178)	62 (84)
								191	191	71 (80)	67 (111)
								1	1	---	72 (1)
6-61-39	Spring chinook	TRH	80	9/28/81	34,601	10.1	TRH	54	54	44 (52)	---
								178	178	58 (81)	56 (97)
								49	49	66 (18)	66 (31)
6-61-35	Spring chinook	TRH	81	6/10-14/82	182,635	58.0	TRH	15	15	39 (15)	---
								37	37	58 (24)	60 (13)

(Continued on next page)

1/ Coded wire tag dates obtained using funds provided in part through the Anadromous Fish Conservation Act (PL 89-304) under California Projects AFC-16 (Salmon and Steelhead Research, Management and Enhancement Project) and AFS-20 (Klamath-Trinity Salmon and Steelhead Research, management and Restoration Project).

APPENDIX TABLE 4. (cont'd)

CWT Code	Race	Egg Source	Brood Year	Date	RELEASE DATA		Site	RECOVERY DATA				
					Number	Size #/lb		Actual CWT Recoveries	Year	Expanded CWT Recoveries	Mean Male FL (cm)	Mean Female FL (cm)
6-61-37	Spring chinook	TRH	81	10/6,7/82	98,637	13.0	TRH	13 121	83-84 84-85	13 121	40 (13) 57 (89)	58 (30)
6-61-41	Spring chinook	TRH	82	6/27/83	146,194	81.0	TRH	5	84-85	5	39 (5)	---
6-61-38	Spring chinook	TRH	82	11/3/83	96,461	12.3	TRH	21	84-85	21	42 (20)	49 (1)
17-28-48	Spring chinook	CRH ^c	82	10/1/83	21,968	6.8	CRH	1	84-85	1	38 (1)	---
10-00-00 ^d	Spring ^e chinook							23	84-85	23	53 (16)	63 (7)
6-61-16	Fall chinook	TRH	79	6/2/80	188,727	104.0	TRH	16 39 30 2	81-82 82-83 83-84 84-85	16 39 30 2	46 (16) 68 (22) 68 (12) ---	64 (8) 68 (18) 67 (2)

(Continued on next page)

APPENDIX TABLE 4. (Cont'd)

CWT Code	RELEASE DATA				RECOVERY DATA							
	Race	Egg Source	Brood Year	Date	Number	Size #/lb	Site	Year	Actual CWT Recoveries	Expanded CWT Recoveries	Mean Male FL (cm)	Mean Female FL (cm)
6-61-20	Fall chinook	TRH	79	3/4, 5/81	82,982	7.4	TRH	81-82	108	108	39 (81)	---
								82-83	563	563	59(375)	60(181)
								83-84	213	213	69 (83)	66(130)
								84-85	4	4	73 (1)	77 (3)
6-61-18	Fall chinook	TRH	80	6/5/81	201,090	86.0	TRH	82-83	73	73	50 (71)	---
								83-84	53	53	57 (18)	59 (35)
								84-85	3	3	---	68 (3)
6-61-21	Fall chinook	TRH	80	9/28, 29/81	104,160	16.7	TRH	82-83	312	312	49(280)	---
								83-84	418	418	57(200)	57(218)
								84-85	43	43	64 (12)	68 (31)
6-61-19	Fall chinook	TRH	81	6/15, 16/82	192,795	101.5	TRH	83-84	19	19	39 (19)	---
								84-85	31	31	58 (19)	61 (12)
6-61-22	Fall chinook	TRH	81	10/12/82	94,991	16.7	TRH	83-84	13	13	40 (13)	---
								84-85	140	140	59(103)	62 (35)
6-61-24	Fall chinook	TRH	82	6/27/83	138,801	113.0	TRH	84-85	9	9	43 (9)	---

(Continued on next page)

APPENDIX TABLE 4. (Cont'd)

CWT Code	Race	Egg Source	Brood Year	RELEASE DATA				RECOVERY DATA				
				Date	Number	Size #/lb	Site	Year	Actual CWT Recoveries	Expanded CWT Recoveries	Mean Male FL (cm)	Mean Female FL (cm)
6-61-23	Fall chinook	TRH	82	6/28/83	90,242	134.0	Steelbridge ^{f/}	84-85	6	6	46 (6)	---
6-61-25	Fall chinook	TRH	82	6/28,29/83	90,694	146.7	Junction City ^{g/}	84-85	6	6	46 (6)	---
6-56-07	Fall chinook	TRH	82	6/29/83	88,854	146.0	Line Point ^{h/}	84-85	11	11	46 (11)	---
6-61-29	Fall chinook	TRH	82	11/9/83	96,583	13.5	TRH	84-85	53	53	46 (52)	54 (1)
6-56-09	Fall chinook	TRH	82	11/14/83	20,765	11.3	Steelbridge	84-85	27	27	46 (27)	---
6-56-10	Fall chinook	TRH	82	11/14/83	20,902	13.4	Junction City	84-85	11	11	46 (10)	56 (1)
6-56-11	Fall chinook	TRH	82	11/15/83	21,223	11.0	Line Point	84-85	14	14	46 (14)	---
10-00-00	Fall ^{i/} chinook							84-85	19	19	55 (14)	70 (5)

(Continued on next page)

APPENDIX TABLE 4. (Cont'd)

CWT Code	RELEASE DATA				RECOVERY DATA							
	Race	Egg Source	Brood Year	Date	Number	Size #/lb	Site	Year	Actual Recoveries	Expanded Recoveries	Mean Male FL (cm)	Mean Female FL (cm)
6-56-02	Cobo	TRH	81	2/4/83	41,452	19.8	TRH	83-84 84-85	117 7	117 7	38 (7) 65 (31)	67 (28)
6-56-03	Cobo	TRH	81	2/22/83	38,491	16.8	TRH	83-84 84-85	133 12	133 12	39 (12) 67 (32)	66 (48)
6-56-04	Cobo	TRH	81	3/14/83	31,924	17.3	TRH	83-84 84-85	73 3	73 3	36 (3) 65 (32)	68 (20)
6-56-05	Cobo	TRH	81	3/28/83	32,692	16.6	TRH	83-84 84-85	81 3	81 3	39 (3) 64 (26)	67 (18)

(Continued on next page)

APPENDIX TABLE 4. (Cont'd)

CWT Code	Race	Egg Source	Brood Year	Date	RELEASE DATA		Year	RECOVERY DATA				
					Number	Size #/lb		Site	Actual CWT Recoveries	Expanded CWT Recoveries	Mean Male FL (cm)	Mean Female FL (cm)
6-56-48	Coho	TRH	82	4/16/84	49,153	11.0	TRH	84-85 85-86	227 753	227 753	42(164) 69(385)	46 (3) 71(365)
6-56-49	Coho	TRH	82	4/30/84	45,761	9.3	TRH	84-85 85-86	145 696	145 696	42(106) 68(343)	--- 71(349)
6-56-50	Coho	TRH	83	3/21/85	50,878	7.5	TRH	85-86	971	971	47(781)	51(189)
6-56-51	Coho	TRH	83	3/21/85	22,331	7.5	TRH	85-86	574	574	49(445)	52(126)
100000	Coho							84-85 85-86	185 486	185 486	52(102) 59(298)	64 (30) 66(188)
200000 ^{1/}	Coho							84-85 85-86	17 26	17 26	44 (10) 52 (17)	71 (1) 67 (9)
400000 ^{k/}	Coho							85-86	15	15	60 (9)	66 (6)

a/ Sample size in parenthesis.

b/ --- = None sampled.

c/ CRH = Cole Rivers Hatchery, Rogue River, Oregon.

d/ 100000 = No CWT in head of Ad-marked fish.

e/ Assumed to be spring chinook by entry time into TRH.

f/ Steelbridge is 8.5 miles (13.6 km) downstream of TRH.

g/ Junction City is 32.2 miles (51.6 km) downstream of TRH.

h/ Lime Point is 38.4 miles (61.6 km) downstream of TRH.

i/ Assumed to be fall chinook by entry time into TRH

j/ 200000 = CWT lost during dissection.

k/ 400000 = CWT unreadable.

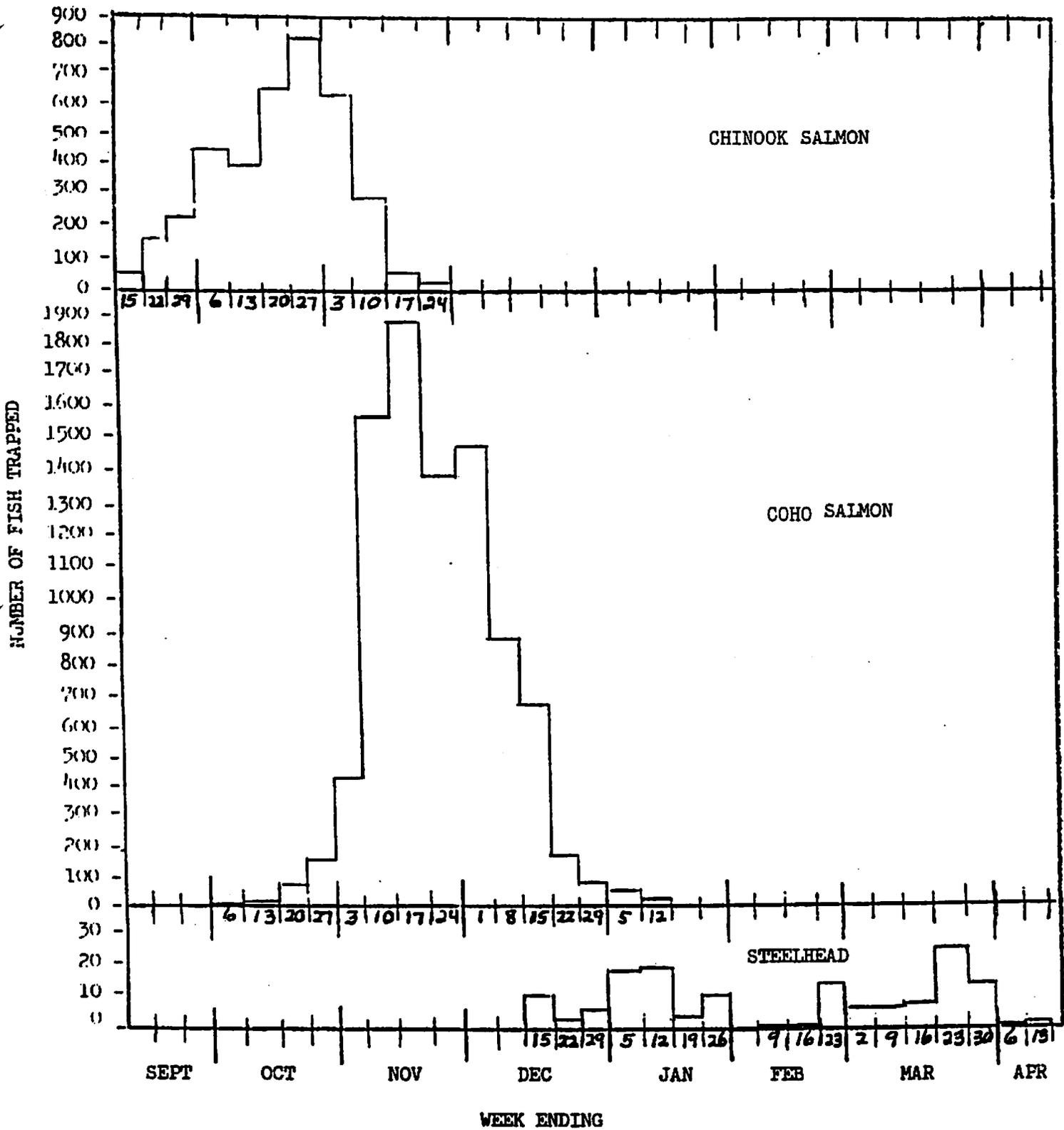


Figure 1. Salmon and steelhead trapped at Trinity River Fish Hatchery. Weekly counts during 1984-85 season.