

THE RESOURCES AGENCY OF CALIFORNIA  
Department of Fish and Game

Department of Fish and Game  
1964

ANNUAL REPORT  
FEATHER RIVER HATCHERY INTERIM FACILITY  
1963-64 FISCAL YEAR<sup>1/</sup>

GEOFFREY V. RICE  
Region 2, Inland Fisheries

SUMMARY

During construction of the Oroville Dam, the Feather River is being diverted around the project area through a tunnel. High water velocities in the tunnel prevent passage of salmon and steelhead bound for upstream spawning areas. Hence, a fish barrier and a fish trap were constructed by the State Department of Water Resources. It is operated under contract by the Department of Fish and Game. Fish are being collected there, loaded into trucks, hauled 6½ miles above the Oroville Dam site, and released back in the Feather River to spawn naturally during the construction period. The resulting fry can pass downstream through the tunnel. A fish hatchery will replace these facilities in 1967 when the dam is completed.

A total of 3,381 king salmon and 416 steelhead was transported around the construction area between September 30, 1963, and June 30, 1964.

Facilities were inadequate to handle the many visitors attracted to this installation.

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<sup>1/</sup>Submitted November 1964.

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## INTRODUCTION

Department of Fish and Game studies indicated that the routing of the flow of the Feather River through the diversion tunnel at the Oroville Dam site in late 1963 would block segments of the Feather River salmon and steelhead runs which normally utilize spawning gravels within the Oroville project area. Prior investigations by the Department revealed that in an average year some 5,000 spring-run king salmon, 2,500 fall-run kings, and an estimated 2,000 steelhead trout migrate past the dam site. Although a hatchery was planned to compensate for the loss of spawning areas which will be inundated by Oroville Reservoir, it will not operate until 1967 when the reservoir starts filling.

For use during the interim, facilities were constructed to trap fish for transport by truck to a release point above the Oroville Dam site. These fish could then utilize their historical spawning areas, and the resultant fingerling can migrate downstream through the diversion tunnel.

The interim installation, known as the Feather River Hatchery Interim Facility, was constructed by the California Department of Water Resources and operated under contract by the California Department of Fish and Game. It is located a short distance upstream from the Oroville-Chico Highway Bridge (Upper Thermalito Bridge) at Oroville, California. This report covers the first year's activities.

## TRAPPING AND HAULING OPERATIONS

### Initial Trapping and Hauling Operations, September 30, 1963 - March 15, 1964

Floods and other adverse conditions prevented the contractor from completing the barrier dam and the loading facility on the right bank of the river in time for the 1963 fall salmon run. Instead a temporary wooden fish ladder was installed on the left (east) bank of the river. A metal bucket incorporating a release door in the bottom was designed to fit into the top pool of the fish ladder where it served as a fish trap. A truck crane lifted the bucket from the ladder and suspended it over the fish hauling truck, permitting the release of fish through the trap door into the tank for transport.

Only 473 king salmon and 300 steelhead were hauled from the 1963 fall runs. Most of the fish passed over a low spot on the incompleated barrier dam. Fortunately, construction was slightly behind schedule, so they were able to reach their spawning areas before the diversion tunnel was in operation. No fish were stranded below the core block when the river was turned into the tunnel.

### Trapping and Hauling Operations, March 16, 1964 - June 30, 1964

On March 16, the temporary fish ladder was abandoned and the newly completed facilities were put in operation. They included a concrete, fish-barrier dam across the river, and a fish ladder from the river to a gathering tank. An electric-powered sweep crowded fish to the upper end of the gathering tank, where a power lift raised them so they could be slid down into a tank of anesthetic. From there an escalator loaded them into a tank truck for a 6½-mile trip to a release point upstream on the Feather River.

By the end of June, 1964, a total of 2,908 spring-run salmon and 116 spring-run steelhead was collected and transported around the construction area. Fish hauled between September 30, 1963, and June 30, 1964, totalled 3,381 king salmon and 416 steelhead.

The appendix gives daily records of numbers and species of fish hauled, water flows, air and water temperatures, and weather conditions.

#### PUBLIC RELATIONS

No provisions had been made to accommodate the large numbers of people who visited the interim facility to watch the salmon and steelhead trapping and loading operation. Visitor encroachment on the working area became a problem and plans were formulated to enlarge the parking area and to fence portions of the fish ladder and work areas before the arrival of the 1964 fall salmon run.

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A P P E N D I X

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APPENDIX A-1

Feather River Hatchery Interim Facility

Date 1963	Day	Weather	Air temp.		Water temp.		Water flow c.f.s.	Fish hauled		Miscellaneous
			High	Low	High	Low		SH	KS	
Sept. 1	Sun						1,900			
2	Mon						1,900			
3	Tue						1,860			
4	Wed						1,840			
5	Thu						1,880			
6	Fri						1,910			
7	Sat						1,910			
8	Sun						1,910			
9	Mon						1,930			
10	Tue						1,950			
11	Wed						1,930			
12	Thu	Rain					1,960			
13	Fri	Fog					2,460			
14	Sat	Clear					2,490			
15	Sun						2,440			
16	Mon						2,060			
17	Tue						1,860			
18	Wed						2,070			
19	Thu		83	72	54	62	2,310			
20	Fri		87	65	52	60	2,340			
21	Sat		82	65	62	60	2,340			
22	Sun						2,340			
23	Mon		86	62	63	60	2,310			Picked up truck crane in Sacramento.
24	Tue		76	64	54	59	1,860			Put special bucket in ladder.
25	Wed			69		59	1,960			
26	Thu		103	71	62	60	2,070			
27	Fri			79		60	1,710			
28	Sat		83		62		1,690			
29	Sun						1,700			
30	Mon	Clear	93	66	63	61	1,690			Everything ready to move fish.

## APPENDIX A-2

## Feather River Hatchery Interim Facility

Date 1963	Day	Weather	Air temp.		Water temp.		Water flow c.f.s.	Fish hauled		Miscellaneous
			High	Low	High	Low		SH	KS	
Oct. 1	T	Clear	92	64	62	60	1,610	5	2	1 rainbow trout.
2	W	Clear	98	65	62	60	1,490	5	10	
3	T	Clear	90	62	62	60	1,480	4	10	
4	F	Clear	88	60	60	58	1,560	5	10	
5	S	Showers	86	64	61	59	1,540			
6	Sun	Clear	82	60	60	58	1,650	3	5	Lots of visitors.
7	M	Clear	85	65	60	58	1,550	2	3	
8	T	Clear	83	56	60	57	1,560	5	7	
9	W	Clear	79	60	60	58	1,540	8	15	
10	T	Rain	78	58	59	57	1,540	9	18	
11	F	Rain	72	61	60	60	2,920			
12	S	Clear	78	54	60	59	3,310	8	14	
13	Sun	Clear	81	60	60	59	3,050	4	19	Lots of visitors.
14	M		72	61	58	56	2,760	10	21	
15	T	Rain	71	56	59	56	2,600	14	9	
16	W		74	54	60	57	2,580	28	19	
17	T		76	53	60	58	2,120	14	10	
18	F	Clear	74	52	60	58	1,899	33	29	
19	S	Clear	78	55	60	59	1,930	10	8	
20	Sun	Cloudy	69	53	60	57	1,820	7	10	
21	M	Clear	73	54	59	57	1,740	21	3	
22	T	Rain	71	54	59	57	1,710	14	9	
23	W	Rain			57	54	2,400	10	26	
24	T	Rain	64	47	58	52	1,490	30	124	
25	F	Clear	73	49	58	52	1,500	5	13	
26	S	Clear	75	43	59	54	1,540	6	11	
27	Sun	Clear	74	46	59	52	1,480	4	7	
28	M	Cloudy	65	50	58	52	1,460	2	5	
29	T	Rain	70	51	56	52	1,470	7	9	
30	W	Clear	69	40	56	52	1,480	3	6	
31	T	Clear	72	44	54	48	1,470	1	12	
Total for the month of October 1963								277	444	

## APPENDIX A-3

## Feather River Hatchery Interim Facility

Date 1963	Day	Weather	Air temp.		Water temp.		Water flow c.f.s.	Fish hauled		Miscellaneous
			High	Low	High	Low		SH	KS	
Nov. 1	F	Clear	71	52	55	50	1,520		3	
2	S	Rain	64	50	53	53	1,690	1	3	
3	Sun	Rain	61	51	55	54	1,660	1	7	
4	W	Rain	58	54	53	53	2,720			Moved truck crane to high ground.
5	T	Rain	58	53	53	51	3,470			
6	W	Rain	57	52	53	51	7,940			
7	T	Cloudy	58	51	52	51	4,090			River receding.
8	F	Cloudy	65	57	51	50	3,400			
9	S	Pt. Cloudy	69	43	50	50	3,990	4		
10	Sun	Clear	69	42	50	48	3,740	1	4	
11	M	Clear	62	45	51	48	3,080			
12	T	Clear		47	52	50	2,490	4	8	
13	W	Rain	56	54	54	50	2,540	4	1	
14	T	Rain	52	49	54	50	6,110	8	3	Moved truck crane to high ground. Coffer dam damaged.
15	F	Cloudy	63	48	52	48	13,900			
16	S	Cloudy	60	43	51	48	5,070			
17	Sun	Clear	58	35	47	43	3,910			
18	W	Clear	58	41	46	42	3,520			
19	T	Rain	55	46	45	45	3,930			
20	W	Cloudy	52	43	45	45	5,330			
21	T	Cloudy	53	40	43	41	4,590			
22	F	Showers	52	46	44	40	4,270			
23	S	Rain	54	46	43	42	5,640			
24	Sun	Clear	60	41	43	40	7,150			
25	M	Clear	62	39	43	40	5,110			
26	T	Clear	61	36	47	42	4,990			
27	W	Fog	52	40	48	42	4,780			Returned truck crane to Sacramento.
28	T	Fog	49	41	44	42	4,520			
29	F	Fog	41	39	43	41	4,370			
30	S	Fog	44	38	45	43	4,210			
Total for the month of November 1963								23	29	

APPENDIX A-4

Feather River Hatchery Interim Facility

Date 1963	Day	Weather	Air temp.		Water temp.		Water flow c.f.s.	Fish hauled		Miscellaneous
			High	Low	High	Low		SH	KS	
Dec. 1	Sun	Fog	42	37	45	45	3,910			
2	M	Fog	42	37	44	43	3,810			
3	T	Fog	40	37	43	43	3,720			
4	W	Fog	40	37	43	43	5,680			
5	T	Cloudy	42	39	43	43	3,700			
6	F	Cloudy	49	28	43	43	3,740			
7	S	Cloudy	50	37	43	43	3,650			
8	Sun	Rain	48	40	43	43	3,590			
9	M	Cloudy	48	31	43	42	3,700			
10	T	Clear	48	31	43	42	3,520			
11	W	Clear	52	25	42	41	3,450			
12	T	Cloudy	60	31	41	41	3,540			
13	F	Fog	43	35			3,490			
14	S						3,520			
15	Sun						3,540			
16	M						3,380			
17	T						3,520			
18	W						3,410			
19	T	Rain	54	41	43	42	3,410			
20	F	Fog	46	39	43	42	3,520			
21	S	Fog	59	35			3,610			
22	Sun	Fog	52	29	40	39	3,140			
23	M	Clear			40	39	3,450			
24	T	Fog	45	32	40	39	3,430			
25	W	Pt. Cloudy	50	36	40	39	3,430			
26	T	Pt. Cloudy	53	46	40	39	3,430			
27	F	Pt. Cloudy	56	42	40	40	3,380			
28	S	Pt. Cloudy	49	42	40	40	3,400			
29	Sun	Pt. Cloudy	47	43	42	40	3,380			
30	M	Fog	51	35	42	40	3,400			
31	T	Pt. Cloudy	52	36	41	40	3,380			



## APPENDIX A-5

## Feather River Hatchery Interim Facility

Date 1964	Day	Weather	Air temp.		Water temp.		Water flow c.f.s.	Fish hauled		Miscellaneous
			High	Low	High	Low		SH	KS	
Jan. 1	W	Pt. cloudy	45	39	41	40	3,360			
2	T	Clear	60	34	41	40	3,340			
3	F	Pt. cloudy	55	32	41	40	3,190			
4	S	Clear	61	30	41	40	2,840			
5	Sun	Clear	55	38	40	39	2,740			
6	M	Pt. cloudy	52	45	41	39	2,730			
7	T	Clear	56	30	41	39	2,760			
8	W	Clear	53	35	41	40	2,270			
9	T	Cloudy	53	31	42	40	2,170			
10	F	Cloudy	56	31	42	40	1,950			
11	S	Clear	52	34	41	40	1,950			
12	Sun	Clear	56	31	41	40	1,800			
13	M	Rain	43	32	41	39	1,960			
14	T	Clear	35	31	42	39	1,990			
15	W	Clear	52	37	42	39	1,890			
16	T	Clear	50	44	41	39	1,840			
17	F	Showers	51	44	44	42	2,070			
18	S	Showers	53	47	42	40	2,580			
19	Sun	Rain	54	50	44	41	3,030			Steelhead in ladder. Requested crane.
20	M	Rain	54	35	44	43	10,600			
21	T	Rain	45	39	43	41	16,200			Ladder under water; some damage.
22	W	Cloudy			42	40	8,670			Equipment on high ground.
23	T	Cloudy	45	40	41	39	4,830			River dropping. Dam repaired.
24	F	Rain	48	42	40	39	3,810			
25	S	Cloudy	53	36	41	39	4,130			
26	Sun	Clear	66	39	43	39	3,680			
27	M	Cloudy	57	33	43	42	3,770			
28	T	Cloudy	50	41	44	42	3,970			Steelhead in ladder.
29	W	Rain	51	44	43	43	3,670			
30	T	Fog	57	39	43	43	3,410			
31	F	Cloudy	58	39	44	42	3,110			

## APPENDIX A-6

## Feather River Hatchery Interim Facility

Date 1964	Day	Weather	Air temp.		Water temp.		Water flow c.f.s.	Fish hauled		Miscellaneous
			High	Low	High	Low		SH	KS	
Feb. 1	S	Clear	65	63			3,060			
2	Sun	Clear	69	33			3,050			
3	M	Clear	62	38	43	42	3,060			
4	T	Clear	62	34	43	41	2,970			
5	W	Clear	69	49	43	41	2,820			
6	T	Clear	67	35	43	41	2,840			Truck crane delivered and placed.
7	F	Clear			43	41	2,790			
8	S	Clear	65	37	43	41	2,760			
9	Sun	Clear	68	37			2,620			
10	M	Clear	65	33	43	42	2,640			
11	T	Clear	63	32	43	41	2,820			
12	W	Clear	65	30	43	41	2,790			
13	T	Clear	59	37	42	40	2,740			
14	F	Clear	58	39	42	39	2,490			
15	S	Rain	55	31			2,660			
16	Sun	Rain	59	32		39	2,660			
17	M	Pt. cloudy	62	36	41	39	2,500			
18	T	Clear	74	39	42	39	2,560			
19	W	Clear	76	41	44	41	2,620			Steelhead showing in ladder.
20	T	Clear	75	44	44	42	2,560	12		Hauled steelhead to release area.
21	F	Clear	73	38	44	42	2,670	3		
22	S	Clear	72	42	44	42	2,490			
23	Sun	Clear	74	45	44	42	2,310			
24	M	Clear	64	42	45	43	2,480	3		
25	T	Clear	62	37	44	42	2,610	3		
26	W	Clear	63	37	44	41	2,490			
27	T	Clear	65	39	44	41	2,400			
28	F	Showers	56	33	44	42	2,640			
29	S	Clear	62	40	43	41	2,420			
Total for the month of February 1964								21		

## APPENDIX A-7

## Feather River Hatchery Interim Facility

Date 1964	Day	Weather	Air temp.		Water temp.		Water flow c.f.s.	Fish hauled		Miscellaneous
			High	Low	High	Low		SH	KS	
March 1	Sun	Rain	50	30	43	41	2,330			
2	M	Showers	58	31	43	41	2,890			
3	T	Clear	64	39		41	2,740			
4	W	Clear	68	37	44	42	2,480			
5	T	Clear	59	39	44	42	2,760			
6	F	Pt. cloudy	55	29	44	43	2,820	5		
7	S	Clear	61	32			2,360			
8	Sun	Clear	65	47	43	41	2,360			
9	M	Cloudy	60	35	44	43	2,720			
10	T	Clear			44	43	2,680			
11	W	Rain					2,850			
12	T	Cloudy	54	45			3,630			
13	F	Cloudy	61	39			3,080			
14	S	Pt. cloudy					2,440			
15	Sun	Clear					2,560			
16	M	Clear	81	43		42	2,700	15		Netted from permanent ladder.
17	T	Clear	77	43	48	42	2,840			Temp. ladder out of commission.
18	W	Clear	73	38	48	43	2,740	37		First fish from permanent ladder.
19	T	Clear	78	46	48	45	3,160	18		
20	F	Clear			48	42	3,220	5		
21	S	Showers	59	41	47	42	2,970			
22	Sun	Rain	46	40			3,450			
23	M	Rain			45	42	3,580			
24	T	Rain			45	44	3,270			
25	W	Clear	62	40	46	43	3,240			
26	T	Clear	68	40	44	43	3,000			
27	F	Clear	72	51	48	45	3,110	4		
28	S	Clear	77	49	47		2,950			
29	Sun	Pt. cloudy	78	50	50	48	3,450			
30	M	Pt. cloudy	80	50	54	48	3,580	7		
31	T	Rain	59	51	50	48	4,190	4	5	First spring run king salmon.
Total for the month of March 1964								95	5	

APPENDIX A-8

Feather River Hatchery Interim Facility

Date 1964	Day	Weather	Air temp.		Water temp.		Water flow c.f.s.	Fish hauled		Miscellaneous
			High	Low	High	Low		SH	KS	
April 1	W	Rain	59	35	49	48	6,080		1	
2	T	Rain	60	32	47	46	5,630		2	
3	F	Clear	70	46	47	42	5,100			
4	S	Rain	68	48	47	43	4,470			
5	Sun	Clear	62	40	47	43	4,290			
6	M	Clear	69	47	48	44	4,530			
7	T	Clear	73	46	50	44	4,180			
8	W	Clear	77	48	51	45	4,110		1	
9	T	Clear	75	49	51	45	4,440			
10	F	Clear	76	44	52	46	5,100			
11	S	Clear	76	48	53	48	5,720			
12	Sun	Clear	80	44	53	47	5,480			
13	M	Clear	88	48	54	47	5,400		3	
14	T	Clear	88	53	55	48	5,750			
15	W	Clear	86	63	55	51	6,440			
16	T	Clear	76	50	54	49	6,760			
17	F	Clear	70	46	53	49	6,700			
18	S	Clear	67	43	51	47	6,110			
19	Sun	Clear	67	45	51	47	5,240			
20	M	Clear	69	50	51	47	5,030		6	
21	T	Clear	76	47	53	47	5,100			
22	W	Cloudy	73	48	53	49	5,150			
23	T	Cloudy	59	41	50	46	4,860			
24	F	Cloudy	66	42	54	47	4,400		13	
25	S	Clear	72	43	49	45	4,090			
26	Sun	Clear	76	45	51	45	3,980			
27	M	Clear	84	42	54	45	4,360			
28	T	Clear	82	57	56	52	4,960			
29	W	Showers	72	50	56	51	5,170		66	
30	T	Cloudy	66	45	55	51	5,340		25	
Total for the month of April 1964									117	

## APPENDIX A-9

## Feather River Hatchery Interim Facility

Date 1964	Day	Weather	Air temp.		Water temp		Water flow c.f.s.	Fish hauled KS	Visitors	Cars	Miscellaneous
			High	Low	High	Low					
May 1	F	Showers	63	50	53	50	5,390				
2	S	Showers	62	41	50	46	4,740				
3	Sun	Showers	58	49	49	46	4,620				
4	M	Showers	50	52	49	43	4,550				
5	T	Showers	62	50	47	44	4,690				
6	W	Showers	72	42	50	43	4,720				
7	T	Clear	71	46	51	45	4,400				
8	F	Clear	79	50	54	47	4,720				
9	S	Clear	83	55	57	50	4,740		50		
10	Sun	Clear	78	57	60	52	4,960	22			
11	M	Clear	90	54	61	52	5,200	94	80	30	
12	T	Clear	89	61	62	56	5,460	184	112	51	
13	W	Cloudy	78	53	60	55	6,030	204	202	89	
14	T	Clear	81	49	59	57	5,800	87	290	75	
15	F	Clear	84	49	60	52	5,440		206	72	
16	S	Rain	67	51	56	53	5,390	14	298	100	
17	Sun	Clear	78	50	58	55	5,560	15	1,500	500	
18	M	Clear	85	60	60	54	5,290		92	42	
19	T	Clear	80	57	60	54	5,270	29	108	52	
20	W	Clear	79	53	61	55	5,340	22	260	87	
21	T	Clear	86	53	61	54	4,760	30	438	156	
22	F	Clear	87	55	61	55	4,360	19	380	145	
23	S	Clear	85	53	61	55	4,250	64	500	200	
24	Sun	Clear	82	55	62	56	3,940	47	1,512	522	
25	M	Clear	88	56	63	58	4,090	280	416	200	
26	T	Rain	72	56	61	58	4,580	223	528	153	
27	W	Pt. cloudy	69	56	58	56	4,140	170	550	300	School Bus.
28	T	Clear	78	58	60	54	3,910	12	305	150	
29	F	Clear	90	55	61	55	3,660		378	202	
30	S	Clear	100	60	63	56	3,560	2	800	266	
31	Sun	Clear	92	62	65	59	3,460	13	6,050	2,555	
Total for month of May 1964								1,531	15,055	5,947	

APPENDIX A-10

Feather River Hatchery Interim Facility

Date 1964	Day	Weather	Air temp.		Water temp.		Water flow c.f.s.	Fish hauled KS	Visitors	Cars	Miscellaneous
			High	Low	High	Low					
June 1	M	Cloudy	88	64	65	61	3,200	343	800	254	2 RT; 4 BN
2	T	Cloudy	84	58	65	60	3,185	71	334	106	
3	W	Cloudy	86	56	65	60	3,060	16	317	98	
4	T	Showers	83	66	64	61	2,870	51	441	191	
5	F	Cloudy	81	64	65	61	2,810	166	503	201	
6	S	Rain	69	61	62	61	2,760	62	748	320	1 RT
7	Sun	Cloudy	86	58	64	59	3,020	9	1,675	755	
8	M	Rain	57	52	57	56	3,600	113	394	137	
9	T	Rain	57	50	54	50	3,830	14	289	117	
10	W	Cloudy	59	52	58	52	3,620		389	122	
11	T	Clear	88	54	60	53	3,380	3	350	100	
12	F	Clear	100	60	64	56	2,920		528	176	
13	S	Clear	100	64	67	59	2,830	8	590	188	
14	Sun	Clear	98	69	68	62	2,580		4,225	995	Counted to 2,300 hours
15	M	Showers	79	63	66	62	2,530	89	795	265	
16	T	Showers	79	59	65	62	2,450	97	480	195	
17	W	Cloudy	84	55	66	61	2,360	16	392	115	
18	T	Clear	90	58	66	61	2,330	14	331	152	
19	F	Clear	87	57	67	62	2,330	18	249	95	
20	S	Clear	92	62	67	62	2,330	9	361	72	(School). Two buses.
21	Sun	Clear	97	59	69	63	2,270	22	1,074	366	
22	M	Clear	109	57	72	65	2,380	8	478	150	
23	T	Clear	112	73	73	66	2,710	16	459	161	
24	W	Clear	110	71	73	66	3,040	11	250	85	1 RT
25	T	Clear	107	71	74	67	3,100	18	248	78	
26	F	Clear	93	68	72	67	3,080	49	300	100	
27	S	Clear	94	57	71	65	2,780	10	305	100	
28	Sun	Clear	92	58	71	65	2,670		900	298	
29	M	Clear	87	57	70	65	2,980	9	391	104	
30	T	Clear	90	55	70	64	3,160	16	323	125	
Total for month of June 1964								1,258	18,919	6,221	