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ANNUAL REPORT
VAN ARSDALE FISHERIES STATION
1985-86

by

Delbert Milligan
Region 3, Inland Fisheries

Inland Fisheries
Administrative Report No. 87-16

1987

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ABSTRACT

This report describes the operation of Van Arsdale Fisheries Station (Snow Mountain Station), Mendocino County, California, during the 1985-86 season. Counts of migratory steelhead trout, Salmo gairdneri, and chinook salmon, Oncorhynchus tshawytscha, have been made at the station since 1933.

During the season, 961 chinook salmon and 1,194 steelhead were trapped at the station. One male coho salmon, Oncorhynchus kisutch, also ascended the Cape Horn Dam fishway.

A total of 134,055 yearling steelhead trout reared at Mad River hatchery was planted at Van Arsdale Station in 1986.

^{1/} Inland Fisheries Administrative Report No. 87-16

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INTRODUCTION

Van Arsdale Fisheries Station is located approximately 25 miles northeast of Ukiah, Mendocino County, California, on the Eel River at Cape Horn Dam, which impounds Van Arsdale Reservoir. The station was constructed by Snow Mountain Light and Power Company in 1907 and subsequently sold to Pacific Gas and Electric Company (PG&E) in 1930. The Cape Horn Dam fish ladder is maintained by PG&E. The fisheries station grounds and facilities are maintained by the Department of Fish and Game.

METHODS

The upstream migrant fish trap was placed into operation on November 19, 1985, and, with a few exceptions, remained in continuous operation until May 30, 1986. The trap was checked and serviced daily during this period. All fish were released upstream after species, sex, fork length, state of maturity, and general condition data were collected (Appendix Table 1).

Environmental data were recorded daily between 0700 and 0900 hours. Eel River flow was measured at PG&E gauging station E-11 immediately downstream of Cape Horn Dam.

STEELHEAD PROGRAM

The first steelhead was trapped on November 30 and the last on April 29. A total of 1,194 was trapped, consisting of 293 males, 817 females, and 84 subadults (Appendix Table 1). No eggs were taken during this period.

A total of 134,055 yearling steelhead (1985 brood year) was released from Van Arsdale Station into the Eel River (Table 1). These fish were reared at Mad River Hatchery and transferred to Van Arsdale in the spring of 1986. Some of the groups were held for imprinting at the station for 7-14 days before release.

CHINOOK SALMON PROGRAM

Chinook salmon entered the trap from November 26, through January 14. A total of 961 was captured; including 155 males, 101 females, and 705 grilse. No eggs were taken from this year's run.

TABLE 1. Steelhead Trout Received and Planted,
Van Arsdale Fisheries Station, 1986

Steelhead received			Steelhead released	
Date	Number	Size/lb	Date	Mark*
4/10	8,640	4.8	4/23	ADRV
4/11	10,220	5.6	4/23	ADRV
4/14	9,400	4.7	4/23	ADRV
4/15	9,400	4.7	4/15	--
4/24	23,595	6.6	5/1	ADRV
5/1	23,560	6.2	5/1	ADLVRV
5/2	11,780	6.2	5/2	--
5/8	23,705	5.5	5/16	LVRV
5/8	13,755	5.5	5/16	--
TOTAL	134,055			

*Marks:

AD- Adipose fin
RV- Right ventral fin
LV- Left ventral fin

APPENDIX TABLE 1. Date of Salmon and Steelhead Arrivals, Water Temperatures, and General Weather Conditions, Van Arsdale Fisheries Station, 1984-85.

Date	Steelhead				Chinook salmon				Water (°F)	Eel R. flow (cfs)	Weather
	M	F	Tot.	S/A ^{1/}	M	F	G ^{2/}	Tot			
Nov. 26 ^{3/}					9	2	17	28	44	51	Cloudy
27					17	2	36	55	45	67	Rain
28					18	6	42	66	45	313	Rain
29					3	2	52	57	47	1470	Rain
30	1		1		11	1	49	61	45	27	Cloudy
<hr/>											
Nov. Totals	1		1		58	13	196	267			
<hr/>											
Dec. 1					3	2	35	40	45	53	Cloudy
2					1	4	30	35	46	291	Rain
3					26	16	221	263	45	287	Cloudy
4		3	3		4		40	44	46	62	Cloudy
5		4	4		1	2	26	29	47	144	Rain
6		5	5	3	2	1	29	32	46	46	Cloudy
7	1	1	2	2		1	17	18	46	236	Rain
8		2	2	1	1		16	17	45	221	Rain
9				2	2		10	12	44	123	Clear
10		1	1		1		4	5	42	93	Clear
11				1			7	7	42	79	Clear
12							2	2	41	95	Clear
13		2	2	1		2	7	9	40	99	Clear
14	1	1	2		2	1	1	4	40	127	Clear
15	1	1	2		3	1	2	6	41	127	Clear
16					2	1	1	4	41	127	Clear
17		1	1	1	1	5	4	10	41	110	Clear
18					4	2	3	9	40	106	Clear
19				1	4	3	6	13	40	106	Clear
20					3	4	5	12	40	103	Clear
21					2	2	3	7	41	499	Clear
22					1			1	40	499	Clear
23	2	2	4		7	3	2	12	40	110	Clear
24		1	1		1	4	3	8	40	110	Clear
25					2	1	1	4	40	101	Clear
26					2	3	3	8	40	101	Clear
27		2	2		1	5	1	7	40	103	Lt Cloud
28	2	2	4		1	2	3	6	40	101	Clear
29						2	1	3	41	110	Cloudy
30	1	3	4		4	2	1	7	43	123	Lt Rain
31	3	2	5	1	1	3	4	8	43	118	Clear
<hr/>											
Dec. Totals	11	33	44	13	82	72	488	642			
<hr/>											
Cumulative Totals	12	33	45	13	140	85	684	909			

^{1/} Subadults not included in total counts

^{2/} Grilse

^{3/} Trap placed into operation 10-19-85; first fish arrived 10-26-85.

Temperature, weather, and flow data not available for period 10-19-85 to 10-25-85.

APPENDIX TABLE 1. (continued)

Date	Steelhead				Chinook salmon				Water (°F)	Eel R. flow (cfs)	Weather
	M	F	Tot.	S/A ^{1/}	M	F	G ^{2/}	Tot			
Jan.											
1	2	2	4		1		2	3	44	123	Lt Rain
2	3	3	6		2	3	2	7	44	110	Cloudy
3	1	3	4		2	2	4	8	44	110	Cloudy
4	1	3	4	1	3	1	2	6	45	133	Rain
5	3	7	10	1	2	3	1	6	45	191	Clear
6	14	30	44		4	3	3	10	45	144	Cloudy
7	3	10	13	1		2	3	5	42	131	Cloudy
8	5	3	8				3	3	42	118	Cloudy
9	3	6	9						42	110	Clear
10	2	3	5	1			1	1	42	108	Clear
11	1	2	3						41	99	Clear
12		2	2	1		1		1	41	99	Clear
13	2	2	4						42	98	Cloudy
14	5	33	38		1	1		2	43	106	Rain
15	25	58	83						43	140	Rain
16	7	16	23	1					45	1650	Rain
17	22	42	64						45	1780	Rain
18	19	60	79	2					48	341	Cloudy
19	23	64	87	2					48	105	Rain
20	13	21	34	2					47	95	Cloudy
21	3	13	16						45	144	Cloudy
22	4	14	18						44	106	Cloudy
23	8	17	25	2					45	212	Rain
24	4	16	20						44	146	Clear
25	5	7	12						42	121	Clear
26	2	6	8						42	121	Clear
27	6	29	35						44	127	Cloudy
28	2	10	12	2					45	114	Cloudy
29	2	13	15	1					45	167	Rain
30	5	18	23	2					47	2440	Cloudy
31	6	8	14	1					47	2810	Rain
Jan.											
Totals	201	521	722	20	15	16	21	52			
Cumulative											
Totals	213	554	767	33	155	101	705	961			

^{1/} Subadults not included in counts
^{2/} Grilse

APPENDIX TABLE 1. (continued)

Date	Steelhead				Chinook salmon				Water (°F)	Eel R. flow (cfs)	Weather
	M	F	Tot.	S/A ^{1/}	M	F	G ^{2/}	Tot.			
Feb.											
1	5	10	15	1					47	5210	Rain
2		15	15						47	5550	Rain
3	1	1	2						46	7560	Rain
4	1	4	5						46	5380	Clear
5	1	6	7	1					46	2940	Cloudy
6	3	7	10	1					45	2180	Cloudy
7	1	1	2	1					44	1620	Clear
8	1	7	8						44	1250	Clear
9	2	13	15						43	947	Clear
10	1	6	7						43	670	Clear
11	6	15	21						43	482	Cloudy
12	5	16	21	1					44	599	Rain
13	3	9	12	2					46	5210	Rain
14	7	33	40	2					46	4720	Rain
15 - 22	flooded ^{3/}										
23		1	1						49	6620	Clear
24	1	6	7						49	4560	Clear
25	1	8	9						49	3790	Clear
26	1	2	3						49	2680	Clear
27	1	1	2	1					49	1950	Clear
28		1	1						50	2300	Clear
Feb.											
Totals	41	162	203	10							
Cumulative											
Totals	254	716	970	43	155	101	705	961			

^{1/} Subadults not included in total counts
^{2/} Grilse
^{3/} Flood peaked February 17 at about 50,000 cfs

APPENDIX TABLE 1. (continued)

Date	Steelhead				Chinook salmon				Water (°F)	Eel R. flow (cfs)	Weather
	M	F	Tot.	S/A ^{1/}	M	F	G ^{2/}	Tot			
Mar.											
1	1	3	4						50	1950	Clear
2	2	2	4						49	1620	Clear
3		5	5						49	1420	Clear
4	2	4	6	2					49	1250	Clear
5	1	6	7	2					50	1110	Clear
6	1	4	5	1					50	1030	Cloudy
7	1	3	4	2					52	1110	Rain
8	2	4	6						50	9920	Rain
9									50	8150	Rain
10									50	7750	Rain
11									50	7560	Cloudy
12									49	6800	Cloudy
13	1	2	3						48	5550	Rain
14	1	3	4	1					48	4400	Clear
15									48	3790	Clear
16		1	1						47	3940	Clear
17	1	1	2	1					47	3360	Cloudy
18									47	2810	Clear
19	2	1	3	1					48	2430	Clear
20	2	5	7						48	2300	Clear
21		2	2						47	2070	Clear
22		1	1						47	1950	Clear
23		3	3						48	1730	Cloudy
24	1	5	6	2					49	1620	Cloudy
25	1	5	6	2					49	1510	Clear
26	1	2	3	4					49	1350	Clear
27	3	2	5	3					50	1210	Clear
28	3	1	4	2					50	1110	Clear
29	2	1	3	4					52	987	Clear
30	2	7	9	3					54	870	Clear
31	2	5	7	3					54	747	Clear
Mar.											
Totals	32	78	110	33							
Cumulative											
Totals	286	794	1080	76	155	101	705	961			

^{1/} Subadults not included in total counts
^{2/} Grilse

APPENDIX TABLE 1. (continued)

Date	Steelhead				Chinook salmon				Water (°F)	Eel R. flow (cfs)	Weather
	M	F	Tot.	S/A ^{1/}	M	F	G ^{2/}	Tot.			
April											
1		3	3	4					53	729	Cloudy
2		1	1	1					52	631	Clear
3		1	1						51	249	Clear
4		2	2	1					50	160	Cloudy
5 <u>3/</u>											
6		2	2							no data	
7 <u>3/</u>	2	3	5						53	113	Lt. Rain
8											
9		3	3	1					53	129	Cloudy
10 <u>3/</u>											
11 <u>3/</u>	2	4	6	1						no data	
12 <u>3/</u>											
13 <u>3/</u>											
14 <u>3/</u>	1		1						54	83	Lt. Cloud
15											
16									53	83	Rain
17									51	74	Lt. Cloud
18									53	64	Clear
19 <u>3/</u>											
20 <u>3/</u>											
21		2	2						57	63	Clear
22 <u>3/</u>											
23									57	60	Lt. Cloud
24 <u>3/</u>											
25	1	1	2						56	44	Lt. Rain
26 <u>3/</u>											
27 <u>3/</u>											
28	1		1						57	46	Lt. Cloud
29		1	1						57	46	Clear
30 <u>4/</u>											

April											
Totals	7	23	30	8							

Cumulative											
Totals	293	817	1110	84	155	101	705	961			

- 1/ Subadults not included in total counts
- 2/ Grilse
- 3/ Station not operated
- 4/ Station closed

APPENDIX TABLE 2. Annual Steelhead and Chinook Salmon Counts,
Van Arsdale Fisheries Station, 1933-34, to 1985-86

<u>Season</u>	<u>Steelhead</u>	<u>Chinook salmon</u>	<u>Season</u>	<u>Steelhead</u>	<u>Chinook salmon</u>
1933-34	3,247		1960-61	1,130	
1934-35	2,225		1961-62	1,693	
1935-36	6,310		1962-63	2,030	9
1936-37	6,861		1963-64	846	3
1937-38	3,413		1964-65	921	108
1938-39	4,786		1965-66	423	94
1939-40	3,990		1966-67	534	119
1940-41	2,228		1967-68	531	
1941-42	no record		1968-69	340	
1942-43	no record		1969-70	719	15
1943-44	no record		1970-71	1,863	47
1944-45	9,528		1971-72	696	
1945-46	5,054		1972-73	586	
1946-47 ^{1/}	4,409	917	1973-74	1,040	12
1947-48	178		1974-75	1,126	1
1948-49	2,433		1975-76	1,077	2
1949-50	no record		1976-77	39	
1950-51	1,091	55	1977-78	590	23
1951-52	5,444		1978-79	106	5
1952-53	2,197		1979-80	87	
1953-54	2,590		1980-81	1,966	
1954-55	6,131		1981-82	646	175
1955-56	3,719		1982-83	369	9
1956-57	4,109		1983-84	1,534	26
1957-58	5,151		1984-85	1,980	153
1958-59	3,335		1985-86	1,194	961
1959-60	2,206				

^{1/} Forty-seven coho salmon also ascended the fishway during this season.

