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The Resources Agency of California
Department of Fish and Game

SNOW MOUNTAIN STATION, MENDOCINO COUNTY
ANNUAL REPORT, 1964-65 1/

JOHN H. ROWELL, JR. 2/
Region 3, Inland Fisheries

SUMMARY

Snow Mountain Station is located on the Eel River about 25 miles northeast of Ukiah, California. Counts of migrating steelhead and king salmon have been made at this station each year since 1933.

During the 1964-65 season a total of 921 steelhead and 63 king salmon were trapped, counted and released to continue upstream.

This report contains fish count, weather, water temperature and flow data. The fish ladder was inoperative during January due to heavy flood damage.

1/ Marine Resources Branch Administrative Report No. 67-7.

2/ Now with Marine Resources Branch.

INTRODUCTION

The report covers the results of counting operations for the 1964-65 season at Snow Mountain Station which is located at the foot of Cape Horn Dam on the Eel River about 25 miles northeast of Ukiah, California. Steelhead (Salmo gairdnerii gairdnerii) and king salmon (Oncorhynchus tshawytscha) counts have been made at this station each season since 1933 (Appendix 1). Weather, water temperature and flow data are also included.

ACKNOWLEDGEMENTS

Our thanks are extended to Warden Captain Jack Rhien and Warden Garrie Heryford for making periodic checks on the station during periods when it was necessary to leave it unattended. We also appreciated their assistance during the December flood.

WEATHER

November 1964 had a series of small storms which induced 50 king salmon to migrate up the fish ladder (Appendix 2). These small storms continued until December 18, when warm air currents combined with precipitation created a tropical type of downpour. This storm reached its peak December 21 and 22. As a result of this deluge, the Eel River crested at 15.8 feet above Cape Horn Dam at approximately 8 PM, December 22. These high flows inflicted heavy damage on the lower portion of the ladder. Repairs were not completed until February 1.

Showers and cloudy skies predominated during the first three weeks of January. Each of two storms in February (5 and 26) triggered an upstream migration of steelhead. A storm on March 26 and 27 brought up the largest number of steelhead. Rainfall with occasional snow throughout April helped to lengthen the steelhead season.

METHODS

The trapping facility was operated from November 8, 1964 to December 31, 1964 and from February 1, 1965 to May 19, 1965. The trap was shut down during the month of January while storm damage repairs were being made. The fish ladder leads the fish up to the trap located within the spawning house. The trap is checked several times during the day, usually at 8 AM, 12 M, 5 PM and 9 PM. Trapped fish are netted into a rectangular tank containing the drug Quinaldine (1 teaspoon to 40 gallons of water). The anesthetized fish are inspected for marks or tags, and the sex noted. They are then released upstream.

RESULTS

During the 1964-65 season, a total of 921 steelhead and 63 king salmon were counted through the Snow Mountain Station. This included 354 male and 567 female steelhead; 31 male, 17 female and 15 grilse king salmon.

The first steelhead of the season were trapped on November 27. The last on May 10. The major portion of the steelhead run occurred during March and the first half of April. The largest daily count, 88 steelhead, was on March 27; the next largest, 70 steelhead, on the following day, March 28.

The first king salmon were trapped November 13 and the last on December 19. The peak of the salmon run was between November 28 and December 2. The largest daily count was 27, on November 29.

DISCUSSION

The rainfall during November with the resulting flow over Cape Horn Dam, attracted an unusually large number of king salmon into the trap. As was noted in the previous report, king salmon have shown up in the trap whenever a spill over Cape Horn Dam occurs during November.^{3/} It is ironic that the high flood waters of December should follow on the heels of such a good king salmon run. The flood tore out large sections of the lower fishway, and destroyed most of the station road and walkways. By February 1, the fish ladder was repaired sufficiently to allow passage of steelhead. Frequent checks were made during January, while the fishway was under repairs, but there was no visible evidence of steelhead trying to migrate past the dam. Normally, the major steelhead migration occurs during February and March at this station; therefore, the flood probably had only minor affect on this year's steelhead run. The continued cool weather and rains during April, which extended the favorable migration conditions for steelhead into May, no doubt helped to increase the season's total count.

When the Eel River reaches flood condition, water often will rise two to four feet above the flume walls at the head of the fish ladder. This makes it impossible to control flows within the fishway. As a result, during periods of heavy flow, water spills out of the fishway where it enters the spawning house and flows along the west side of the building and into the housetrailer parking area. Increasing the height of the wall three feet across the head of the fish ladder would prevent this recurrent problem.

^{3/} Rowell, John H. Jr., 1967. Snow Mountain Station, Mendocino County, Annual Reports, 1960-61, 1961-62, 1962-63. Marine Resources Administrative Report No. 67-6.

APPENDIX 1

Annual Salmon and Steelhead Counts

Snow Mountain Station

<u>Year</u>	<u>King salmon</u>	<u>Silver salmon</u>	<u>Steelhead</u>
1933-34			3,247
1934-35			2,255
1935-36			6,310
1936-37			6,861
1937-38			3,413
1938-39			4,786
1939-40			3,889
1940-41			2,225
1941-42			- - -
1942-43			- - -
1943-44			- - -
1944-45			9,528
1945-46			5,054
1946-47	817	47	4,409
1947-48			178
1948-49			2,433
1949-50			- - -
1950-51	55		1,091
1951-52			5,444
1952-53			2,197
1953-54			2,590
1954-55			6,131
1955-56			3,719
1956-57			4,109
1957-58			5,151
1958-59			3,335
1959-60			2,206
1960-61	9		1,130
1961-62			1,689
1962-63	9		2,030
1963-64			846
1964-65	63		921

APPENDIX 2

Daily Fish Counts, Weather, Water Temperature, and Flow Data
Snow Mountain Station
1964-65

Date	Steelhead			King salmon				Weather	Rainfall 1/	Water temperature		Eel River flow 2/
	Male	Female	Total	Male	Female	Grilse	Total			Max.	Min.	
Nov. 8								Rain	1.85	55	54	0' - 0"
9								Showers	1.28	53	52	Trickle
10								Rain	2.20	51	46	0' - 8"
11								Rain	0.03	48	46	Trickle
12								Rain	1.60	48	46	0' - 4"
13				1	1	0	2	Showers	0.06	46	43	0' - 2"
14				0		2	2	Cloudy		47	42	0' - 0"
15								Clear		47	41	0' - 0"
16				1	2	0	3	Clear		46	42	0' - 0"
17								Clear		45	42	0' - 0"
18								Clear		48	41	0' - 0"
19								Clear		48	41	0' - 0"
20								Cloudy		47	41	0' - 0"
21								Rain	0.32	44	41	0' - 0"
22								Cloudy	0.18	47	42	0' - 1"
23								Clear		49	42	0' - 0"
24								Showers	0.05	46	44	0' - 0"
25								Rain	0.49	47	45	0' - 2"
26				2	0	0	2	Showers	0.07	46	45	0' - 2"
27	2	0	2					Rain	0.43	45	44	0' - 2"
28	2	2	4	2	2	2	6	Rain	1.77	45	44	0' - 7"
29	5	6	11	11	9	7	27	Foggy	0.02	48	45	0' - 3"
30				6	0	2	8	Rain	0.38	45	45	0' - 1"
Dec. 1	3	2	5	2	2	1	5	Cloudy	0.59	47	45	0' - 3"
2	1	4	5	3	1	0	4	Showers	0.60	47	45	0' - 3"
3								Clear		47	45	0' - 0"
4	1	3	4	2	0	0	2	Rain	0.09	42	41	0' - 0"
5								Clear	0.02	43	40	0' - 0"
6								Cloudy		43	40	0' - 0"
7								Cloudy	0.03	43	41	0' - 0"
8								Cloudy	0.01	45	43	0' - 0"
9								Cloudy		49	44	0' - 0"
10								Rain	0.65	47	46	0' - 0"
11								Clear	0.02	47	45	0' - 3"
12								Clear		45	41	0' - 0"
13								Cloudy		42	38	0' - 0"
14								Rain	0.15	41	40	0' - 2"
15								Clear	0.06	46	41	0' - 2"
16								Clear		44	41	0' - 2"
17								Clear		42	38	0' - 2"
18								Rain	0.18	40	37	0' - 2"
19	2	6	8	1	0	1	2	Rain	1.26	41	40	0' - 1"
20	12	15	27					Rain	1.41	45	42	(800 cfs)
21								Rain	5.80	48	45	7' - 0"
22								Rain	11.05	48	46	15' - 10"
23								Rain	2.05	50	48	8' - 8"
24								Rain	1.57	50	49	6' - 0"
25								Rain	1.10	50	4	4'
26								Rain	1.20	50	49	4'
27								Snow	0.45	44	46	4' - 5"
28								Snow	0.70	43	42	3'
29								Rain	0.55	40	38	3' - 0"
30								Rain	0.30			3' - 0"
31								-		3'	-	-
Jan. 1								-	3.60 ⁵			-
2								-				-
3								-				-
4								Rain	0.40			3'
5								Rain	2.10			7' - 4"

APPENDIX 2
(continued)

Date	Steelhead			King salmon				Weather	Rainfall 1/	Water temperature		Eel River flow 2/
	Male	Female	Total	Male	Female	Grilse	Total			Max.	Min.	
Jan. 6								Rain	1.74			3'+
7								Rain	0.30			3'
8 4/								-				-
9 4/								-				-
10								Rain	0.22			2'-
11								Cloudy	0.34			2'+
12								Clear				2'+
13								Clear				2'- 0"
14								Clear				2'- 0"
15								Clear				2'- 0"
16 4/								-				-
17 4/								-				-
18								Cloudy				2'- 0"
19								Rain	0.07			2'- 0"
20								Cloudy				2'- 0"
21								Cloudy				2'- 0"
22								Showers				2'- 0"
23								Rain	1.57			3'- 0"
24								Cloudy	0.96			2'- 6"
25								Cloudy	0.06			3'- 0"
26								Clear				3'- 0"
27								Clear				2'- 0"
28								Clear				1'- 4"
29								Clear				1'+
30								Clear				1'+
31								Clear				1'- 0"
Feb. 1								Clear		44	39	1'+
2	6	9	15					Cloudy		44	39	0'-11"
3	14	23	37					Cloudy		44	39	0'-10"
4	4	5	9					Rain		42	40	0'-10"
5	0	3	3					Rain	0.83	43	41	1'- 0"
6	1	3	4					Clear		43	39	1'- 0"
7	1	4	5					Clear		44	37	0'-10"
8	2	8	10					Clear		44	39	0'- 8"
9	1	2	3					Clear		43	37	0'- 6"
10	1	3	4					Clear		43	47	0'- 6"
11	1	1	2					Clear		43	37	0'- 6"
12								Clear		43	37	0'- 6"
13								Clear		42	38	0'- 6"
14								Clear		44	39	0'- 6"
15								Clear		43	38	0'- 6"
16								Clear		44	37	0'- 6"
17								Clear		44	38	0'- 6"
18								Clear		45	39	0'- 6"
19								Clear		45	39	0'- 6"
20								Clear		45	39	0'- 6"
21								Clear		46	40	0'- 6"
22								Clear		44	39	0'- 6"
23								Clear		45	39	0'- 6"
24								Clear		45	39	0'- 6"
25								Clear		45	38	0'- 6"
26								Rain	0.64	43	39	0'- 6"
27	23	27	50					Clear	0.23	45	40	0'- 6"
28	11	19	30					Clear		45	39	0'- 6"
Mar. 1	17	18	35					Clear		46	40	0'- 4"
2	15	22	37					Clear		46	39	0'- 2"
3	4	0	4					Cloudy		46	39	0'- 2"
4	8	10	18					Cloudy		47	44	0'- 6"
5	2	3	5					Showers		46	45	0'- 0"
6	1	2	3					Cloudy	0.97	46	42	0'- 0"
7	4	4	8					Clear		53	42	0'- 10"
8	6	7	13					Clear		53	43	0'- 10"
9	17	10	27					Overcast		49	44	0'- 10"
10								Cloudy		47	44	0'- 0"

APPENDIX 2
(continued)

Date	Steelhead			King salmon				Weather	Rainfall <u>1/</u>	Water temperature		Eel River flow <u>2/</u>
	Male	Female	Total	Male	Female	Grilse	Total			Max.	Min.	
Mar. 11								Clear		53	44	0' - 0"
12								Showers	0.05	50	46	0' - 0"
13								Cloudy		53	43	0' - 0"
14								Clear		57	42	0' - 0"
15	5	9	14					Clear		57	43	0' - 0"
16	7	3	10					Clear		55	44	0' - 0"
17	1	10	11					Clear		52	44	0' - 0"
18								Clear		55	43	0' - 0"
19	0	6	6					Clear		57	43	0' - 0"
20	3	5	8					Clear		60	44	0' - 0"
21	6	4	10					Clear		60	45	0' - 0"
22	15	32	47					Clear		57	46	0' - 0"
23								Clear		55	47	0' - 0"
24								Clear		56	46	0' - 0"
25								Cloudy		54	47	0' - 0"
26								Rain	0.74	50	47	0' - 0"
27	35	53	88					Cloudy	1.00	48	44	Trickle
28	23	47	70					Clear		55	45	Trickle
29	4	8	12					Cloudy		49	47	Trickle
30	2	2	4					Rain	0.30	47	46	Trickle
31								Showers	0.04	47	46	Trickle
Apr. 1	4	8	12					Showers	0.01	49	44	0' - 0"
2								Showers		53	43	0' - 0"
3								Cloudy	0.01	55	44	0' - 0"
4	7	12	19					Clear		56	45	0' - 0"
5								Rain	0.02	54	49	0' - 0"
6								Clear		49	48	0' - 0"
7								Rain	0.11	43	42	Trickle
8	0	2	2					Rain	0.33	44	42	Trickle
9	10	13	23					Rain	1.20	43	42	0' - 2"
10	8	11	19					Rain/snow	0.23	42	40	0' - 1"
11	20	32	52					Cloudy		52	41	0' - 6"
12								Cloudy		53	44	0' - 0"
13								Rain		48	44	0' - 0"
14								Rain	0.22	47	44	0' - 8"
15	22	38	60					Rain	1.50	47	45	3' -
16	2	2	4					Showers	0.36	50	45	2' + 0"
17	1	1	2					Rain	0.10	47	43	2' - 0"
18								Rain	0.80	48	46	2' - 0"
19								Rain		52	47	2' - 0"
20								Rain		49	46	2' - 0"
21												
22								Clear	1.00 <u>5/</u>	52	46	1' +
23								Clear		52	45	1' +
24	7	20	27					Clear		55	45	1' - 0"
25								Clear		57	48	1' - 0"
26								Clear		59	49	0' - 8"
27								Clear		60	49	0' - 8"
28								Clear		60	50	0' - 8"
29								Clear		61	50	0' - 8"
30								Clear		60	50	0' - 8"
31								Clear		59	50	0' - 8"
May 1-9 <u>4/</u>								-				-
10	5	8	13					Clear		60	49	0' - 6"
19	Zero flow - trap removed.											0' - 0"
Totals	354	567	921	31	17	15	63					

1/ Rainfall in inches, recorded at Snow Mt. Station 1700 to 1700 daily.

2/ Flow in cfs not available - figures show river height in feet or inches above dam. The dam is 150 feet wide.

3/ Fish ladder under repairs during month of January. No flows through fish ladder - Thermograph not in operation.

4/ Station unattended.

5/ Total rainfall during period.