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The Resources Agency of California
Department of Fish and Game

THE 1965-66 STEELHEAD AND SALMON COUNTS
AT SNOW MOUNTAIN STATION
MENDOCINO COUNTY 1/

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Region 3, Inland Fisheries

SUMMARY

Snow Mountain Station is on the Eel River about 25 miles northeast of Ukiah, California. Counts of migrating steelhead and salmon are on record most years since 1933.

This report covers the results of counting operations for the 1965-66 season.

The trapping facilities at Snow Mountain Station were operated from November 14, 1965 through May 8, 1966. During the 1965-66 season totals of 423 steelhead and 93 king salmon were counted through the station. This included 198 male and 225 female steelhead; 11 male, 5 female, and 77 grilse king salmon. The first king salmon of the season were trapped November 24, 1965 and the last on February 4, 1966.

The first steelhead were trapped November 28, 1965, and the last on April 25, 1966.

The station was operated as in previous years.

1/ Marine Resources Branch Administrative Report No. 67-12

2/ Now with Marine Resources Branch.

INTRODUCTION

Snow Mountain Station is located at the foot of Cape Horn Dam (Van Arsdale Dam), about 25 miles northeast of Ukiah, California. Counts of steelhead (Salmo gairdnerii gairdnerii) and king salmon (Oncorhynchus tshawytscha) are available for most years since 1933 (Table 2). This report covers the results of counting operations for the 1965-66 season. Weather, water temperatures and flow data are also included (Table 1).

WEATHER

Two storms during the latter part of November, 1965 triggered a substantial king salmon run through the station. Clear weather then prevailed until December 24, when the next series of heavy storms occurred. These storms extended until January 5. The next storm occurred from January 30 through February 6. Two weeks of clear weather followed. Rain and snow prevailed during the latter part of February and the first of March. The last storm of the season came in mid-April.

METHODS

The trapping facility was operated from November 14, 1965 through May 8, 1966.

The trap was checked several times during the day, usually at 8 AM, 12 noon and 5 PM. Trapped fish were netted, measured, checked for marks or tags, the sex noted, and were then released upstream. When the station was unattended for periods of longer than 24 hours, the trap holding pen was enlarged by removing one rack which allowed the use of the whole spawning house as a holding pen.

RESULTS

During the 1965-66 season totals of 423 steelhead and 93 king salmon were counted through the Snow Mountain Station. This included 198 male, 225 female steelhead, plus 11 male, 5 female and 77 grilse king salmon (Table 1). The first king salmon were trapped on November 24, 1965 and the last on February 4, 1966. The peak of the king salmon run occurred between November 24 and December 4. The largest single daily count of king salmon (15), was made November 27.

The first steelhead of the season was trapped November 28 and the last were trapped April 25, 1966. The major portion of the steelhead run was during February and March. The largest daily count of steelhead (62), occurred April 12, the second largest (24) was on February 10.

DISCUSSION

The largest daily count, 62 steelhead, is misleading because it actually represents the accumulation of fish trapped during the period of April 3 through 12. The trap was in operation, but station personnel were away on another assignment, leaving the installation unattended.

There doesn't seem to be any reasonable explanation for conditions which could be related to, or have caused the extremely low fish count this year, the lowest since 1947. . . . The fish ladder was out of operation for only three days (7 PM, January 4 to 5:30 PM, January 7) when the storm of December 28 to January 5 dumped enough rain to create flood conditions, which damaged two keyways in the lower section of the fish ladder. Temporary repairs were made as soon as the flood waters receded.

Water spilled over Cape Horn Dam almost continually from the last week of December through April. The only exception was when the Pacific Gas and Electric Company reduced river flows so that none spilled over the dam during the last week of March and the first week in April. Steelhead, however, continued to move up the fish ladder and into the trap for six days following this sudden drop in river flow.

CONCLUSIONS

1. There was no apparent reason for the low 1965-66 steelhead counts.
2. Mid-November storms and releases over Cape Horn Dam (Van Arsdale Dam) appeared to be well timed to coincide with the king salmon migration, thus bringing the king salmon up past Tomiki Creek, which is known to be used as a spawning stream by this species.

TABLE 1

Daily Record of King Salmon and Steelhead Counts,
Weather and Flow Data at Snow Mountain Station, Mendocino County
1965-60 Season

Date	King salmon				Steelhead			Weather ^{1/}	Rainfall ^{2/}	Water Temperature		Fel River flow in cfs-
	Male	Female	Grilse	Total	Male	Female	Total			Min.	Max.	
1965												
Nov. 15								Cloudy	.74			223.
16								Clear				0.4
17								Cloudy	.46			78.
18								Heavy rain	1.17			694.
19								Light rain	.51			241.
20								Cloudy				106.
21								Clear				15.
22								"				0.
23								Rain	.30	47	47	8.1
24	4		9	13				Rain & snow	1.23	44	47	612.
25	1		1	2				Cloudy	.85	40	47	12.
26	3	1	1	5				Heavy rain	.29	39	41	0.
27			15	15				Clear	.20	41	45	128.
28		1	12	13	1		1	"		39	44	21.
29			2	2				"		40	45	2.8
30		1	4	5				"		41	47	23.
Dec. 1	1	1	7	9				"		40	47	43.
2		1	8	9	1		1	"		40	47	8.3
3			3	3				"		41	45	0.3
4			1	1				"		40	47	0.4
5			1	1				Unattended		42	50	0.3
6			1	1				"		42	49	0.3
7			2	2				"		41	48	0.1
8			1	1				"		42	44	0.
9	1		1	2				"		41	47	0.
10								"		41	45	0.1
11			2	2				Light rain	.33	40	41	0.3
12			1	1				Clear	.16	40	44	3.2
13								"		41	45	3.3
14								"		38	41	0.8
15			1	1				"		36	39	0.6
16								"		35	40	0.4
17								"		34	39	0.4
18								"		33	37	0.
19								"		34	38	0.
20								"		33	38	1.9
21								"		34	37	12.
22	1			1				"		35	38	10.
23								Overcast		34	38	6.9
24								Steady rain	1.50	36	39	550.
25								Rain & snow	.48	35	37	498.
26			1	1	1		1	Overcast		34	36	235.
27								Light rain	.16	36	38	167.
28			1	1	2	1	3	Rain	1.30	36	38	944.
29					2	1	3	"	.43	36	37	429.
30					1	3	4	Heavy rain	.43	37	38	216.
31					3	1	4	Rain	.87	35	37	331.
1966												
Jan. 1			1	1				"	.06	35	38	122.
2					1	1	2	Heavy rain	.27	35	37	402.
3					1	1	2	Rain	1.39	36	38	1,310.
4					1		1	Heavy rain	4.24	38	43	8,140.
5								Rain	2.59	40	45	16,300.
6								"	.40	41	45	5,790.
7								Overcast		40	43	5,030.
8								Slight overcast	.21	39	43	3,040.
9								Clear		38	41	2,170.
10								"		37	40	1,620.

TABLE 1 (continued)
1965-66 Season

Date	King salmon				Steelhead			1/ Weather	2/ Rainfall	Water temperature		3/ Eel River flow in cfs
	Male	Female	Grilse	Total	Male	Female	Total			Min.	Max.	
1966												
Jan. 11								Clear		35	39	1,260.
12								"		37	40	993.
13								"		37	41	802.
14								"		37	40	699.
15								"		37	42	585.
16								"		36	41	531.
17								"		35	39	467.
18								"		34	39	423.
19								"		35	39	373.
20								"		33	33	334.
21								"		33	37	262.
22								Moderate rain	.27	32	42	245.
23								Overcast		35	38	223.
24								Slight overcast		35	39	180.
25								Clear		35	38	143.
26								"		37	38	123.
27								Overcast		36	39	95.
28								"		36	39	68.
29								"	1.28	37	39	282.
30								Rain	.89	35	39	1,060.
31								Moderate rain	.06	36	39	875.
Feb. 1								Heavy overcast	.67	37	40	864.
2						1	1	Light rain		36	39	853.
3						3	8	Heavy rain	.32	37	39	804.
4			1	1	3	1	4	Rain	1.33	38	40	2,420.
5								Light rain	.18	39	41	2,580.
6					1	3	4	Overcast	.29	37	40	2,040.
7					1	2	3	Clear		36	41	1,520.
8						2	2	"		36	40	1,190.
9					11	9	20	"		36	41	946.
10					13	11	24	"	.05	37	43	809.
11					2	4	6	"		35	40	659.
12						6	6	"	.02	37	41	544.
13					1	3	4	"		34	40	454.
14					3	3	6	"		35	40	404.
15					2	4	6	"		35	41	355.
16								"		35	41	310.
17								"		35	41	282.
18								"		36	39	268.
19					7	8	15	Light rain	.74	38	41	380.
20					10	13	23	Clear	.02	38	43	460.
21					8	7	15	"		37	43	404.
22					5	5	10	Moderate rain	.30	40	41	383.
23					7	11	18	"	.13	40	44	451.
24						3	3	Rain	.39	37	40	504.
25								Rain & snow	.49	36	39	533.
26								Clear	.09	35	42	546.
27								"		35	43	508.
28					2	1	3	Rain		36	42	471.
Mar. 1								Snow		37	39	452.
2					1	1	2	"	.07	36	40	427.
3								Clear		34	40	370.
4					2	2	4	Rain		36	38	325.
5								"	.35	37	41	400.
6					2	4	6	Light rain	.06	39	44	452.
7								Rain	.10	39	43	531.
8								"	.21	40	42	608.
9								"	.92	41	43	1,440.
10					4	9	13	"	.19	41	45	2,470.
11								Clear		38	44	1,920.
12					1	1	2	Heavy rain		38	45	1,500.

TAELE 1 (continued)
1965-66 Season

Date	King Salmon				Steelhead			1/ Weather	2/ Rainfall	Water temperature		3/ Eel River flow in cfs
	Male	Female	Grilse	Total	Male	Female	Total			Min.	Max.	
1966												
Mar. 13								Clear	.24	41	48	1,390.
14					4	5	9	Overcast	.07	42	47	1,310.
15								Heavy rain	.30	41	44	1,220.
16								Rain	.08	40	43	1,170.
17								Clear		38	46	991.
18						2	2	Rain		40	45	858.
19					3	7	10	Clear	.22	41	47	835.
20								"		39	47	730.
21					5	5	8	"	.08	42	48	649.
22					5	5	10	"		40	49	595.
23								"		40	49	547.
24					10	1	11	"		46	50	523.
25					4		4	"		46	51	377.
26					5		5	"		46	57	2.7
27					15	6	21	"		47	58	3.4
28					3	6	9	"		48	58	3.4
29					4	4	8	"		48	60	2.7
30					1	2	3	"		48	62	2.5
31					2	3	5	"		50	65	2.7
Apr. 1								"	.02	49	56	12.
2								"		49	61	3.1
3								Unattended		49	60	2.7
4								"		49	62	2.2
5								"		49	60	2.2
6								"		49	59	3.5
7								Rain		50	57	109.
8								"		47	52	421.
9								"	.30	47	49	424.
10								"	.76	48	49	628.
11								"	1.32	46	50	1,833.
12					25	37	62	Cloudy		46	51	1,890.
13					1	2	3	Unattended		46	54	1,330.
14								"		45	56	852.
15					1	3	4	"		46	58	632.
16					2	3	5	Clear		48	59	540.
17					3	5	8	Cloudy		48	57	532.
18								Clear		46	56	523.
19					1		1	"		45	55	436.
20								"		48	54	253.
21								"		45	54	145.
22								"		45	56	135.
23								"		47	58	113.
24					1	1	2	"		48	59	87.
25					1	2	3	"		48	50	87.
26								"		48	56	80.
27								"		46	56	69.
28												67.
29												45.
30												24.
TOTAL --	11	5	77	93	198	225	423					

1/ Represents conditions existing at station.

2/ Rain gage readings taken at 8 AM for previous 24 hours.

3/ Measured at FG&E gaging station just below Cape Horn (Van Arsdale) Dam.

TABLE 2.

Annual Salmon and Steelhead Counts

Snow Mountain Station

<u>Year</u>	<u>King salmon</u>	<u>Silver salmon</u>	<u>Steelhead</u>
1933-34	0	0	3,247
1934-35	0	0	2,255
1935-36	0	0	6,310
1936-37	0	0	6,861
1937-38	0	0	3,413
1938-39	0	0	4,786
1939-40	0	0	3,889
1940-41	0	0	2,225
1941-42	*	*	*
1942-43	*	*	*
1943-44	*	*	*
1944-45	0	0	9,528
1945-46	0	0	5,054
1946-47	917**	47	4,409
1947-48	0	0	178
1948-49	0	0	2,433
1949-50	*	*	*
1950-51	55	0	1,091
1951-52	0	0	5,444
1952-53	0	0	2,197
1953-54	0	0	2,590
1954-55	0	0	6,131
1955-56	0	0	3,719
1956-57	0	0	4,109
1957-58	0	0	5,151
1958-59	0	0	3,335
1959-60	0	0	2,206
1960-61	9	0	1,130
1961-62	0	0	1,689
1962-63	9	0	2,030
1963-64	3	0	846
1964-65	63	0	921
1965-66	93	0	423

* No record available.

** Erroneously reported as 817 in 1964-65 report (Adm. Report 67-7).