#### THL ESOURCES AGENCY OF CALIFORNIA Department of Fish and Game

28,590233

#### ANNIAL REPORT NIMBUS SALMON AND STEELHEAD HATCHERY FISCAL YEAR OF 1963-64

JAMES A, HINZE Region 2, Inland Fisheries

#### SUMMARY

Repair of the fish weir was not completed until December 31, 1963. However, some king salmon (Oncorhynchus tshawytscha) entered the holding pond without benefit of a rack and others were captured with gill nets at the base of Nimbus Dam. A total of 3,241 was taken for spawning. The 996 females which were spawned produced 6,084,907 eggs.

The water temperature control louvers on Folsom Dam were raised on October 30, 1963, when the hatchery water temperature was 59 degrees Fahrenheit. By November 3, the water temperature had dropped to 55 degrees Fahrenheit.

Of 59,070 merked Nimbus salmon of the 1959 brood year, 5 males and 7 females returned during the 1963-64 season. With the addition of the 7 males recovered in the 1961-62 season and the 56 males and 36 females in the 1962-63 season, a total of 111 fish of this group returned to the hatchery.

Of 51,590 marked 1959 brood year kings, from eggs obtained from the Upper Sacramento River, 15 males and 36 females returned during the 1963-64 season. Adding the 96 males and 70 females that returned during the 1962-63 season, a total of 217 fish of this group have returned to the hatchery.

Of 45,902 marked Nimbus salmon of the 1960 brood year, 43 males and 51 females returned during the 1963-64 run. With the 92 males and 2 females that were recovered during the 1962-63 run, 188 fish of this group have returned to the hatchery.

From July, 1963, through December, 1963, the remaining king salmon of the 1962 brood year were planted.

From December 16, 1963, to March, 1964, 472 male and 744 female steelhead (Salmo gairdnerii gairdnerii) entered the holding ponds. A total of 572 females was spawned producing 2,205,202 eggs; 81 males and 121 females were transferred to the Mokelumne River Fish Installation.

Of 100,992 marked steelhead of the 1960 brood year, 2 males and 3 females returned to the hatchery during the 1964 season. This makes a total return of 566 fish of this group.

In March, 1963, 23,029 steelhead of the 1962 brood year were marked and released in the Sacramento River and 16,390 were marked and released in the American River. During the 1964 season, 20 of the Sacramento River plant and 27 of the American River plant returned to the hatchery.

1/Submitted March 1965. Inland Fisheries Administrative Report No. 65-6. From July, 1963, through March, 1964, 534,250 steelhead of the 1963 brood year were planted.

Starting in March, 1964, and continuing through June, 1964, 2,000 steelhead of the 1964 brood year were transferred to the Mokelumne River Fish Installation and 701,140 were planted. There were 870,910 fingerlings on hand at the end of this report period.

Nearly 31,000 people visited the hatchery during the year.

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#### INTRODUCTION

This is the ninth Annual Report of the Nimbus Salmon and Steelhead Hatchery, Sacramento County, operated by the California Department of Fish and Game under contract with the United States Bureau of Reclamation. The report summarizes the number of fish trapped and spawned, production of eggs and fish, and water conditions from July 1, 1963, through June 30, 1964.

## KING SALMON MAINTENANCE PROGRAM

## History of the 1963 Salmon Run

Only 2,611 king salmon entered the holding pond at the hatchery because repairs to the fish weir damaged in February, 1963, were not completed until December 31, 1963

Many salmon congregated at the base of Nimbus Dam, and a floating trap was installed and tested in an effort to catch these fish. This operation was not successful. Gill nets were then used and 630 salmon were taken and transported to the holding ponds.

On October 29, 1963, repair of the fish weir had progressed to a point where the ladder could be operated. The first fish entered the hatchery on November 4, 1963. By the time the run ended on March 10, 1964, 3,241 king salmon had been taken. The number of fish entering the hatchery and netted at the base of Nimbus Dam each month was as follows:

Month	Number
November	2,005
December	760
January	329
February	137
March	10
Total	3.241

This run was composed of 1,213 large males, 1,215 females, and 813 grilse. Of the 1,215 females that entered the ponds or were taken in the gill net, 996 or 82 percent were spawned, 191 or 16 percent died in the holding ponds, and 26 or 2 percent were not fully mature when killed for spawning.

After the fish weir was completely installed on December 31, 1963, 318 males, 353 females, and 74 grilse were removed from the fish weir as they died and drifted downstream. The total number of king salmon trapped, gill netted, and taken from the racks was 3,986. Of this number 61 percent were males and 39 percent females.

The 996 females which were spawned successfully produced 6,084,907 eggs for an average of 6,109 eggs per female. Of the eggs taken 88 percent produced fish to swim-up.

#### Water Temperature Control

As the water surface of Folsom Lake lowered, it became necessary to remove the upper shutter of the temperature control structure on August 30, 1963, and the next shutter on September 20, 1964. On October 30, the remaining shutters were raised to provide colder water in the river below the dam. Water temperature at the hatchery was 59 degrees on October 30. On November 3 it had lowered to 55 degrees Fahrenheit.

Storing of cold winter water started on February 5, 1964, when 7 shutters were lowered, and on April 14 the final 2 shutters were placed.

#### 1959 Brood Year Marked King Salmon

In August, 1960, 59,070 Nimbus late-running kings, averaging 3.3 fish per ounce, were marked by removing their right ventral fins. At the same time, 51,590 laterunning kings from eggs obtained from the Upper Sacramento River were marked by removing their left ventral fins. These fish averaged 5.5 fish per ounce. Both groups were planted in the American River at the hatchery. Results of these groups of fish were as follows:

Returning year	American River stock	Sacramento River stock
1961	7	0
1962	92	166
1963	12	51
Total	111	217

Returns from the Sacramento River fish were nearly twice as great as from the American River fish. There was no apparent reason for this difference. Both groups of fish were in equally good condition when planted.

## Planting 1960 Brood Year King Salmon

In January, 1962, 45,902 Nimbus king salmon, averaging 6.3 fish per pound of the 1960 brood year were marked by removing both ventral fins. These fish were released in the American River below "H" Street bridge. During the 1962 run, 92 males, averaging 52 centimeters in length, and 2 females, averaging 50 centimeters, returned. During the 1963 run 43 males, averaging 81 centimeters in length, and 51 females, averaging 79 centimeters, were recovered. This is a total return of 188 fish to date. Further returns from this group of fish are expected forring 1964 and 1965.

#### Planting 1962 Brood Year King Salmon

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Prior to July 1, 1963, 13,081,056 king salmon fingerlings were released. The remaining 109,866 salmon of the 1962 brood year were planted from July 1, 1963, through December, 1963.

A few marked kings from the Sacramento River came into the Nimbus holding ponds during the 1963 run.

Mark	Brood year	Male centimeters	Female centimeters
D-Ad	1959	75 <b>, 7</b> 6, 99	81
D-RV	1959	40, 44, 46, 47, 51, 58	58, 71
D-Ad-RM	1961	85	
D-An-IM	1961	53	
D-LV-LM	1961	හැ	66
D-RV-LM	1961		88

#### STEELHEAD MAINTENANCE PROGRAM

# History of the 1963-64 Steelhead Run

Steelhead (Salmo gairdnerii gairdnerii) began to arrive with the salmon in late October, 1963. Until December 16, they were returned to the river. After December 16, all steelhead were held for spawning. The number of fish entering the hatchery each month after December 16, was as follows:

Month	Males	Females	Total
December January February March	60 265 118 29	59 398 207 80	119 663 325 109
Total	472	744	1,216

A total of 572 females was spawned producing 2,205,202 eggs, an average of 3,855 eggs per female. Also, 81 males and 121 females were transferred to the Mokelumne River Fish Installation.

## 1960 Brood Year Marked Steelhead

In January, 1961, 100,992 Nimbus steelhead, averaging 12 fish per pound, were marked by removing their adipose and left ventral fins. They were then planted in the American River at the hatchery. Returns were as follows:

Year	Number males	Average length	Number females	Average length	Total
1962 1963 1964	3 273 2	- 66 cm. 71 cm.	2 283 3	63 cm. 70 cm.	5 556 5
Total	278		288		566

#### 1962 Brood Year Marked Steelhead

In March, 1963, 23,029 steelhead of the 1962 brood year were marked by removing their right ventral fins and planted in the Sacramento River near Clarksburg. Also, 16,390 steelhead were marked by removing their left ventral fins and planted in the American River at the hatchery.

During the 1964 run, 17 males, averaging 48 centimeters in length, and 3 females, averaging 52 centimeters, of the Sacramento River group returned to the hatchery, and 21 males, averaging 50 centimeters in length, and 6 females, averaging 51 centimeters, of the American River group returned to the hatchery.

#### Planting 1963 Brood Year Steelhead

Prior to June 30, 1963, 1,127,886 steelhead fingerlings were released. In July, 1963, 202,624 steelhead fingerlings were transferred to the Trinity River Hatchery. From July, 1963, to March, 1964, 534,250 steelhead were planted. Of those planted in January and February of 1964, 92,658 steelhead, everaging 6.3 fish per pound, were marked by removing their right ventral fin and planted in the Sacramento River near Clarksburg, and 91,182 averaging 6.4 fish per pound were marked by removing their left ventral fin and planted in the American River at the hatchery.

#### Planting 1964 Brood Year Steelhead

From March, 1964, through June, 1964, 2,000 steelhead were transferred to the Mokelumne River Fish Installation and 701,140 steelhead fingerlings were planted in the American River at the hatchery. On June 30, 1964, there were 870,910 fingerlings on hand.

#### CONSTRUCTION PROJECTS

The Murphy-Pacific Construction Company was awarded the contract to repair and modify the fish rack structure. This work was started in July, 1963, and was completed in January, 1964.

#### DISPOSAL OF SALMON CARCASSES

An estimate is made each year of the number of pounds of salmon that are distributed to various state and county agencies, charitable organizations, and Indians of California. This season 1963-64, 28,000 pounds were used for human consumption. Approximately, 5,400 pounds were deemed unfit for food and were given to a rendering company.

#### PUBLIC RELATIONS

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During the period of this report, an estimated 30,800 persons visited the hatchery. Included in the total were 1,574 people in 29 organized groups conducted through the installation by hatchery personnel.

APPENDIX

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## APPENDIX

Tables A-1 through A-12 give the daily air and water temperatures, weather conditions, river flow, and number of each species entering the hatchery during the report period.

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Figure A-1 shows the number of fall-run king salmon entering the hatchery during each week of the season.

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TAPLE A-1 Nimbus Salmon and Steelhead Hatchery Weather and Water Data Report July, 1963

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·····		Temper	rature		ويهيركونها فيعاد وبقد النبية التبعيني فانتزاكم فخلتهمي	American River Flo	w at
	Aiı	r	Weit	er			
Date	Maximum	Minimum	Maximum	Minieum	Westher	Hatchery (c.i.s.)	
. า	89	52	57	50	Clear	3.477	
2	82	52	57.5	56.5	Clear	3,476	
	83	52	58	56	Clear	3,471	
й	85	52	59	55	Partix cloudy	3, 471	
5	58	56	59	5.5	Partix cloudy	3,477	
6	85	56	58	57	Clear	3,471	
7	81	58	58	57	Partly cloudy	3 474	
Å	88	ラ0 5上	60	53.5	Clear	3,470	
a a	oh	55	60	58	Clear	3,473	
· 10	98	58	64	59	Clear	3,461	
<b>เ</b>	98	62	61.5	58.5	Clear	3,472	
' 12	103	63	59.5	58.5	Clear	3,455	
13	100	62	60	58.5	Clear	3,495	စ်
14	100	60	61	58.5	Clear	3,497	•
15	93	60	60.5	59.5	Clear	3,497	
16	88	57	60.5	59	Clear	3,492	
17	98	58	61	59	Clear	3,492	
18	93	58	61	59.5	Clear	3,494	
19	91	60	61.5	59,5	Clear	3,488	
20	91	58	61	59.5	Clear	3,491	
21	92	58	62	60	Clear	3,496	
22	. 94	59	62	61.5	Clear	3,493	
23	90	59	63	60	Clear	3,475	
24	90	56	62.5	61.5	Clear	3,472	
25	<u>92</u>	56	63	61	Clear	3,491	
26	100	60	63	62	Clear	3,184	
27	98	62	63	61.5	Clear	3,499	
23	90	59	62	61	Clear	3,515	
29	92	55	62	61	Clear	3,518	
30	96	56	63	62	Clear	3,528	
31.	97	60	63	62	Clear	3,528	
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# TABLE A-2 Nimbus Salmon and Steelhead Hatchery Weather and Water Pata Report August, 1963

یو بو بودی مذکر منصوب بورود مدینون		Tem	perature		وسياداني منصوبا مواغرة مستكاركاني مسيانا الاختياب التجريره اليشور عاراتهم	A	
• •	Air		Ŵ	ater		American River Flo	w at
Date	Maximum	Minimum	Maximum	Minimun	Weather	Hatchery (c.f.s.)	
1	06	60	63	62	Clear	a hol	
2	90 8h	5h	63	67.5	Clear	3 PUT	
2 .	87	52	63	61	Clear	3,504	
У	02	54	63	62	Clear	3,470	
5	95	55	64	63	Clear	3,471	
6	9 <u>3</u>	60	64	63	Clear	3,500	
7	60	64	65	63	Fartly cloudy	3,494	
Å	8	69	65	63.5	Partly cloudy	sprinkle 3,494	
Q.	96	68	65	64	Cloudy-sprinkl	es 3,491	
10	96	63	65.5	64	Clear	3.474	
11	98	64	65	63.5	Partly cloudy	3.472	
12	96	63	65	64	Clear	3,403	
13	97	60	66	64.5	Clear	3.488	j
14	99	60	66	64.5	Clear	3.492	
15	100	60	66	64.5	Clear	3,493	
16	100	60	66.5	65	Clear	3,510	
17	95	60	66	65	Clear	3,486	
18	94	60	66.5	65	Clear	3,486	
19	54	60	66	65.5	Clear	3,490	
20	92	58	66.5	65.5	Clear	3,487	
21	92	60	67	65.5	Clear	3,489	
22	84	58	66.5	65	Clear	3.492	
23	79	55	65.5	64	Clear	3,483	
24	82	55	65.5	64	Clear	3,493	
25	86	52	65	64	Clear	3,497	
26	92.	54	66	66	Clear	3.498	
27	62	58	67	65.5	Clear	3.492	
29	94	60	67	65.5	Clear	3,490	
29	93	61	67	65	Clear	3,501	
30	83	60	66.5	64.5	Partly cloudy	3,499	
31	80	56	65	63	Cloudy	3,498	

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TALLE A-3 Nimbus Salmon and Steelhead Hatchery Weather and Water Data Peport September, 1963

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		Tempe	rature	وجوي ويوجر فكالجب ويوري كملك فكالهما الب		المراجع معرده <del>المراجع معرف المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع ا</del>	
<b>-</b> .	Ai	r	Wa	ter		American River Flor	w at
Date	Maximum	Minimum	Maximum	Minimum	Weather	Hatchery (c.f.s.)	
7		-0	<u>,</u>				
±	90	58	65.5	63	Clear	2,977	
2	92	58	66	65	Clear	2,976	
<b>5</b>	99	60	66.5	64.5	Clear	2,994	
4	90	62	66.5	64.5	Clear	2,986	
2	84	63	66	65	Clear cloudy.	rain 2.986	
6	92	60	67	65	Partly cloudy	2,998	
1	92	61	66.5	65.5	Clear	2,998	
8.	94	63	67	65.5	Clear	2,992	
9	82	59	66	65	Partly cloudy	2,995	
10	84	55	67	65	Clear	2,996	
11	90	60	66.5	65.5	Partly cloudy	3.005	
12	84	59	66	65	Rain	5,004	
13	81	59	66	64	Cloudy	3 003	Ė
14	87	58	66.5	65	Partly cloudy	2,003	<b>`</b> i
15	85	60	66.5	64.5	Partly cloudy	3 004	
16	78	58	66.5	65	Partly cloudy	3,004	
17	78	60	66	64.5	Light showers	3,000	
18	76	60	65.5	64.5	Light showers	3,004	
19	78	59	66.5	64	Partly aloudy	3,021	
20	80	55	65.5	64	Clear	3,010	
21	83	54	66	64	Portir aloude	0.769	
22	80	56	. 65	62 5	Portly cloudy		
23	82	54	67	6h 5	Close Cloudy	2,104	
24	88	54	66	61 5	Clear	2,105	
25	93	56	65 5	65	Clear	2,705	
26	100	60	66 5	65	Clear	2,765	
27	97	61	67	ci. e	Clear	2,765	
28	о́н	60	67	C4.7	Clear	2,766	
29	27	60	01 67	0) (5 5	Ulear	2,767	
30	03 22	60		07.7	Partly cloudy	2,768	
50	73	00	07.5	64	Clear	2,766	

٠ TABLE A-4 Nimbus Salmon and Steelhead Hatchery Weather and Water Data Report October, 1953 • . •

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	American River Flow s	Hatchery (c.f.s.)	2.757	2.767	2,590	2,362	2,165	1.959	lt. rain 1.984	976	1,978	ain 1,933	1.976	1,999	1,593	1,582	1,986	r p.m. 1,985	1,987	1,983	1,984	1,988	1,993	1,992	1,991	<u>т</u> , 988	1,985	1,933	1,999	1,988	2,019	2,001	2,094
		Veether	Clear	Clear	Clear	Clear	Clear	Glear	Partly cloudy-	Partly cloudy	Partly cloudy	Cloudy-light r	Rain	Partly cloudy	Fartly cloudy	Partly cloudy	Rain	Fog a.m., clea:	Clear	Clear	Clear	Clear	<b>Partly cloudy</b>	<b>Partly cloudy</b>	Partly cloudy	Light rain	Clear	Clear	Clear	Purtly clcudy	Light rain	Cloudy	Clear
	čer	Minimum	65.5	64.5	; و	5;	5	63.5	65	64.5	5	63	<u>6</u> 3	еў	ଔ	ۍ و	69	65°5	5 5	5	;£	5,	5,	ۍ مې	e So	ω,	ୟ '	ନ ଜ	ଔ	56	55	<u></u>	00
rature	Wat	Maximum	65	67	29	8	65	<u></u>	99;	<u> </u>	69 V	ر کور	6 <del>4</del> .5	64 2		\$	5,	63•5 2	e,	8,	5 5 1 2	ଚ୍ୟ	ଚଟ	55	53	50	<sub>ଅ</sub> ଏ	୪,	су,	ଜ <i>ଏ</i>	8	84	TO
Tempe	L.	Minim	59	3,	2.i	<u></u> ,	22	<b>2</b> 3	<u>8</u>	5. 4. V	ድነ	ייי גי	0.0	8 2 2 2	28	τ Σ.	たさ	<u></u> * (	N S	25	אַל	ŧ			4 Q	24 1	0	<b>9</b>	64.	₽ ₽	07	‡ 2	ş
	A	Meximum	ę.	විම	55	+ C	<u>ਮ</u> 8	88	22 20	ک ک	66		29	56	4 <del>4</del>	0-12	<del>4</del> 5	55	7 5	<u>-</u>	± ¢	2 8	1 1 2	1 A	0.5	2.6	<u>n</u> 5	2 6	5 5	20	50	<del>ع</del> کو	)
		Date	н (	N o	∩ <i>-</i> =	tu	~~	0 t	<u>~</u> a	0 0	ר אכ	35	12	42		1 K	ንድ		81	20	28	) ត	18	18	24	: K	) <u>(</u>	25	- 40	2 8	) č	8 F	ζ

# TABLE A-5-Nimbus Salmon and Steelhead Hatchery Weather and Water Data Report November, 1963

		Tecpera	ature		بالم المراد المراد المراجع المحتية المحتية المرادة المرادة المرادة المرادة المرادة المرادة المرادة المرادة الم	مىيۇنلەردىيە. مەنۇبىلىلىدە بەرەپ مۇرىيىلىكە بەرەپ يۇلىدىنىڭ، مۇمۇرىكە تەرەپ بەرەپ كەرەپ بەرەپ كەرەپ بەرەپ بەرە		
_	Ai	r	Wate	er		American River Flow	Vina	<b>C</b> +7
Date	Maximum	Minimum	Maximum	Minimum	Weather	at Hatchery (c.f.s.)	Salmon	Silver
-	20			·			Odimon	SALINON
L L	58	43	60	58	Clear	2.008	0	0
2	63	45	56	56	Light rain	2.007	Õ	0
3	64	46	56	55	Rain	2,010	õ	0
4	57	50	55	55	Rain	2,013	0	0
5	60	52	55.5	55	Rain	2,012	20	0
6	60	48	55.5	55	Cloudy	2,012 7 OCh	10	0
7	59	38	55	54	Cloudy		19	0
8	60	50	55.5	55	Cloudy	1 004	0	0
9	69	52	57	54	Partly aloudu	1,001	TT	7
10	62	48	56.5	55	Cloudy Croudy	1,991	0	0
11	62	47	56	55	Cloudy	2,001	18	0
12	60	46	55	55	Post 1 and and a	2,004	0	0
13	64	50	55	55	Poin CIONDY	1,993	18	0
14	62	53	55	5h	Pote	L,993	0	<u>ن</u> 0
15	60	ĹĞ	55 5	51 5	Dete	2,288	113	0
16	56	38	56	)+•) ch		2,630	144	0
17	58	38	S) E	24 52 C	Clear	3,479	173	0
18	56	3µ 20	54•2 ch	23.2	Partly cloudy	3,477	289	0
19	ĥо	).o	24 50	23	Partly cloudy	4,034	146	0
20	54	42 J.Q	23	23	Rain	4,965	69	0
21	52	40	40	52.5	Rain	4,976	114	0
22	リモート・フ	54 21	52.5	52	Partly cloudy	4,972	45	0
22	71 hQ	54	52	52	Rain	4,965	131	Ó
້ວາ	40	44	52	51.5	Cloudy	4,986	75	ŏ
24	49 56	50	52	51.5	Cleudy	4,986	170	Ō
27	20	38	52.5	52	Clear	4,990	<u> </u>	ō
20	50	38	52.5	52	Clear	4.990	46	õ
21	-50	34	52.5	51.5	Fcg	4,005	68	õ
20	46	44	51.5	51	Fog	4,995	100	ŏ
29	46	42	51	50.5	Fog	4,995	17	ŏ
30	45	40	50.5	50.5	Fog	4,996	84	õ
			· · · · · · · · · · · · · · · · · · ·					-

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	:			Steelhead	· c	5 0	2 0	<b>.</b>	<b>&gt;</b> (	00			0	0	0	0	0	0	0	0	Ř	0	0	0 0	<b>)</b> (	o c	, с	ၟႄ	0	19	0	0	oy	46
				Salmon	ц Ц	28	200	29	2-	₽ ₽ €	- 0	2-4	33.	13	8 <u>1</u>	22	ದ	0	35	0	ನ	0	ឝ	00	<b>&gt;</b>	00	ה ה ני	ío	0	28	0	0		17
	•		ricen River Flow	Entchery (c.f.s.)	h oof					4, 996	4,997	4.963	4,453	3,559	3,446	2,794	2,745	2,749	2,722		2,530	2, 530	2, 531 0 515	κ,)43 ο ΠοΟ	5, 1, 2, C	2,531	2,532	2,530	2,527	2,527	2,526	2,527	2,527	Z.94L
A-6.	Steelhead Eatchery r Data Report er, 1963		Arre	esther st	ж		20	0 X	2	9 20	eer	in	ß	33	eer	8	<u>ت</u> ق ا	<u>ي</u> م	សិរ	<u>ی</u>	80 e	ğ Aht moja	Buv ruin aht mein	enc tarn g	eer	g a.m. clear p.m.	60	rtly cloudy	g e.m. partly cloudy	g a.m. partly cloudy	g a.m. partly cloudy	80 1	i i i i i i i i i i i i i i i i i i i	S a.m. CIERL P.m.
TABLE	on and E nd Water December		; 	D We	FC	F.C.	- CH		Ъ.	) 0 • E	5	Ra	0H G	면 탄	ទី	0 54	2 F	2	0 ( *1 [*	) ( 4 (	0 0 4 6	0 <del>4</del> 4 F			10	FO	õ	Pau	Ъ Ч	Ю́н Н	ю Н	ο Έ	ο Υ Α	5
	eather a		ter	Minimu	64	20	50	27	24	<u>ج</u> ′	54	53.5	53	ខ្ល	25.52	ň			12 17 17		+ 			12	46.5	84	81	<u>ዋ</u>	<u>3</u>	ກ ກີ ເ	το 1 2 2 2 1 2 1	1 2 2 2		F
		eture	Ha	Maximum	50	20	S.	54.5	54.5	54.5	5 	5	53.5	73.5 7.5	74 1	7.77 7.77		202	17.5 17.5		く 「 」 「	F7	14	47	47.5	<u>6</u>	18°5	48°5	48.5	ר <del>ב</del> ל י		0 4 4	84	2
		tedme <sub>l</sub> T	r W2-2	UNIDITAL	39	쿨	68	R	37	<u>3</u> 8	39	ŝ	B M G	÷.5	N C	У Г	- - -	หส	57	<u>.</u>	54	. 9	0 2	24 T	34	ሐነ	50	# 0	<u>ç, c</u>	<u></u>	τ) ( - t	5 d	iœ	5
			AI	DIST. TEL	<b>1</b> 1	24	<u></u>	9	45 1	Q'	5 5	81	₽ 1	1 Y	04	ې 4	2 S	202	) 6	82	53	111	46 16	49 1	20	<u>8</u>	<b>†</b> 2	<b>8</b> [	<u></u>	<u>_</u>	17 17	7 6	l Cr	•
			0+0	200	-	ຸດ	ന.	라 (	<b>س</b>	91	c	o o	אל	25	12	12		15	20	17	18	61	SO.	ដ	ស្ត	<u>.</u>		ÛÄ		- 00	۶ g	2	.н	

-14-

TABLE A-7 Wimbus Salmon and Steelhead Hatchery Weather and Water Data Report January, 1954

Stellnead 100030020050005000500050003000 15500050005000300050003000 Salmon <u>ૹ</u>૦૦૦೫೦೦೫೦೦೯೦೦೦೭೦೦೫೦೦೫೦೦೫ at Ratchery (c.f.s. American River Flow Fog a.m. clear p.m. Partly cloudy-rain Partly cloudy Pertly cloudy Partly cloudy Partly cloudy Light showers Partly cloudy Fartly cloudy Partly cloudy Cartly cloudy Partly cloudy Light rain Cloudy Light rain Weather CJ.oudy Cloudy Clear Clear Cluar Rain Rain Rain Rein Fog Fog <sup>н</sup>08 Minimum Water Maximum Temperature Minimum <del>ᇥ</del>ᇯᅅᇮᄡᇾᇥᆦᄠᇥᇏᅇᄤᇮᇮᅇᆇᆂᆂᆂᆤᆋᆇᇮᅷᇥᆮᇮᇥᅅᇥᆹᆹ Air Maximum ねないいいみったいいいいいいいいいいいいいいいいいいいいいいいい Date エックののがいがいかいいいいいいいいいいいく のしろう すうちて

-15-

TABLE A-8 Nimbus Salmon and Steelhead Ettohory Weather and Water Data Report February, 1964

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		jmə'l'	erature						
	4	F.	Wat	er		Ameri	ran Riwar Elas		
Date	Maximum	Minimum	Maximum	Minimum	Westacr	at Ha	tchery (c.f.s.)	Salmon	Steelreed
Ч	54	ð d	77	וה ב	1         				
a	. <u>. (</u>	)	- t F -	<u>.</u>	TOR B.B. CTE	ar p.m.	2,521	0	0
រេ	26	₹ 8	-+	÷.	Clear		2,521	C	
<u>_</u>	2		Ltt	94	Clear		2,520	• c	<b>)</b> (
#	20	36	17	۲2 ۲	Glear			2	<b>&gt;</b> ;
ഗ	5 L				TESTO		2,2%	43 43	<del>1</del> 8
14		+ 0	+ 1	₽.	Clear		2,531	c	Ċ
26	2	Ω.	64	46.5	Clear		2,320		<b>)</b> (
	57	34	148	L L L	reali				5
Ø	ĉ	40	ai				01T(2	52	27
0	<u>رج</u>		- - -	- 0+ - 1	c.lear		2,093	0	C
n c	93	<b>5</b>	<b>4</b> α.5	747	Clear		2,003		00
3	ດ. ອີ	35	47	45 1	Clear			o d	<b>)</b> (
7	Ś	75	47	Ъ Ч	weel)			יכ	S
212	56	211	- 1		VICAL.		2,091	16	<b>8</b>
	) / ( ) / (		₽`	÷.	Clear		2,093	0	c
<u></u>	Ŕi	<u></u>	<del>9</del> .	5 <u>5</u>	Clear		2.085	) 4	с С
+ 1 -	*- ~	58	91	45 1	Rain		P UTB	r c	<b>G</b> (
ብ' ት	74	đ,	15 15	45	Pain			<b>)</b> (	с (
<b>1</b> 6	25	46	117	цл Гл				С	0
17	2				JESTO		2,062	0	0
		4 7 7		₽` ₽`	Clear		2,082	0	o c
	3 8	<b>1</b>	6#	46.5	Clear		2,083	- C	
л У	2,	£2,	50.5	2 <del>1</del> 1	Clear		0.083	- -	2 c
D L	ទះ	45	6 <del>1</del>	46.5	Clear			<b>)</b> (	0
ನ	5	<u>ې</u>	8 <sub>1</sub>	L.1				c	0
55 55	67		2 2		Jpar.o		2,085	ក	29
53	5	200			CLEAT		2,084	0	Ċ
) ( )-=	53	9 j	5°2	47	Clear		2,084	• c	<b>)</b> (
4 1	8,	35	48	52.5	Clear			<b>&gt;</b> (	<b>)</b>
25 25	8	37	hq.					0	0
26 26	Ś	28	a a	י ז / <u>י</u>	JEATA		1,935	σ	So
27	63	57			Clear		1,900	0	0
80	5 C		1 1 1		Clear		1,888	0	0
000	-14	9		24	C1oudy		1,897	11	30
2	2	τς Γ	48.5	L+	Fartly cloudy		1,889	0	0

-16-

TAELE A-9 Nimbus Salmon and Steelhead Hatchery Weather and Water Deta Report March, 1964

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<b></b>	Temperature							
	A	ir	Wat	er		American River Flow		
Date	Maximum	Minimum	Maximum	Minimum	Weather	at Hatchery (c.f.s.)	Salmon	Steelhead
ı	52	40	47	46.3	Rain	1,889	0	0
2	53	21	48.5	46.5	Clear	1,889	0	0
2	67	37	49	47	Clear	1,885	4	9
л Г	70	36	49	46	Clear	1,898	0	Ō
5	56	40	50	48	Clear	1,899	0	0
Ŕ	54	37	ĥg	47.5	Clear	1,899	2	13
7	56	35	49	47	Clear	1,895	0	Õ
Å	58	29	49	47	Clear	1.892	0	0
ğ	60	42	48.5	47	Partly Cloudy	1,899	0	0
. 10	61	36	50	47.5	Clear	1.895	4	19
11	55	41	48.5	47.5	Rain	1,904	0	Ō
12	58	30	48	47	Cloudy	1,890	0	0
13	59	<b>4</b> 4	48.5	47	Partly cloudy	1,888	0	23
14	65	36	49.5	48	Clear	1,886	0	0
-15	67	40	52.5	47.5	Clear	1,888	0	0
16	74	39	52,5	49.5	Clear	1,897	0	21
17	73	Ĩ,Õ	51	49	Clear	1,899	0	0
18	68	46	52	50	Clear	1,901	0	0
19	74	39	52	49	Clear	1,904	0	0
20	70	liź	50.5	49	Partly cloudy	1,894	0	7
21	58	42	50.5	49.5	Rain	1,801	0	0
22	<u>Ĺ</u> Ĺ	38	49	48	Rain	1,814	0	0
23	54	38	48	47.5	Rain	1,816	0	0
24	56	39	48	47	Rain	1,809	0	6
25	60	32	49.5	47.5	Clear	1,799	0	0
26	64	36	51	49	Clear	1,807	0	0
27	70	38	52	49.5	Clear	1,772	0	7
28	74	40 40	52.5	50	Clear	1,688	0	0
29	79	44	52.5	50	Clear	1,571	0	0
ΞÓ	76	45	53	51	Partly Cloudy	1,581	0	0
31	60	48	52.5	51	Rain	1,578	0	4

-17-

# TABLE A-10 Nimbus Salmon and Steelhead Hatchery Weather and Water Data Report April, 1964

	American River Flow at	
Air Water A		
Pate Maximum Minimum Maximum Minimum Weather H	latchery (c.f.s.)	
$2 \qquad 60 \qquad 25 \qquad 51 \qquad Rain$	1,478	
3 70 bo 51.5 Partly cloudy	1,479	
$\frac{42}{10}$ $\frac{42}{10}$ $\frac{53.5}{10}$ $\frac{51}{10}$ Partly cloudy	1,470	
5 57 bl $22.5$ 50.5 Partly cloudy	1,390	
50.5 Clear	1,390	
7   70   11   54   51.5   Clear   11   54   51.5   Clear   51.5	1,390	
$\frac{1}{8}$ $\frac{10}{76}$ $\frac{41}{12}$ $\frac{54}{51}$ $\frac{51}{12}$ Clear	1,390	
$\frac{10}{10}$ $\frac{42}{54}$ $\frac{51}{51}$ Clear	1.390	
9 15 43 53.5 51.5 Clear	1,336	
$\frac{10}{12}$ $\frac{74}{12}$ $\frac{42}{56.5}$ $53.5$ Clear	1,375	
$\frac{11}{10}$ $\frac{15}{10}$ $\frac{14}{10}$ $\frac{55}{52.5}$ Clear	1,293	
$\frac{12}{12}$ $\frac{80}{54}$ $\frac{36}{54}$ $\frac{54}{54}$ Clear	1,289	
43 $56.5$ $54.5$ Clear	1,296	
14 87 50 57 54 Clear	1,280	
15 90 51 57 55 Clear	1,208	
16 74 49 57.5 54.5 Clear	1 205	
$\frac{1}{10}$ 70 42 58 54.5 Clear	1 200	
$\frac{18}{70} \qquad \frac{10}{40} \qquad 57 \qquad 55.5 \qquad \text{Partly cloudy}$	1 200	
19 69 44 56.5 54.5 Partly cloudy	1,277	
20 69 46 57 55 Partly cloudy	1,080	
21 72 44 57 54.5 Clear	1,209	
$22 \qquad 70 \qquad 48 \qquad 56.5 \qquad 54 \qquad \text{Pertly cloudy}$	1,290 2,009	
23   65   40   57   55   Partly cloudy	1,295	
24 $62$ $40$ $56.5$ $54$ $Clowdre$	1,300	
25 68 $34$ 57 52 5 010000	1,302	
26 70 38 57.5 5 <sup>1</sup> 01car	1,294	
27 $62$ $48$ $58$ $58$ $57$ $710$ $74$ $01ear$	1,304	
28   78   50   57   57   55   57   55   57   55   57   55	1,301	
29  72  6  59  71  77  16  59  71  77  16  77  16  77  77  16  77  1	1,299	
30 68 hh 57 6 22 Partly cloudy	1,299	
Clear	1,306	

-18-

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TABLE A-11 Nimbus Salmon and Steelhead Hetchery Weather and Water Data Report May, 1964

	Temperature							
	Air		Water		• .	American River Flow et		
Date	Maximum	Minirum	Massimum	Minimum	Weather	Natchery (cf a)	40	
9	11	10		ور می است. می خواند یا بالک می در این می می این این این این این این این این این ای		havenety (crim.)		
T	CO	48	57	55.5	Cloudy	1.304		
2	68	42	58	55	Cloudy, lt. rain	1.292		
<u>ゴ</u>	62	46	56	55	Lt. rain	1,298		
4	69	42	57	55	Lt. rain	1,298		
2	58	44	55	55	Lt. rain	1.299		
0	68	42	56.5	54.5	Partly cloudy	1,309		
7	66	40	56.5	54.5	Clear	1,313		
8	76	40	58	55	Clear	1,303		
9	83	40	58.5	56.5	Clear	1,287		
10	83	52	59.5	56	Clear	1,354		
11	89	54	60	58	Clear	1,300		
12	89	48	57	54.5	Clear	1,280		
13	79	46	57	54.5	Clear	1,280		
14	80	46	60.5	57.5	Clear	1,263	j.	
15	78 05	48	60	57.5	Clear	1.270	ĩ	
10	81	50	58.5	56.5	Rain	1.261		
14	78 01	50	62	58	Clear	1.266		
10	04	51	59.5	56.5	Partly cloudy	1,263		
19	OT CT	52	59	56	Clear	1.270		
20	00	48	61	56.5	Clear	1.268		
21	0)	52	60.5	57.5	Clear	1,266		
<i>22</i>	00	50	60	57	Clear	1,249		
23	82	50	62	58	Clear	1,250		
24	02	52	62	58	Clear	1,249		
27	(0	48	60	56.5	Clear	1,250		
20	04	48	60	57	Rain	1.250		
21	C3 70	48	60	58	Rain	1,251		
20	78	48	60	56.5	Clear	No report		
29	84 0a	48	60	57	Clear	1,250		
UC	63	48	60	58	Clear	1,245		
2T	89	53	59.5	58	Clear	1,245		
			<u> </u>			• •		

# TABLE A-12 Nimbus Salmon and Steelbead Hatchery Weather and Water Data Report Jule, 1964

	Temperature					******	
	Air		Water			American River Flow at	
Date	Maximum	Minizum	Maximum	Minimua	Weather	Hatchery (c.f.s.)	
_	0-	_1		_			
1	89	54	61	58	Clear	1,381	
2	62	51	61	58.5	Partly cloudy	1,492	
3	89	52	61	58.5	Clear	1,495	
4	63	60	61	58	C3.oudy	1,490	
5	80	60	59	58	Cloudy	1,502	
6	86	55	61.5	57.5	Partly cloudy	No report	
7	60	54	61.5	5?	Partly cloudy	1.501	
8	60	52	59	57	Fartly cloudy	1.499	
. 9	64	52	59	57	Rain	1,496	
10	64	54	58	56.5	Rain	1,482	
1.1	83	50	59	56	Partly cloudy	2,479	
12	90	56	60	57.5	Clear	1,478	
13	95	58	60.5	58	Clear	1.183	
14	94	Éo	61	58.5	Clear	1.485	
15	78	61	61	58	Rain	1,500	
3.6	63	42	61	58	Rain	1,498	
17	84	50	61	57	Partly cloudy	1,500	
13	82	50	60.5	57	Clear	1,500	
19	88	52	62	53	Clear	1,500	
20	86	51	61	59	Clear	1,995	
21	92	54	64	60	Clear	1,993	
22	98	60	61	59	Clear	1,939	
23	104	64	61	59	Clear	1,995	
24	105	62	61	59	Clear	2,008	
25	102	62	60.5	50	Clear	2,304	
26	88	62	61.5	58	Clear	2 823	
27	89	52	62	58	Clear	2 087	
23	88	5 <u>µ</u>	63	58	Partly aloudy	2 926	
29	82	52	60.5	58	Clean	3 003	
30	<u>0</u>	51	61	57.5	Clear	3 200	
	<i>7</i> <b>-</b>		₩¥ ₩	<i>J</i> • <i>J</i>	ATCGI	5,200	

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Number of fish entering holding pond

-21-