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Department of Fish and Game

File  
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ANNUAL REPORT  
NIMBUS SALMON AND STEELHEAD HATCHERY  
FISCAL YEAR OF 1961-62<sup>1/</sup>

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SUMMARY

The first king salmon, Oncorhynchus tshawytscha, arrived at Nimbus September 7, 1961, and the last on April 16, 1962. The peak of the run occurred during November 19 to November 26. The total run was 15,364.

Water temperatures at the hatchery were above 56 degrees until November 18. Some kings were transported to the colder water of the Bear River Fish Planting Base in Nevada County during this time for ripening. A total of 5,132,500 eggs was taken there.

In all, 8,113 female kings were spawned during 1961-62, producing 45,744,800 eggs.

During December, 1961, and January, 1962, 7,656,100 eggs that could not be accommodated at Nimbus were transported to the San Joaquin Hatchery for eyeing, and 9,459,620 were buried in the gravel of the American, Mokelumne, ~~Consumnes~~ and Russian rivers. The State of Oregon was shipped 1,640,000 eyed eggs.

Of 52,627 marked king yearlings of the 1957 brood year, 25 males and 40 females returned to the hatchery during 1961-62, a total of 464 fish of this group to return.

Of 59,070 marked Nimbus kings of the 1959 brood year, 7 small males returned during 1961-62. None of 51,590 marked Coleman kings of the 1959 brood year returned this season.

From August 1961, through January 1962, the remaining 174,618 kings of the 1960 brood year were planted.

From January through June 1962, 18,422,559 king fingerlings of the 1961 brood year were released.

A total of 87 adult silver salmon, Oncorhynchus kisutch, entered the holding ponds; 11 females produced 33,550 eggs.

During October 1961, 20,862 yearling silvers of the 1960 brood year were planted.

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<sup>1/</sup> Submitted March, 1963

From January 5, 1962, to April 16, 1962, 137 steelhead, Salmo gairdnerii gairdnerii, entered the holding pond. A total of 36 females produced 145,000 eggs.

Due to high water, the racks were removed February 12, 1962, and replaced February 27, 1962.

A total of 446,111 Eel River steelhead eggs was received from Cedar Creek Hatchery.

Of 100,992 marked steelhead of the 1960 brood year, 3 males and 2 females returned in 1962.

During December, the remaining 166,000 yearling steelhead of the 1961 brood year were planted.

In June 1962, 5,372 Nimbus steelhead fingerlings of the 1962 brood year were planted, leaving 59,148 Nimbus steelhead and 200,000 Eel River steelhead on hand at the end of the report period.



## INTRODUCTION

This is the seventh Annual Report of the Nimbus Salmon and Steelhead Hatchery, Sacramento County, operated by the California Department of Fish and Game under contract with the U. S. Bureau of Reclamation. The report summarizes the numbers of fish trapped and spawned, production of eggs and fish, and conditions of water quality and temperature from July 1, 1961, through June 30, 1962.

### KING SALMON MAINTENANCE PROGRAM

#### History of the 1961 Salmon Run

A contractor leveled the river bed at the weir site September 3, 1961. We began operating the weir September 5, and the first kings entered the holding pond September 7.

A total of 15,364 kings reached the weir, and 14,341 entered the holding ponds, 871, escaped upstream through the weir, and 152 were allowed to go through the weir to utilize the spawning gravel between the weir and Nimbus Dam. The fish that went above the weir were removed from the racks as they died and drifted downstream.

The run entering the holding ponds was composed of 3,446 large males, 9,257 females, and 1,638 grilse. Slightly over 35 percent were males, including grilse, and almost 65 percent were females. The run extended from September 1961, to April 1962, with 171 kings in September, 542 during October, 8,540 during November, 4,281 in December, 691 in January, 106 in February, 1 in March, and 9 in April. The last king entered the holding pond April 16.

Of 152 salmon that were allowed to go through the rack upstream, 52 were males and 100 females. Of 871 salmon recovered from the rack, 103 were males, 80 females, and 688 grilse. The total run of 15,345 king salmon consisted of 38.5 percent males and 61.5 percent females.

The Bear River Fish Planting Base was used to hold adult salmon and incubate eggs during the Nimbus warmwater period. From September 15 to November 22, 190 male and 1,229 female kings were transported to Bear River. Of these, 863 females produced 5,132,500 eggs. The first king eggs were taken at the base October 23, 1961.

Of 9,257 females that entered the holding ponds at Nimbus, 8,113 or 78 percent were spawned (including fish spawned at Bear River) producing 45,744,800 eggs, an average of 5,638 female. The last eggs were taken at Nimbus April 16, 1962.

Water temperatures at Nimbus were above 56 degrees until November 18, 1961. Eighteen percent of the females were spawned before this date. A total of 3,844,300 eggs taken at Nimbus during the warmwater period was transported to San Joaquin Hatchery.

The incubating capacity of the hatchery was exceeded in December 1961, and again in January 1962. During these two months, 7,656,100 green eggs were



transported to San Joaquin Hatchery and returned to Nimbus when eyed. In addition, 2,625,220 eggs were buried in the gravel of the American River, 4,727,200 eggs in the Mokelumne River, 1,588,800 eggs in the Consumnes River, and 518,400 eggs in the Russian River. The State of Oregon was shipped 1,640,000 eyed eggs.

#### 1957 Brood Year Marked King Salmon

During the winter of 1958 and 1959, 52,627 yearlings of the 1957 brood year were marked by removing both ventral fins. These fish, at planting, averaged 8.5 fish per pound and were from late-running, upper Sacramento River parentage. During the 1961 run, 25 males and 40 females returned. Two were removed from the rack, a male on September 26, 1961, and a female March 4, 1962. Of the fish that entered the ponds, the first arrived November 16, 1961, and the last February 26, 1962. These fish retained their late-running characteristics. Average length of the returned two-year-olds was 53 centimeters. The returned three-year-olds averaged 77 centimeters and the returned four-year-olds 91. The total return of this group is now 264 males and 200 females, 0.88 percent of those planted.

#### 1959 Brood Year Marked King Salmon

In August 1960, 59,070 Nimbus late-running kings averaging 3.3 per ounce, were marked by removing their right ventral fin. Also, in August 1960, 51,590 Coleman late-running kings were marked by removing their left ventral fin. These averaged 5.5 per ounce. Both were planted in August 1960. During the 1961 run, 7 males, averaging 47 centimeters, of the Nimbus fish returned to Nimbus. None of the Coleman late-running salmon returned.

#### Planting 1960 Brood Year King Salmon

Before July 1, 1961, 14,893,823 king fingerlings were released. From August 1961, through January 1962, the remaining 174,618 fish of the 1960 brood year were planted.

#### Planting 1961 Brood Year King Salmon

From January through June 1962, 18,422,559 king fingerlings were planted in the American River. On June 30, 1962, there were 672,615 fingerlings on hand.

#### SILVER SALMON

A total of 87 adult silver salmon entered the holding ponds. Of these, 62 were males and 25 females. All were transported to Bear River Base where 11 females produced 33,550 eggs. Due to crowded incubating facilities and the fact that never more than two females were spawned on the same day, the eggs were placed in baskets containing king salmon eggs and their identity was lost.

### Planting 1960 Brood Year Silver Salmon

On July 1, 1961, there were 25,750 silver salmon of the 1960 brood year on hand. During October 1961, 20,862 yearling silvers averaging 7.3 fish per pound were planted in the American River.

### STEELHEAD MAINTENANCE PROGRAM

#### History of the 1961-62 Steelhead Run

We began operating the steelhead holding pond January 5, 1962. A few steelhead had been taken earlier with the kings. The early fish were returned to the river as they would not mature for several months. During January, 11 males and 3 females entered the pond; during February, 49 males and 23 females; during March, 15 males and 18 females; and during April, 11 males and 7 females. The last steelhead was taken April 16.

A total of 36 females was spawned and 145,000 eggs taken between January and April, an average of 4,028 per female.

It was necessary to remove the weir on February 12 due to anticipated water releases of 10,000 c.f.s. from Nimbus Dam. The weir was replaced February 27. Removing the weir contributed to the small take of steelhead. In order to maintain the run, 446,111 steelhead eggs were imported from the Eel River in April 1962.

#### Returns of 1960 Brood Year Steelhead

Of 100,992 1960 brood year Nimbus steelhead marked by removing their adipose and left ventral fins, 3 males and 2 females returned in 1962. They averaged 42 centimeters long.

#### Planting 1961 Brood Year Steelhead

Before July 1, 1961, 14,472 Nimbus fingerlings were released. During the month of December 1962, the remaining 124,278 fish were planted. These averaged 8 per pound.

#### Planting 1962 Brood Year Steelhead

The only planting of 1962 brood year steelhead was 5,372 Nimbus fingerlings in June 1962. On June 30, 1962, there were 59,148 Nimbus steelhead and 200,000 Eel River steelhead on hand.

### DISEASE HISTORY

Both bacterial and protozoan infections were infrequent and light during the 1961-62 fiscal year. We attributed this to using bi-weekly malachite flushes. Two infections of columnaris late in August and early September were controlled by using sulpha-methazine mixed with fish food.

### CONSTRUCTION PROJECTS

In April 1962, the U. S. Bureau of Reclamation completed modifying the penstock openings on Folsom Dam by installing shutters to store colder water for use during the salmon spawning season.

A contract for fencing and paving the parking area and walkways was awarded June 29, 1962.

### PUBLIC RELATIONS

During the period of this report, an estimated 63,950 persons visited the hatchery, 41,500 persons during the salmon season, October, November, and December. Included in the total were 2,134 people in 71 organized groups conducted through the installation by hatchery personnel.

### REFERENCES

Hinze, James A.

1962. Annual report Nimbus salmon and steelhead hatchery fiscal year of 1960-61. Calif. Dept. Fish and Game, Inland Fisheries Adm. Rpt. No. 62-6, 21 pp. (Mimeo.)

U. S. Dept. of Interior

1961. Folsom outlet modifications for Nimbus fish facilities schedule, general provisions, specifications and drawings. Bur. of Recl. Specs. No. DC-5622.

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APPENDIX

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#### APPENDIX

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

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



TABLE A-1  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
July, 1961

Date	Temperature				Weather	American River Flow at Hatchery (c.f.s.)
	Air		Water			
	Maximum	Minimum	Maximum	Minimum		
1	108	65	57	55.5	Clear	3,303
2	108	69	57	55.5	Partly Cloudy	3,282
3	90	66	57	55.5	Clear	3,218
4	78	56	56	55	Partly Cloudy	3,090
5	82	53	57	54.5	Clear	3,064
6	78	54	57	54.5	Clear	3,081
7	96	61	57.5	55	Clear	3,103
8	100	62	57.5	56	Clear	3,532
9	106	60	60	56	Clear	3,533
10	110	58	57	56	Clear	3,537
11	112	70	57.5	56	Clear	3,543
12	102	70	57.5	56	Clear	3,565
13	100	64	57.5	55	Clear	4,054
14	100	62	57	55.5	Clear	4,063
15	101	60	58	55.5	Clear	4,268
16	104	64	56.5	55.5	Clear	4,251
17	108	66	57	56	Clear	4,272
18	109	70	57.5	56	Clear	4,250
19	107	72	57	56	Clear	4,276
20	104	66	58	56	Clear	4,519
21	102	62	57	55.5	Clear	4,521
22	96	68	56	56.5	Clear	4,537
23	97	60	57	57	Clear	4,500
24	99	62	59	57	Clear	4,497
25	98	64	58.5	57	Clear	4,444
26	97	60	58	56.5	Clear	3,984
27	100	60	58.5	57	Clear	4,019
28	103	62	59	58	Clear	3,996
29	94	62	58.5	57.5	Clear	3,813
30	85	54	58	57	Clear-Overcast a.m.	3,775
31	90	54	60.5	59	Clear-Overcast a.m.	3,765

Water temperature recorded on thermograph at head of nursery ponds. Air temperatures from maximum-minimum thermometer on northeast corner of processing building. River flow data furnished by Bureau of Reclamation. All temperatures are in degrees Fahrenheit.

TABLE A-2  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
August, 1961

Date	Temperature				Weather	American River Flow at Hatchery (c.f.s.)
	Air		Water			
	Maximum	Minimum	Maximum	Minimum		
1	94	56	61.5	59	Clear	3,773
2	100	62	61	59	Clear	3,791
3	104	60	61	59	Clear	3,788
4	105	70	60	59	Clear	3,780
5	106	60	61.5	59.5	Clear	3,753
6	102	80	62.5	59	Clear	3,811
7	102	70	62	60	Partly Cloudy	3,820
8	100	70	62	60	Clear	3,781
9	107	71	62	60	Clear	3,755
10	89	62	61	59.5	Cloudy	3,750
11	92	68	61.5	59	Rain a.m. Partly Cloudy	3,746
12	96	65	61	60	Clear	3,735
13	84	58	61	59.5	Clear	3,777
14	86	56	61.5	60.5	Clear	3,767
15	87	58	62.5	61	Clear	3,681
16	88	60	62	61	Clear	2,837
17	95	62	62.5	61	Clear	2,820
18	96	56	64	61	Clear	2,830
19	100	66	65.5	63	Partly Cloudy	2,822
20	102	68	64	62.5	Clear	2,810
21	97	66	65	63	Clear	2,824
22	92	60	65	63	Clear	2,815
23	94	62	65.5	63	Clear	2,837
24	94	62	65	62	Clear	2,820
25	88	62	65.5	63	Clear	2,825
26	88	62	66	64	P. Cloudy-Light Showers	2,834
27	88	62	66	64	Partly Cloudy	2,846
28	91	62	67	65.5	Partly Cloudy	2,823
29	92	60	67.5	65	Clear	2,496
30	93	60	68	65.5	Clear	2,500
31	92	60	68	65.5	Partly Cloudy	2,470

TABLE A-3  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
September, 1961

Date	Temperature				Weather	American River Flow at Hatchery (c.f.s.)	Salmon
	Air		Water				
	Maximum	Minimum	Maximum	Minimum			
1	92	64	69	66.5	Clear	1,992	0
2	91	62	69.5	66.5	North Wind	1,532	0
3	94	67	68.5	67	Clear	1,098	0
4	97	58	69	68	Clear	1,516	0
5	98	60	69.5	67.5	Clear	1,487	0
6	98	60	69	67.5	Clear	1,023	0
7	81	54	69	66	Clear	1,055	0
8	78	52	69.5	67	Clear	1,044	0
9	90	60	69.5	67	Clear	1,022	0
10	92	58	70	67.5	Clear	1,022	0
11	92	58	70.5	68.5	Clear	1,030	0
12	90	57	71	68.5	Clear	1,014	0
13	85	54	68	67	Clear	1,009	0
14	75	55	70	67	Clear	1,007	0
15	75	52	69.5	67	Clear	1,006	22
16	80	52	68.5	67.5	Rain	1,007	0
17	82	58	69	67	Partly Cloudy	1,030	0
18	80	50	69.5	67	Clear	1,022	0
19	85	52	70.5	68	Clear	998	45
20	78	56	69	68	Clear	1,005	0
21	72	54	69	67	Cloudy	1,005	0
22	76	53	69	67	Clear	1,005	24
23	79	54	69.5	66.5	Clear	1,008	0
24	84	52	69	67	Clear	1,000	0
25	88	54	70.5	68.5	Clear	1,000	39
26	90	54	71	68.5	Clear	997	0
27	93	56	71	69	Clear	1,000	23
28	82	62	70	68	Clear	998	0
29	81	60	71	67.5	Clear	1,001	18
30	84	49	70	68	Clear	998	0

Weir installed September 5, 1961  
First Salmon taken September 15, 1961

TABLE A-4  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
October, 1961

Date	Temperature				Weather	American River Flow at Hatchery (c.f.s.)	Salmon
	Air		Water				
	Maximum	Minimum	Maximum	Minimum			
1	87	52	70	67	Clear	705	0
2	79	54	70	68	Clear	620	69
3	88	54	70	68	Partly Cloudy	621	37
4	70	54	70	68	Clear	619	0
5	82	54	70	67.5	Partly Cloudy	616	0
6	78	52	69	67	Clear	613	16
7	66	48	68	66.5	Clear - North Wind	614	0
8	68	52	66.5	65.5	Clear - North Wind	622	0
9	72	42	65	64.5	Clear	625	41
10	69	45	65	64	Partly Cloudy	628	0
11	73	52	65	63.5	Light Rain	624	39
12	78	53	66.5	63	Clear	624	0
13	84	56	67	64	Clear	623	13
14	90	58	68	65.5	Clear	623	0
15	93	56	68	66	Clear	632	0
16	93	58	68.5	67	Clear	635	20
17	90	58	69	67	Clear	628	0
18	87	56	68.5	66	Clear	615	0
19	79	51	66	65	Partly Cloudy	616	19
20	58	53	65	64.5	Rain	618	0
21	62	40	65.5	64	Partly Cloudy	616	0
22	66	38	65	63	Clear	626	0
23	68	38	65	59	Clear	616	38
24	69	41	65	63	Clear	577	0
25	70	48	64	62.5	Partly Cloudy	560	20
26	70	53	63	62	Light Rain	562	21
27	66	50	63	62	Light Rain	571	25
28	63	40	62.5	61	Clear - North Wind	573	0
29	65	46	61	60	Clear - North Wind	578	111
30	70	48	61.5	58.5	Clear - North Wind	583	73
31	67	40	61	59	Clear	575	0



TABLE A-5  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
November, 1961

Date	Temperature				Weather	American River		Salmon
	Air		Water			Flow at Hatchery		
	Maximum	Minimum	Maximum	Water		(c.f.s.)		
1	63	44	59.5	58.5	Partly Cloudy	524	60	
2	62	43	59.5	58	Clear	501	168	
3	63	40	59.5	58	Partly Cloudy	514	21	
4	70	40	61	58.5	Clear	493	0	
5	73	39	61	58.5	Clear	498	141	
6	70	45	60.5	58.5	Clear	507	101	
7	70	38	60	58.5	Clear	504	71	
8	71	40	60.5	58.5	Clear	498	190	
9	70	30	60	58	Clear	497	170	
10	64	42	59	58	Clear	500	221	
11	65	42	59.5	58	Clear	498	240	
12	70	43	58	57.5	Clear - North Wind	501	265	
13	68	40	58.5	57	Clear	501	254	
14	67	40	58.5	57	Clear	505	387	
15	60	40	58	56	Clear	505	348	
16	59	40	56.5	55.5	Clear	493	581	
17	58	30	56	55	Clear	No Report	402	
18	58	41	55.5	54.5	Partly Cloudy	No Report	427	
19	50	36	54.5	55	Cloudy - Light Rain			
					p.m.	514	437	
20	58	40	54	53	Rain	500	431	
21	52	34	54.5	53.5	Clear	510	484	
22	56	40	53.5	53	Light Rain	513	698	
23	61	46	54	53	Partly Cloudy	486	719	
24	62	46	54.5	53.5	Cloudy	No Report	503	
25	59	47	54	53.5	Rain	No Report	322	
26	58	49	53.5	53.5	Light Rain	512	237	
27	60	40	55	53.5	Clear	515	242	
28	52	36	54.5	54	Fog	511	108	
29	56	44	54	53.5	Rain	515	167	
30	54	50	53.5	53.5	Rain	512	145	

TABLE A-6  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
December, 1961

Date	Temperature				Weather	American River	Salmon
	Air		Water			Flow at Hatchery	
	Maximum	Minimum	Maximum	Minimum		(c.f.s.)	
1	54	52	53.5	54	Rain	No Report	230
2	56	48	53.5	53	Rain	No Report	274
3	56	39	54	53	Clear	508	0
4	54	40	52.5	52	Clear	502	479
5	50	42	52	52	Fog	504	298
6	53	45	52	51.5	Fog a.m. - Clear p.m.	499	207
7	52	34	52	51	Fog a.m. - Clear p.m.	509	280
8	48	36	52	51	Fog a.m. - Clear p.m.	No Report	207
9	48	30	51	50.5	Clear	510	291
10	50	32	51.5	50	Clear	No Report	142
11	46	25	50	49.5	Partly Cloudy	519	290
12	47	30	50.5	40.5	Clear	509	83
13	44	30	49.5	48.5	Cloudy	509	144
14	51	31	49.5	48.5	Partly Cloudy	509	72
15	49	26	49	48.5	Cloudy	No Report	97
16	49	28	48.5	48	Light Rain	No Report	78
17	49	39	48	48	Light Rain	507	0
18	49	39	49	49	Rain	507	163
19	57	42	50	49	Rain	509	0
20	62	42	50	49.5	Partly Cloudy	508	241
21	58	45	51.5	49.5	Cloudy	508	0
22	56	41	51.5	50	Clear	508	237
23	54	38	51.5	50	Clear	504	0
24	48	40	50	50	Fog	504	219
25	46	40	50.5	50	Cloudy	506	0
26	47	41	50	50	Cloudy	507	129
27	45	38	50	49.5	Fog	504	0
28	43	37	49.5	49.5	Cloudy - Fog	512	73
29	42	39	49.5	49.5	Cloudy - Fog	505	0
30	41	38	49	49	Cloudy - Fog	No Report	47
31	40	36	48.5	48.5	Fog	No Report	

TABLE A-7  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
January, 1962

Date	Temperature				Weather	American River		
	Air		Water			Flow at Hatchery (c.f.s.)	Salmon	Steelhead
	Maximum	Minimum	Maximum	Minimum				
1	44	38	49	49	Fog	No Report	0	0
2	42	38	49	48	Fog	509	48	0
3	42	38	48	47.5	Fog	325	0	0
4	50	37	48	47	Clear	317	0	0
5	48	33	48	47	Fog - Clear p.m.	No Report	77	1
6	47	34	47.5	47	Fog - Clear p.m.	No Report	0	0
7	45	37	47	47	Fog	305	0	0
8	58	36	48	46.5	Fog - Clear p.m.	306	73	0
9	43	32	47.5	46.5	Fog - Clear p.m.	306	0	0
10	61	33	49	46.5	Clear	305	49	0
11	58	35	48.5	47	Clear	304	0	0
12	44	38	47	47	Light Rain	No Report	47	2
13	47	36	48	47	Fog - Clear p.m.	No Report	0	0
14	44	25	46.5	46	Clear	306	0	0
15	48	26	47	46	Clear	306	73	3
16	49	28	47	46	Clear	305	0	0
17	50	26	46.5	46	Clear	300	44	1
18	46	36	46	46	Light Rain	302	0	0
19	46	44	46.5	46	Light Rain	No Report	44	1
20	48	30	46.5	45.5	Partly Cloudy	302	0	0
21	28	24	45.5	44.5	Snow 2 inches	No Report	0	0
22	44	24	45	44	Clear	298	93	4
23	45	29	44.5	43.5	Clear	301	0	0
24	42	25	44	43.5	Clear	301	30	2
25	48	27	44	43	Clear	298	0	0
26	54	29	44.5	43	Partly Cloudy	No Report	25	1
27	59	30	45.5	44	Clear	No Report	0	0
28	58	35	45.5	44.5	Partly Cloudy	301	0	0
29	62	34	47	45.5	Partly Cloudy	302	58	2
30	63	35	47.5	45	Clear	303	0	0
31	60	35	48	45.5	Clear	301	30	0

First steelhead held for spawning January 5, 1962.

TABLE A-8  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
February, 1962

Date	Temperature				Weather	American River Flow at Hatchery (c.f.s.)	Salmon	Steelhead
	Air		Water					
	Maximum	Minimum	Maximum	Minimum				
1	55	35	46.5	45	Fog	353	0	0
2	58	34	47.5	45.5	Fog	407	15	5
3	51	34	47	46	Fog	No Report	0	0
4	49	37	46.5	45.5	Fog	No Report	0	0
5	48	37	47	45.5	Fog	407	24	0
6	50	42	47.5	46.5	Rain	412	0	0
7	51	44	48	47	Rain	415	14	12
8	60	40	48	47	Rain	405	0	0
9	59	52	49	48	Rain	No Report	23	21
10	53	52	49.5	48.5	Rain	No Report	0	0
11	56	48	50	47	Rain	4,922	0	0
12	56	45	48	47	Rain	5,083	0	0
13	50	48	48	47	Rain	5,257	26	6
14	56	49	48.5	47	Rain	5,197	0	0
15	58	50	47.5	46.5	Rain	5,510	0	0
16	56	44	47.5	47	Rain	No Report	2	17
17	58	40	48	47	Rain	No Report	0	0
18	52	44	47	47	Rain	7,517	0	0
19	52	42	48.5	47.5	Partly Cloudy	7,510	0	0
20	56	42	48	47	Partly Cloudy	7,522	0	8
21	56	35	49	47	Partly Cloudy	No Report	0	0
22	58	36	48	47	Partly Cloudy	7,633	0	0
23	56	42	48	47	Partly Cloudy	No Report	0	0
24	55	35	47.5	47	Partly Cloudy	No Report	0	0
25	48	32	47	46.5	Partly Cloudy	7,548	0	0
26	43	28	47.5	46.5	Clear	No Report	0	0
27	49	24	47	46	Clear	5,028	2	14
28	52	34	47	46	Cloudy	5,031	0	0

Racks were removed February 12 due to expected water releases.

Racks were replaced February 27.



TABLE A-9  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
March, 1962

Date	Temperature				Weather	American River	Salmon	Steelhead
	Air		Water			Flow at Hatchery		
	Maximum	Minimum	Maximum	Minimum		(c.f.s.)		
1	52	40	46.5	46	Rain	5,060	0	0
2	57	38	47.5	46.5	Showers	No Report	0	6
3	58	46	47.5	46.5	Partly Cloudy	No Report	0	0
4	62	47	47.5	46.5	Partly Cloudy	7,422	0	0
5	60	50	48	47	Rain	7,584	0	0
6	57	47	48	47	Rain	7,502	0	7
7	58	46	49	46.5	Partly Cloudy	7,462	0	0
8	58	34	48	47	Partly Cloudy	7,508	0	0
9	56	40	48.5	47	Clear	No Report	0	0
10	54	34	48	47	Partly Cloudy	No Report	0	0
11	57	38	48	47	Partly Cloudy	7,506	0	4
12	58	34	49	47.5	Clear	7,501	0	0
13	60	32	50.5	47	Clear	7,498	1	0
14	63	38	49	47.5	Partly Cloudy	7,520	0	0
15	62	41	48.5	48	Partly Cloudy	7,236	0	0
16	62	44	49	48	Light Rain a.m. - Partly Cloudy	No Report	0	0
17	64	40	49.5	48.5	Partly Cloudy	No Report	0	0
18	65	45	51.5	48	Clear	7,260	0	0
19	62	40	50	49.5	Clear	7,306	0	2
20	56	47	49	48	Light Showers	7,200	0	0
21	62	44	49	47.5	Clear	7,222	0	0
22	54	46	49	48	Rain	7,301	0	0
23	58	37	50	48	Clear	7,343	0	0
24	64	38	50	49	Clear	6,311	0	0
25	68	40	51	49.5	Clear	6,169	0	0
26	70	40	52.5	50.5	Clear	5,577	0	3
27	76	42	53	51	Clear	5,230	0	0
28	74	43	52.5	50	Clear	5,080	0	0
29	66	46	52	50	Clear	5,041	0	0
30	68	43	52.5	50	Clear	No Report	0	0
31	72	42	52.5	50.5	Partly Cloudy	No Report	0	0

TABLE A-10  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
April, 1962

Date	Temperature				Weather	American River Flow at Hatchery (c.f.s.)	Salmon	Steelhead
	Air		Water					
	Maximum	Minimum	Maximum	Minimum				
1	72	46	52.5	51.5	Clear	5,051	0	0
2	72	42	53	51.5	Partly Cloudy	5,030	2	6
3	74	44	53	51.5	Partly Cloudy	5,048	0	0
4	75	46	53.5	50	Clear	5,028	0	0
5	80	48	54.5	51.5	Clear	5,049	0	0
6	83	41	54	51.5	Clear	No Report	0	0
7	83	41	56	52	Clear	No Report	0	0
8	83	42	53.5	52	Clear	4,940	0	0
9	77	48	54	52.5	Clear	4,904	6	5
10	80	46	54.5	51.5	Clear	5,057	0	0
11	82	48	53.5	52	Clear	5,090	0	0
12	88	50	54	52	Clear	6,328	0	0
13	90	52	54.5	52	Partly Cloudy	No Report	0	0
14	80	62	54	52.5	Clear	No Report	0	0
15	78	51	52.5	51.5	Clear	5,893	0	0
16	80	58	53.5	53	Clear	5,961	1	2
17	82	49	54	52.5	Clear	5,939	0	0
18	84	50	53	52	Partly Cloudy	5,965	0	0
19	58	49	51.5	50	Rain	5,900	0	0
20	68	40	54.5	49.5	Clear	No Report	0	0
21	79	43	54	52.5	Clear	No Report	0	0
22	86	49	54	52	Clear	5,842	0	0
23	61	51	54	53	Partly Cloudy	5,960	0	0
24	66	50	52	51.5	Clear	5,997	0	0
25	70	44	55	51.5	Clear	6,022	0	0
26	73	48	54.5	52	Clear	5,993	0	0
27	52	50	53	51.5	Light Rain	No Report	0	0
28	57	42	53	51	Partly Cloudy	No Report	0	0
29	70	41	55	52	Clear	6,083	0	0
30	82	42	56	54	Clear	5,960	0	0

Last salmon and last steelhead spawned April 16, 1962.

Racks removed April 27, 1962.

TABLE A-11  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
May, 1962

Date	Temperature				Weather	American River Flow at Hatchery (c.f.s.)
	Air		Water			
	Maximum	Minimum	Maximum	Minimum		
1	81	49	55.5	54	Clear	5,056
2	83	50	55.5	54	Clear	4,889
3	89	52	55.5	54.5	Clear	4,397
4	84	58	56.5	54.5	Clear	4,416
5	90	52	57	55	Partly Cloudy	3,910
6	90	52	56.5	55	Partly Cloudy	3,995
7	91	54	56.5	55.5	Clear	4,089
8	78	52	56	54.5	Partly Cloudy	4,194
9	75	48	55	52.5	Clear	3,465
10	74	50	55.5	58	Clear	3,481
11	74	50	55.5	54.5	Partly Cloudy	3,478
12	72	50	55	53.5	Partly Cloudy	3,473
13	71	52	54.5	52.5	Partly Cloudy	3,543
14	68	50	54	53.5	Cloudy	3,480
15	76	50	54.5	53	Partly Cloudy	2,921
16	78	49	56	53	Light Rain	2,504
17	78	52	56	55	Partly Cloudy	2,528
18	76	50	56.5	55	Partly Cloudy	2,483
19	73	46	57	54.5	Partly Cloudy	2,005
20	72	52	58	55.5	Partly Cloudy	2,002
21	80	46	58.5	56.5	Clear	2,004
22	78	52	58.5	56	Clear	2,001
23	70	48	52.5	55.5	Partly Cloudy	2,002
24	76	52	58.5	55.5	Partly Cloudy	2,000
25	76	47	58	55	Clear	2,005
26	65	50	59	56.5	Rain	2,004
27	80	50	58.5	56.5	Partly Cloudy	1,973
28	74	50	59	58	Partly Cloudy	1,968
29	83	50	60	58	Clear	1,965
30	82	50	60	58	Clear	1,951
31	88	52	60.5	58.5	Clear	1,977

TABLE A-12  
Nimbus Salmon and Steelhead Hatchery  
Weather and Water Data Report  
June, 1962

Date	Temperature				Weather	American River Flow at Hatchery (c.f.s.)
	Air		Water			
	Maximum	Minimum	Maximum	Minimum		
1	92	57	61	59	Clear	1,982
2	91	52	60	59	Clear	1,983
3	80	56	61.5	58	Clear	2,075
4	82	50	61	59	Clear	2,021
5	86	50	61.5	57	Clear	2,012
6	87	52	61	59	Clear	2,008
7	98	58	61	59	Clear	2,018
8	95	60	60	58.5	Clear	1,998
9	90	60	59	58.5	Clear	1,994
10	84	55	62	57.5	Clear	1,987
11	87	52	61	59	Clear	1,989
12	86	52	60.5	58	Clear	1,983
13	76	52	59.5	57.5	Clear	1,979
14	77	50	61	59	Cloudy	1,989
15	80	52	61.5	57	Partly Cloudy - Light Rain	2,002
16	84	61	61	57.5	Clear	2,000
17	94	62	61	58.5	Clear	1,983
18	101	63	60	59.5	Clear	2,000
19	104	64	59.5	57.5	Clear	2,019
20	105	66	59.5	57.5	Clear	1,999
21	102	66	59	57.5	Clear	1,995
22	98	65	59	57.5	Clear	2,001
23	88	55	60.5	57	Clear	2,006
24	94	55	60.5	57.5	Clear	2,017
25	91	57	60	58	Clear	2,023
26	90	58	61	58	Clear	2,023
27	92	58	61	58	Clear	2,012
28	91	60	59.5	57	Clear	1,996
29	83	58	61.5	56.5	Clear	1,994
30	87	52	60	58	Clear	2,030



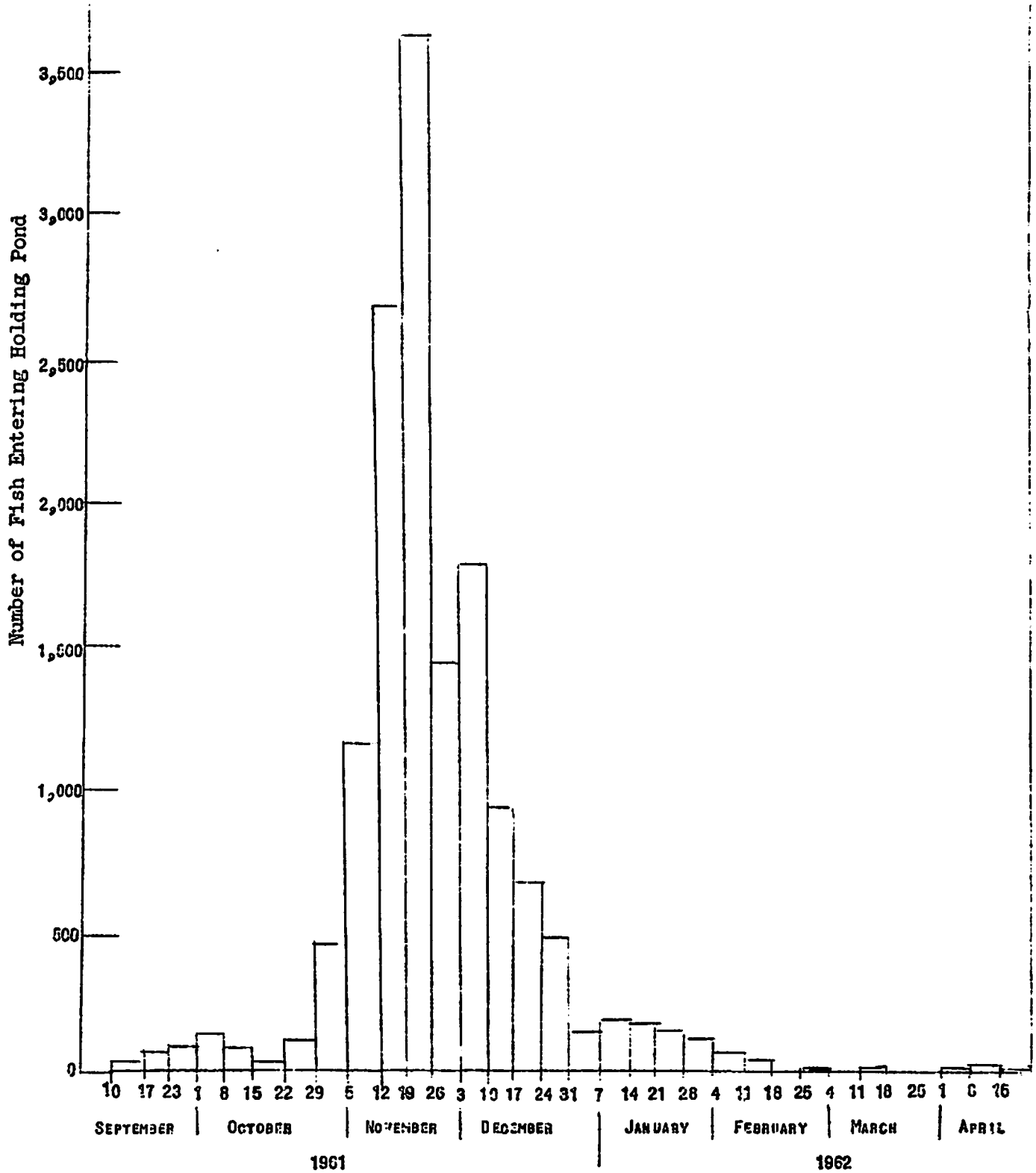


FIGURE A-1. Nimbus Salmon and Steelhead Hatchery fall-run king salmon, 1961-62.