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ANNUAL REPORT
FEATHER RIVER HATCHERY, 1990-91

by

Donald L. Schlichting
Region 2, Inland Fisheries

Inland Fisheries
Administrative Report No. 93-5

1993

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ABSTRACT

This report summarizes the operation of Feather River Hatchery and its annex from July 1990 through June 30, 1991. Tables present water temperatures, numbers of chinook salmon, Oncorhynchus tshawytscha, and steelhead rainbow trout, O. mykiss, entering the Hatchery, number of eggs taken and received, and numbers of fish released.

We trapped 8,019 chinook salmon and 1,025 steelhead and planted or transferred 12,129,686 chinook fingerlings, 100,000 steelhead fingerlings, and 424,820 steelhead yearlings.

^{1/} Inland Fisheries Administrative Report No. 93-5.
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Department of Fish and Game, 1416 Ninth Street, Sacramento,
CA 95814

INTRODUCTION

This report describes activities at the Feather River Hatchery and its annex during its 24th year of operation July 1, 1990 through June 30, 1991. The Hatchery is located near the upper Thermalito Bridge in Oroville, Butte County. It was constructed by the California Department of Water Resources as part of the California Water Project to compensate for the loss of spawning area above the Oroville Dam. It is operated by the Department of Fish and Game with funds provided by the Department of Water Resources. The Hatchery annex is located along Highway 99, 1 mile south of Oro Dam Boulevard West. Operating expenses for the annex are shared by the Department of Fish and Game (5/6) and Department of Water Resources (1/6).

PRODUCTION SUMMARY

Personnel from Feather River Hatchery trapped 8,019 chinook salmon, Oncorhynchus tshawytscha, and 1,025 steelhead, O. mykiss, during the 1990-91 season (Table 1). Approximately 17,644,991 salmon eggs and 1,799,191 steelhead eggs were taken. We planted 12,129,686 salmon and 524,820 steelhead.

MARKING PROGRAMS

Bay Delta personnel marked a total of 858,934 1989 brood year (BY) fall-run chinook salmon with an adipose (AD) and coded-wire nose tag (CWT). The marked chinook salmon were planted at Dos Rios, Buckley Cove, Empire Tract, mouth of Mokelumne River, Jersey Point, Miller Park, and Lighthouse Marina.

TABLE I. Feather River Hatchery Production Summary, 1990-1991.

Species brood year	Fish trapped or received	Females spawned	Eggs taken	Fish fingerlings	Planted yearlings	Estimated Number on hand 6/30/91
Chinook salmon Spring-run 1989 BY				2,306,500		0
Chinook salmon Spring-run 1990 BY	1,893	580	3,533,702	482,432		2,036,638
Chinook salmon Fall-run 1989 BY				3,213,650		
Chinook salmon Fall-run 1990 BY	6,126	2,392	14,111,289	6,127,104 ^{a/}		4,749,158
Steelhead 1990 BY					424,820	0
Steelhead 1991 BY	1,025	396	1,799,191	100,000 ^{b/}		755,000

a/ Includes 2,529,160 fish shipped to Mokelumne Hatchery

b/ Shipped to Mokelumne Hatchery

TABLE 2. Chinook Salmon Planting Summary, Feather River Hatchery, 1990-91.

Race	Month of release	Average size (G)	Number released	Mark	Release site
Spring-run 1989 BY	July	13.5	1,396,300		Mare Island - Maritime Academy
	August	22.4	910,200		Mare Island - Maritime Academy
	TOTAL			2,306,500	
Spring-run 1990 BY	February	0.4	60,000		Clear Creek
	March	2.4	200,032		Clear Creek
	June	14.0	222,400		Benicia
TOTAL			482,432		
Fall-run 1989 BY	July	14.0	1,214,800		Maritime Academy - Mare Island
	August	27.0	1,449,650		Maritime Academy
	September	40.7	549,200		Maritime Academy
TOTAL			3,213,650		
Fall-run 1990 BY	January	2.0	1,308,900		Mokelumne Hatchery
	February	2.7	1,220,260		Mokelumne Hatchery
	April	6.2	55,408	06-01-14-01-14	Dos Rios
	April	6.2	54,081	06-01-14-01-15	Dos Rios
	April	6.1	54,484	06-01-14-02-02	Buckley Cove
	April	6.1	53,503	06-01-14-02-01	Buckley Cove
	April	5.6	53,664	06-01-14-02-03	Empire Tract
	April	5.6	54,946	06-01-14-02-04	Empire Tract
	April	6.0	53,398	06-01-14-02-05	Mouth of Mokelumne
	April	5.9	53,864	06-01-14-02-06	Jersey Point
	April	6.7	52,454	06-01-14-02-08	Miller Park
	April	6.1	54,192	06-01-14-02-07	Miller Park
	April	6.6	54,058	06-01-14-02-09	Miller Park
	April	7.0	54,124	06-31-24	Miller Park
	April	8.6	52,000		Benicia
	May	7.9	52,144	06-31-25	Buckley Cove
	May	7.3	54,470	06-31-26	Buckley Cove
	May	8.6	51,884	06-31-27	Lighthouse Marina
	May	7.2	51,260	06-31-28	Jersey Point
	May	10.6	1,401,260		Benicia
June	17.2	55,900	Vibrio Treated	Tiburon	
June	17.2	1,229,850		Benicia	
TOTAL			6,127,104		

CHINOOK SALMON MAINTENANCE PROGRAM

History of the 1990-91 Runs

1990 BY Spring-Run

The fish ladder was opened on September 7, 1990 to allow the spring-run chinook salmon to enter the Hatchery. We received 1,893 fish between September 7 and October 1 (Appendix Table 1). The spring-run were sexed on October 1. At the time, we had on hand 715 males, 591 females, and 587 grilse. Of the 591 females, we successfully spawned 580 from September 28 through October 13. The spawning yielded 3,533,702 eggs, for an average of 6,092 eggs per female.

An estimated 2,989,283 fingerlings were transferred to the ponds, for an average egg to fingerling survival rate of 84.5%.

Between December 1990 and June 1991, we planted 482,432 1990 BY chinook fingerlings and smolts. A total of 2,036,638 remained on hand June 30.

1990 BY Fall-Run

The first fall-run chinook salmon adults entered the Hatchery on October 1, (Appendix Table 1). The season total was 6,126 fish. We spawned 2,392 females between October 4 and December 10 and took 14,111,289 eggs, for an average of 5,899 eggs per female. Fry production totaled 12,260,754, for an average egg to fry survival of 86.9%. We planted and transferred a total of 6,127,104 fall run 1990 BY chinook fingerlings. An estimated 4,749,158 remained on hand as of June 30.

Recovery of Marked Chinook Salmon

All chinook salmon entering the Hatchery were examined for marks; a total of 705 was marked (Appendix Table 2).

Chinook Salmon Planting

We planted an estimated 12,129,686 chinook fingerlings (Tables 1 and 2).

STEELHEAD MAINTENANCE PROGRAM

History of the 1990-91 Production

Steelhead were not counted until January 2. We trapped a total of 1,025 males and females. Marks and measurements of steelhead were recorded by Region 2 personnel. Of the total run of 1,025 fish,

there were 501 males and 524 females. We successfully spawned 396 females (Table 3) and took a total of 1,799,191 eggs (4,543 eggs/female). From these eggs, 883,697 fish were transferred to the ponds for an overall survival rate of 49%. The survival rate was low this year due to a fish loss caused by a pump failure. We planted 100,000 fingerlings and had an estimated 755,000 on hand June 30.

STEELHEAD PLANTING

We planted and estimated 524,820 steelhead during the 1990-91 season (Table 4).

VISITOR USE

During the 1990-91 fiscal year, an estimated 44,347 people visited the installation.

TABLE 3. Steelhead Spawning Data, 1990-91

Date	Fish spawned	
	M	F
1/2/91	23	28
1/8	25	26
1/15	31	31
1/22	35	56
1/29	30	71
2/6	50	85
2/13	24	62
2/19	17	21
2/26	8	11
3/5	4	5
<hr/>		
TOTAL	247	396

TABLE 4. Steelhead Planting Summary, 1990-1991

Date	Strain	Release site	Average size(G)	Number released
Jan.	Feather River	Feather River	130.5	79,000
Feb.	Feather River	Feather River	149.5	345,820
March	Feather River	Mokelumne River	1.1	100,000
<hr/>				TOTAL
				524,820

PENDIX TABLE 1. Weekly Adult Salmon and Steelhead Trapping Data, Feather River Hatchery, 1990-1991

Week	<u>Chinook salmon</u> <u>fall run</u>		<u>Chinook salmon</u> <u>spring run</u>		<u>Steelhead trout</u>	
	Adults	Grilse	Adults	Grilse	Males	Females
Sept. 7-						
Oct. 1			1,306	587		
Oct. 4-11	936	683				
Oct. 12-18	1,318	654				
Oct. 19-25	810	295				
Oct. 25-						
Nov. 1	796	185				
Nov. 2-8	265	31				
Nov. 9-15	56	16				
Nov. 16-26	51	5				
Nov. 27-						
Dec. 10	24	1				
Jan. 2-8					294	311
Jan. 9-15					79	49
Jan. 16-22					51	60
Jan. 23-29					30	33
Jan. 29-						
Feb. 6					23	41
Feb. 7-13					14	18
Feb. 14-19					8	11
Feb. 20-						
Mar. 5					2	1
TOTALS	4,256	1,870	1,306	587	501	524

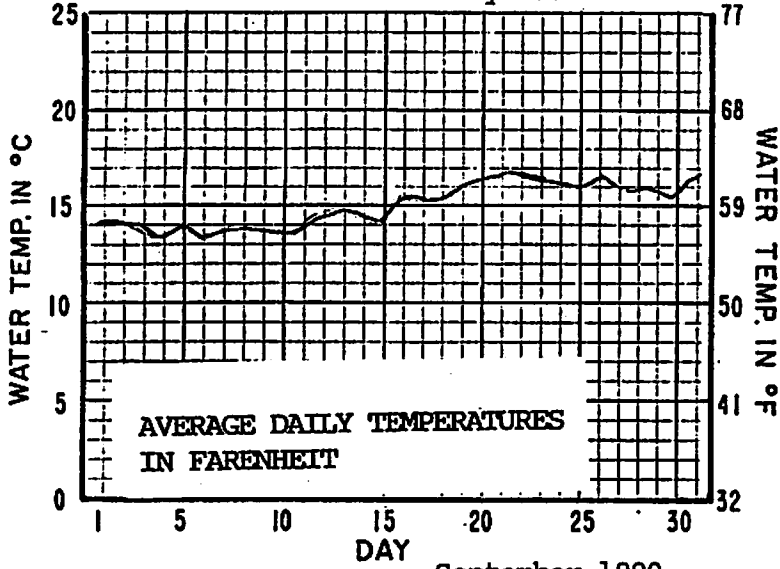
APPENDIX TABLE 2. Fork Lengths (to Nearest Centimeter) of Adipose Marked Chinook Salmon Trapped at Feather River Hatchery, 1990-1991

<u>FL</u>	<u>Males</u>	<u>Females</u>	<u>FL</u>	<u>Males</u>	<u>Females</u>
50	13		85	14	25
51	2		86	14	16
52	4		87	9	9
53	6		88	15	14
54	8		89	7	9
55	7		90	14	7
56	11		91	9	2
57	15		92	10	1
58	7		93	8	5
59	7	1	94	7	
60	17	2	95	5	1
61	11		96	5	
62	6	1	97	7	1
63	2		98	7	3
64	6		99	2	1
65	1		100	5	
66	7	1	101		
67	2		102	4	
68	3	2	103		
69		4	104	7	
70	1	5	105	3	
71		6	106	1	
72	1	7	107		
73	2	11	108		
74	6	10	109		
75	2	8	110	3	
76	3	18	111		
77	5	15	112		
78	5	22	113		
79	7	19	114		
80	7	27	115	1	
81	7	29			
82	4	16			
83	8	19			
84	9	29			
			TOTAL	359	346

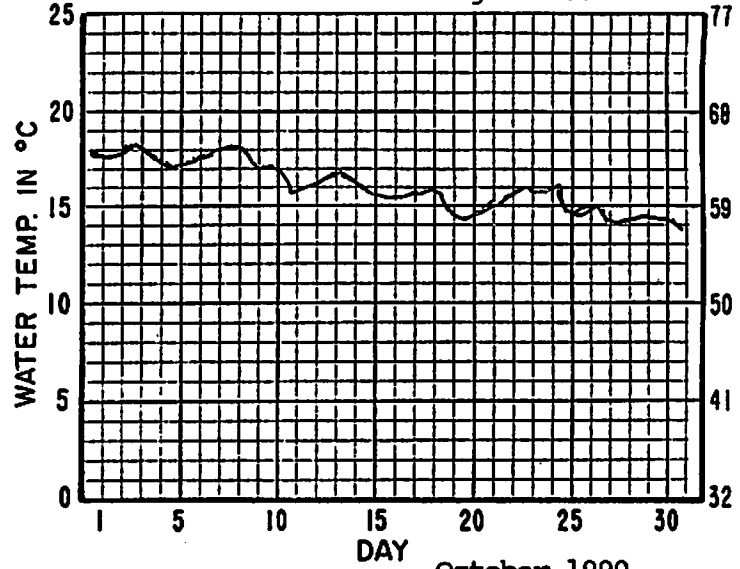
APPENDIX FIGURE 1. Daily Water Temperatures for Feather River Salmon and Steelhead Hatchery from July 1, 1990 thru June 30, 1991.

DAILY WATER TEMPERATURES BY MONTH

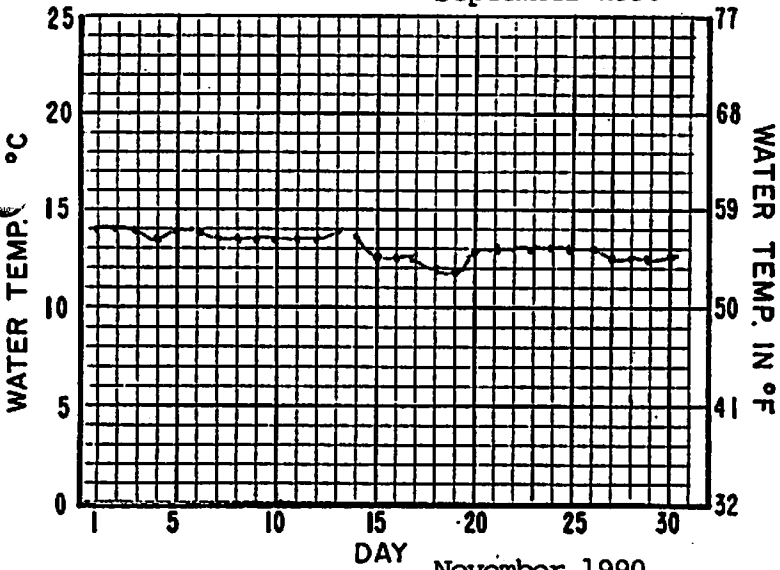
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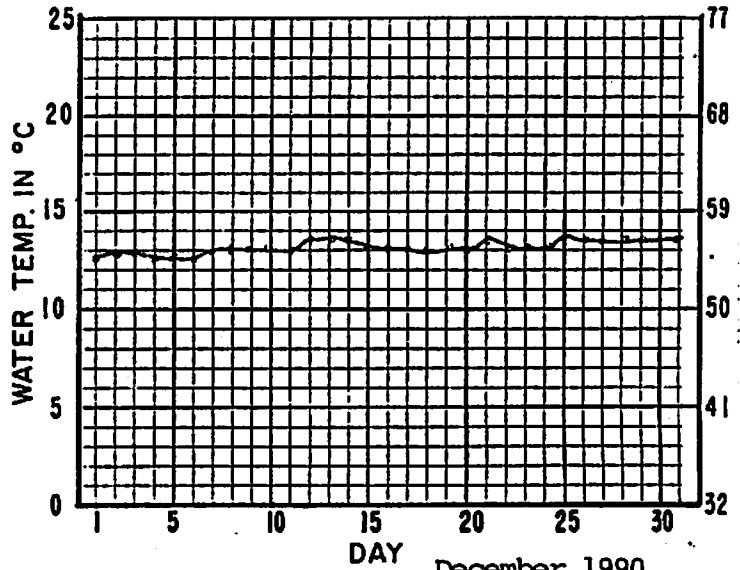
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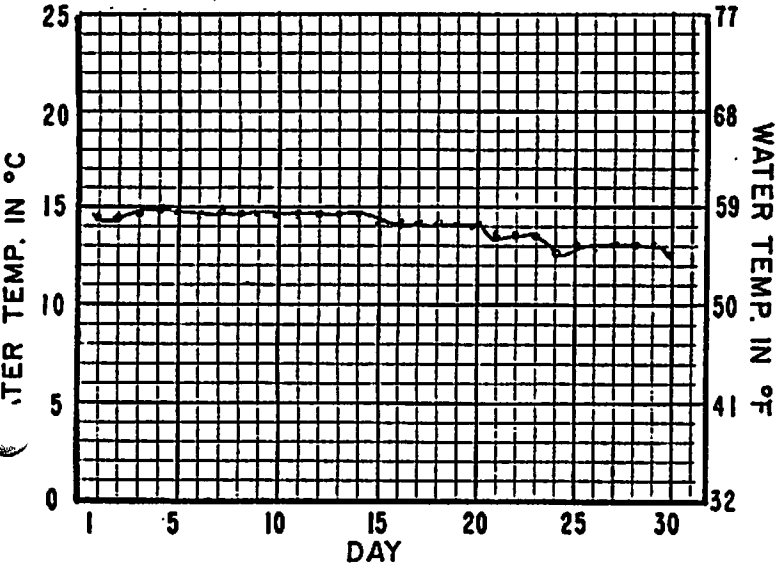
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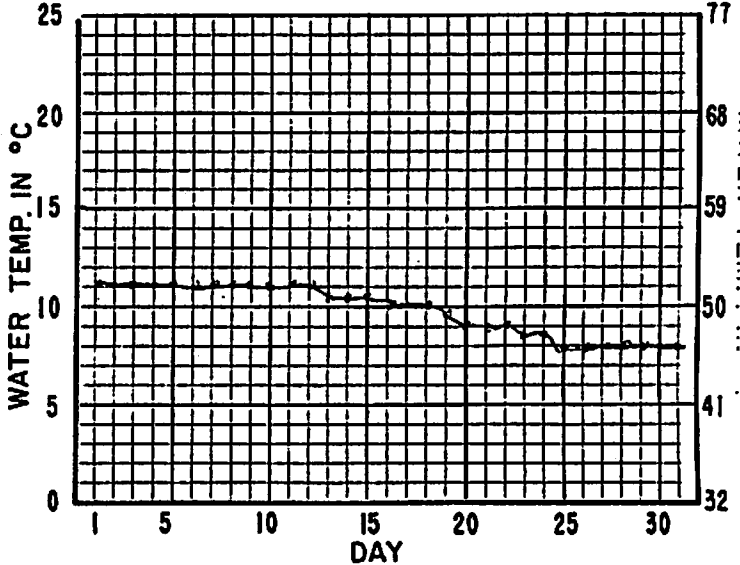
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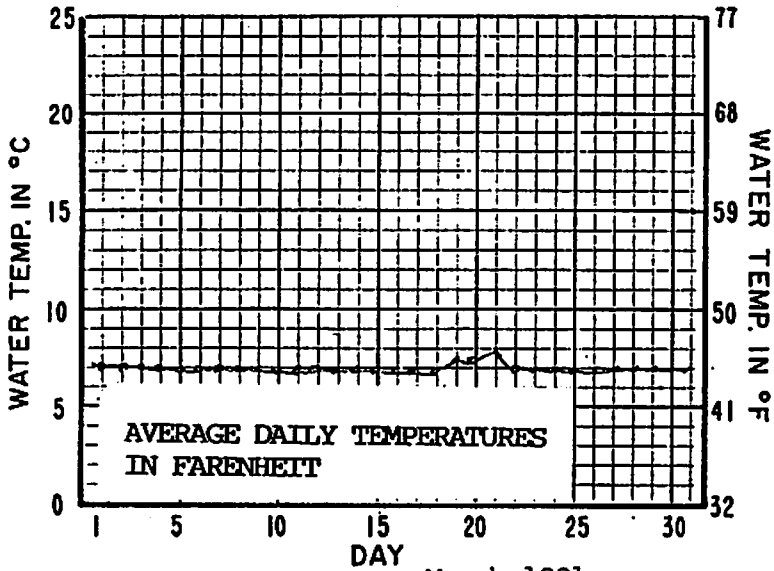


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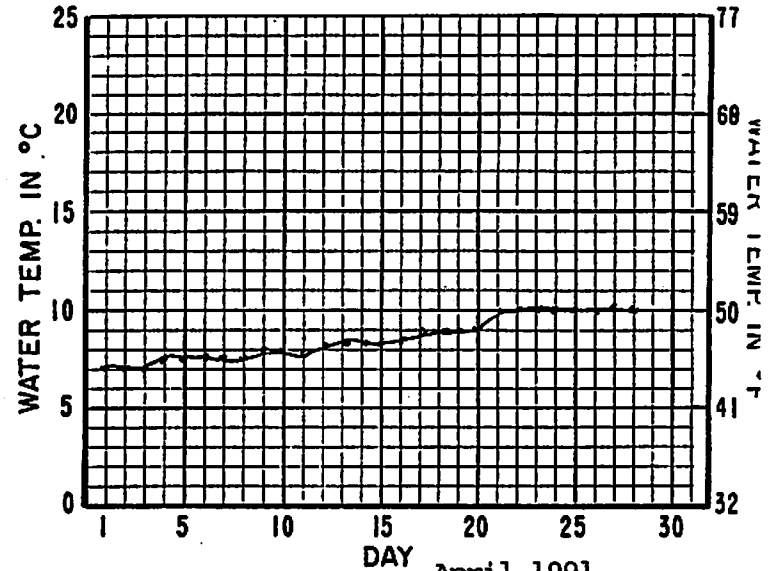


DAILY WATER TEMPERATURES BY MONTH

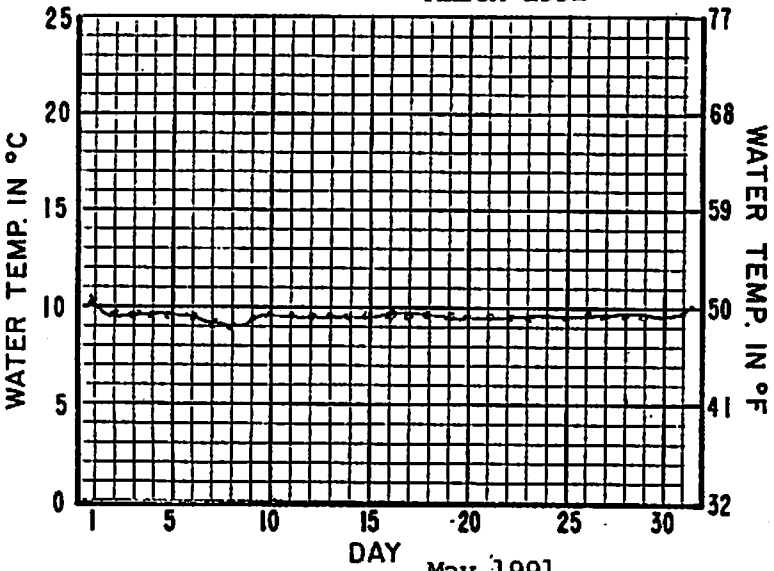
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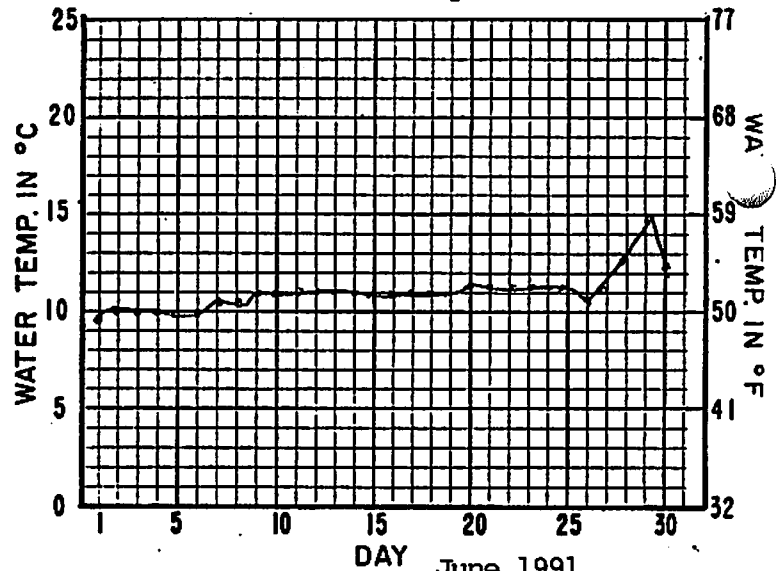
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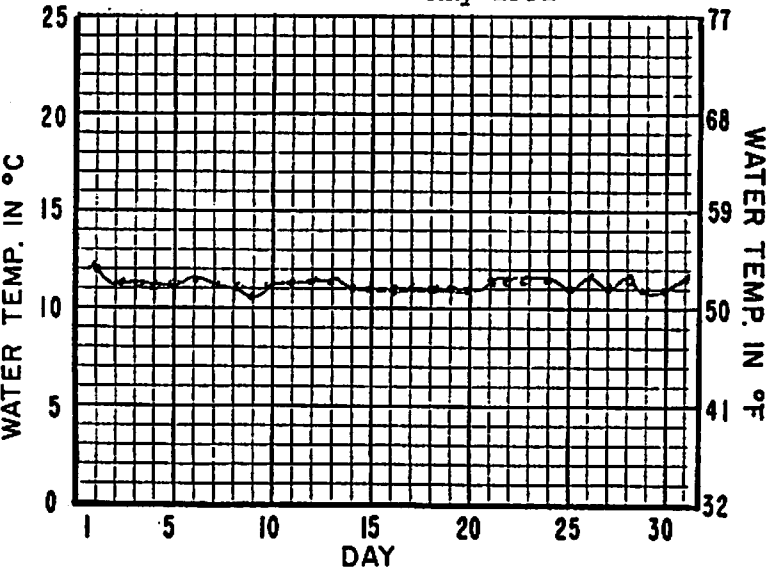
March 1991



April 1991



May 1991



June 1991

