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A STEELHEAD SPAWNING SURVEY OF THE TRIBUTARIES
OF THE UPPER TRINITY RIVER AND UPPER HAYFORK CREEK DRAINAGES, 1973

by

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Region 1, Inland Fisheries

Anadromous Fisheries Branch
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ABSTRACT

Steelhead (Salmo gairdnerii gairdnerii) redds were counted, April 2-May 8, 1973, in upper Trinity River and Hayfork Creek drainages, to determine the status of steelhead populations. A total of 177 steelhead redds was observed in the combined survey areas. The 1973 survey conditions were poor.

The 1973 redd counts were up in the few areas which were surveyed under comparable conditions in 1972, and the returns to Trinity Hatchery were slightly greater in 1973 than in 1972, indicating a modest increase in the steelhead spawning escapement over 1972.

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INTRODUCTION

Since 1964, steelhead spawning surveys have been periodically conducted on selected tributaries in the Trinity River drainage to monitor the status of steelhead populations. From the mid 1960's to the early 1970's there was a substantial decline in numbers of steelhead returning to the Trinity River (Rogers, 1973). The purpose of this monitoring is to determine whether the steelhead population is declining, remaining static, or increasing.

METHODS

We surveyed 10 upper Trinity River tributaries, two sections of Hayfork Creek, and three Hayfork Creek tributaries from April 2 through May 8, 1973 (Table 2). The surveys were conducted by walking in, or along, the streams and recording the numbers of steelhead redds and lamprey nests observed. Lamprey nests were counted, primarily as a means of preventing them from being mistakenly included in the steelhead redd counts. Stream distances were determined by measurements on United States Geological Survey topographical maps.

RESULTS AND DISCUSSION

A total of 121 steelhead redds was observed in the 69.6 km (43.2 miles) surveyed in the Trinity River tributaries. In the 39.5 km (24.6 miles) of Hayfork Creek drainage surveyed we observed 56 redds.

The observed redds probably represent only a fraction of the total possible in the upper Trinity River and Hayfork Creek drainages. Even if all known steelhead spawning areas were surveyed, ideal water conditions would be required to observe all existing redds.

The 1973 survey conditions were good in Weaver, Dutch, Soldier, and Deadwood Creeks, but in all other surveyed creeks, survey conditions were poor. In the spring of 1973, unseasonably warm weather and an above average snowpack resulted in high stream flows in many steelhead spawning streams.

By the time the flows had dropped to levels such that the streams could be walked, many redds may have been obliterated by the high water. The survey was terminated when it became obvious that further effort was not justified.

Fewer Trinity River tributaries were surveyed in 1973 than in 1972. Eight of the ten Trinity River tributaries surveyed in 1973 were also surveyed in 1972, but on only four of these (Deadwood, Rush, Weaver, and East Weaver Creeks) were the survey areas and conditions comparable to those of 1972. The combined redd counts for these four areas were 74 in 1973 compared with 56 in 1972. Two sections of Hayfork Creek were surveyed. We observed no redds in the downstream section, and only eight in the upstream section. Twelve redds were observed in Tule Creek. Neither Hayfork Creek nor Tule Creek was surveyed in 1972.

The remaining three Hayfork Creek tributaries (Carr, Big, and Salt Creeks) surveyed this year had also been surveyed in 1972. The number of redds in each of the three was much smaller than in 1972 (Table 1), but survey conditions were not comparable.

In surveys prior to 1973, population estimates were produced by multiplying the observed number of steelhead redds by 2.6 (La Faunce, 1965). Because survey conditions were so poor in 1973 no population estimate was attempted.

Steelhead returns to Trinity River Hatchery were 271 in 1973, compared to 242 in 1972 (Trinity Hatchery files). I believe the hatchery returns, and the observations on Rush and Weaver Creeks, indicate a modest increase over the estimated 1,359 steelhead spawners in 1972 (Rogers, 1973).

A total of 295 lamprey nests was observed. They were seen only in five of the surveyed streams (Table 2).

The first lamprey nests were seen on April 16 in Weaver Creek. Streams surveyed after that date had one or more nests, only a few of which were occupied. The average number of nests was six per kilometer (9.7 per mile) in those streams in which they were observed.

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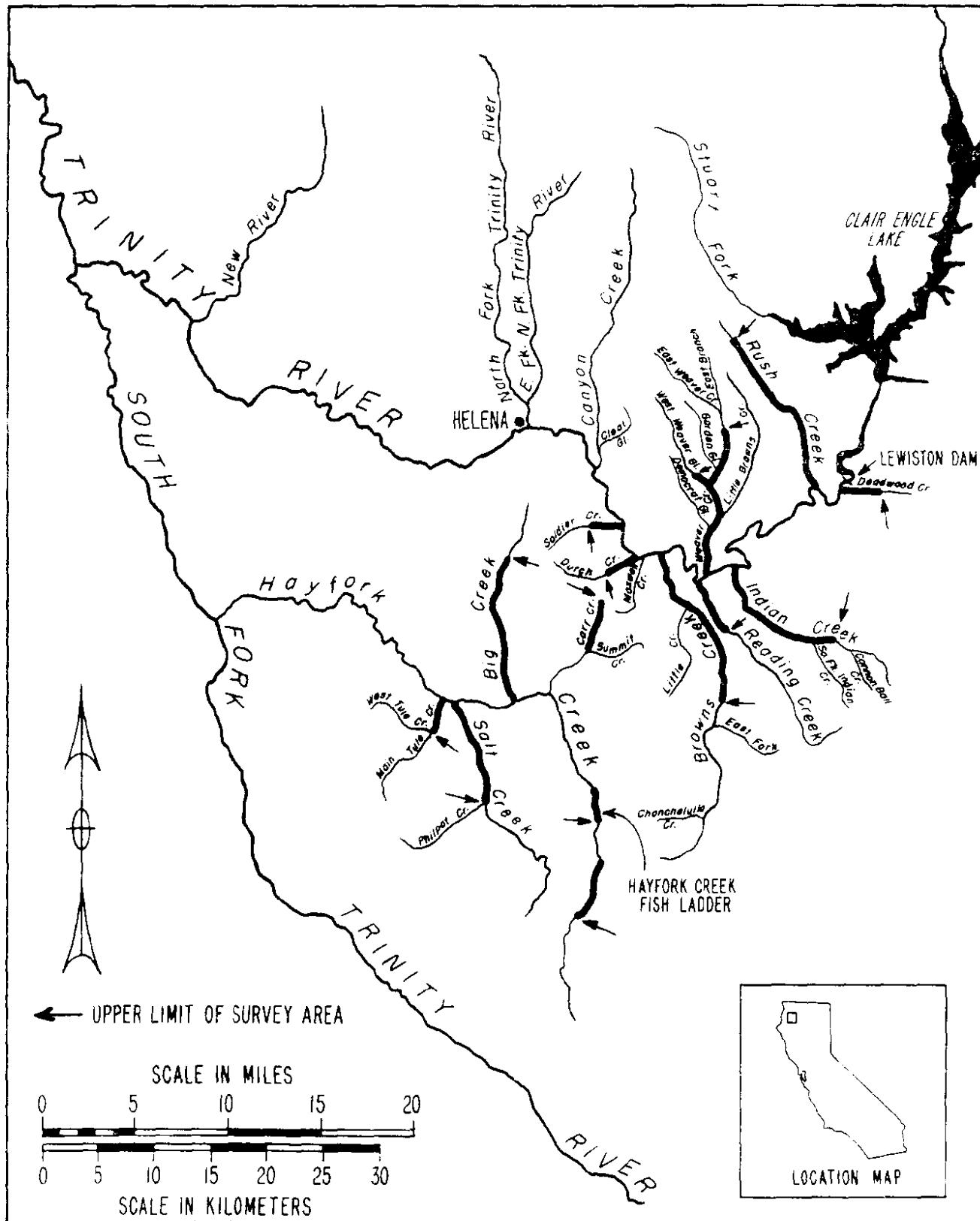


Figure 1. Streams covered in the 1973 steelhead survey in the upper Trinity River and the Hayfork Creek drainages. Heavy lines indicate surveyed portion.

Table 1

Steelhead Redd Counts Compared for the Years 1964, 1971, 1972, and 1973 for Some Streams in the Trinity River and Hayfork Creek Drainages

Stream	Year	Length available				Redds observed	Redds	
		Length surveyed		to steelhead			per Km.*	per Mi.*
		Km.	Mi.	Km.	Mi.			
Deadwood Cr.	1964	1.4	0.9	3.2	2.0	27	19.3	30
	1971	3.2	2.0	3.2	2.0	0	0	0
	1972	3.2	2.0	3.2	2.0	0	0	0
	1973	3.2	2.0	3.2	2.0	0	0	0
Rush Cr.	1964	14.9	9.3	14.5	9.0	169	11.7	18.8
	1971	14.8	9.2	14.5	9.0	13	.9	1.4
	1972	14.5	9.0	14.5	9.0	43	3.0	4.8
	1973	14.5	9.0	14.5	9.0	58	4.0	6.4
Indian Cr.	1964	13.7	8.5	12.7	7.9	253	18.5	32.0
	1971	17.7	11.0	17.7	11.0	2	0.1	.2
	1972	17.7	11.0	17.7	11.0	53	3.0	4.8
	1973	12.9	8.0	17.7	11.0	23	1.8	2.9
Weaver Cr.	1964	9.7	6.0	9.7	6.0	134	13.8	22.3
	1971	9.7	6.0	9.7	6.0	5	0.5	.8
	1972	9.7	6.0	9.7	6.0	10	1.0	1.7
	1973	9.7	6.0	9.7	6.0	16	1.6	2.7
E. Weaver Cr.	1964	7.6	4.7	7.6	4.7	89	11.7	18.9
	1971	7.6	4.7	7.6	4.7	0	0	0
	1972	3.2	2.0	7.6	4.7	3	0.9	1.5
	1973	3.2	2.0	7.6	4.7	0	0	0
W. Weaver Cr.	1964	2.4	1.5	?	?	2	0.8	1.3
	1971	2.4	1.5	?	?	0	0	0
	1972	3.2	2.0	?	?	0	-	-
	1973	1.6	1.0	?	?	0	0	0
Reading Cr.	1964	14.2	8.8	13.4	8.3	279	19.6	31.7
	1971	16.7	10.4	16.7	10.4	35	2.1	3.4
	1972	16.7	10.4	16.7	10.4	81	4.9	7.8
	1973	4.8	3.0	16.7	10.4	10	2.1	3.3
Browns Cr.	1964	35.1	21.8	35.1	21.8	655	18.7	30.0
	1971	34.4	21.4	34.4	21.4	56	1.6	2.6
	1972	34.4	21.4	34.4	21.4	197	5.7	9.2
	1973	14.5	9.0	34.4	21.4	14	1.0	1.6

* Per distance surveyed and available to steelhead.

Table 1 (continued)

Stream	Year	Length surveyed		Length available to steelhead		Redds observed	Redds	
		Km.	Mi.	Km.	Mi.		per Km.*	per Mi.*
Dutch Cr.	1964	2.3	1.4	?	?	72	31.3	51.4
	1971	1.6	1.0	?	?	0	0	0
	1972	-	-	?	?	-	-	-
	1973	2.6	1.6	?	?	0	0	0
Soldier Cr.	1964	1.6	1.0	?	?	21	13.1	21
	1971	2.6	1.6	?	?	1	0.4	0.6
	1972	-	-	?	?	-	-	-
	1973	2.6	1.6	?	?	0	0	0
Hayfork Cr.	1971	16.4	10.2	59.9	37.2	31	1.9	3
	1972	-	-	-	-	-	-	-
Sec. A-Wildwood	1973	5.3	3.3	59.9	37.2	0	0	0
Sec. B-Below dam	1973	3.2	2.0			8	2.5	4
Carr Cr.	1971	4.3	2.7	4.3	2.7	7	1.6	2.6
	1972	4.3	2.7	4.3	2.7	7	1.6	2.6
	1973	4.3	2.7	4.3	2.7	4	0.9	1.5
Big Cr.	1971	12.6	7.8	?	?	35	2.8	4.5
	1972	12.6	7.8	?	?	78	6.2	10.0
	1973	12.6	7.8	?	?	22	1.7	2.8
Salt Cr.	1971	19.8	12.3	?	?	16	0.8	1.3
	1972	10.5	6.5	?	?	44	4.2	6.8
	1973	10.5	6.5	?	?	10	1.0	1.5
Tule Cr.	1973	3.7	2.3	?	?	12	3.2	5.2

* Per distance surveyed and available to steelhead.

Table 2

Lamprey Nests Observed During
Steelhead Spawning Survey, 1973

Stream	Date(s) surveyed	Length surveyed Km.	Length surveyed Mi.	Nests observed	Nests per Km.	Nests per Mi.
Weaver Cr.	16-17 Apr.	9.6	6.0	85	8.9	14.2
Indian Cr.	24 Apr.	12.9	8.0	1	0.08	0.1
Browns Cr.	26 Apr. 7- 8 May	14.5	9.0	94	6.5	10.4
Tule Cr.	27 Apr.	3.7	2.3	5	1.4	2.2
Hayfork Cr.						
A) Wildwood Mill to Gemmill Gulch	3 May	5.2	3.25	93	17.9	28.6
B) Dam to E. Br. Rd.	4 May	3.2	2.0	17	5.3	8.5