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A STEELHEAD SPAWNING SURVEY OF THE TRIBUTARIES OF THE
UPPER TRINITY RIVER AND UPPER HAYFORK CREEK DRAINAGE, 1971^{1/}

by

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SUMMARY

From April 1 through May 6, 1971, a steelhead spawning survey was conducted on the streams tributary to the Trinity River between Canyon Creek and Lewiston Dam and in the Upper Hayfork Creek drainage, tributary of the South Fork Trinity River.

An estimated 413 spawners used the 95.4 miles of stream surveyed in the Trinity River drainage and 232 spawned in the 36.6 miles of stream surveyed in the Hayfork Creek drainage.

INTRODUCTION

Steelhead runs in the Trinity River have been declining since 1965, as evidenced by returns to Trinity River Hatchery (Table 1). In 1965, 6,941 adults (Murray, 1966) were taken at the hatchery. In 1964, an estimated 7,400 to 8,700 spawned in the river and tributary streams between the North Fork Trinity River and Lewiston Dam (La Faunce, 1965). Since that time the number of steelhead spawning in the river and its tributaries has not been determined but it has been assumed it was also declining. In order to update data from the Trinity River tributaries and gain some knowledge of the status of runs in a South Fork Trinity River tributary, a steelhead spawning survey was made in the spring of 1971.

METHODS

From April 1, 1971, through May 6, 1971, a steelhead spawning survey was conducted on the Trinity River tributaries between Canyon Creek and Lewiston Dam and in the Hayfork Creek drainage, a stream tributary to the South Fork Trinity River (Figure 1). The survey was conducted by traveling on foot in or along the stream and counting redds, usually to the upstream limits of steelhead migration. The 1964 surveyor accompanied this years' survey team on one stream to insure continuity of methods.

^{1/} Anadromous Fisheries Branch Administrative Report No. 72-12.
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Table 1

Summary of Steelhead Returns to Trinity River Hatchery
for the Years 1960 through 1971*

Year	Number of steelhead	Year	Number of steelhead
1960	2,071	1966	992
1961	3,526	1967	135
1962	3,243	1968	232
1963	1,687	1969	554
1964	894	1970	241
1965	6,941	1971	67

* Trinity River Salmon and Steelhead Hatchery files.

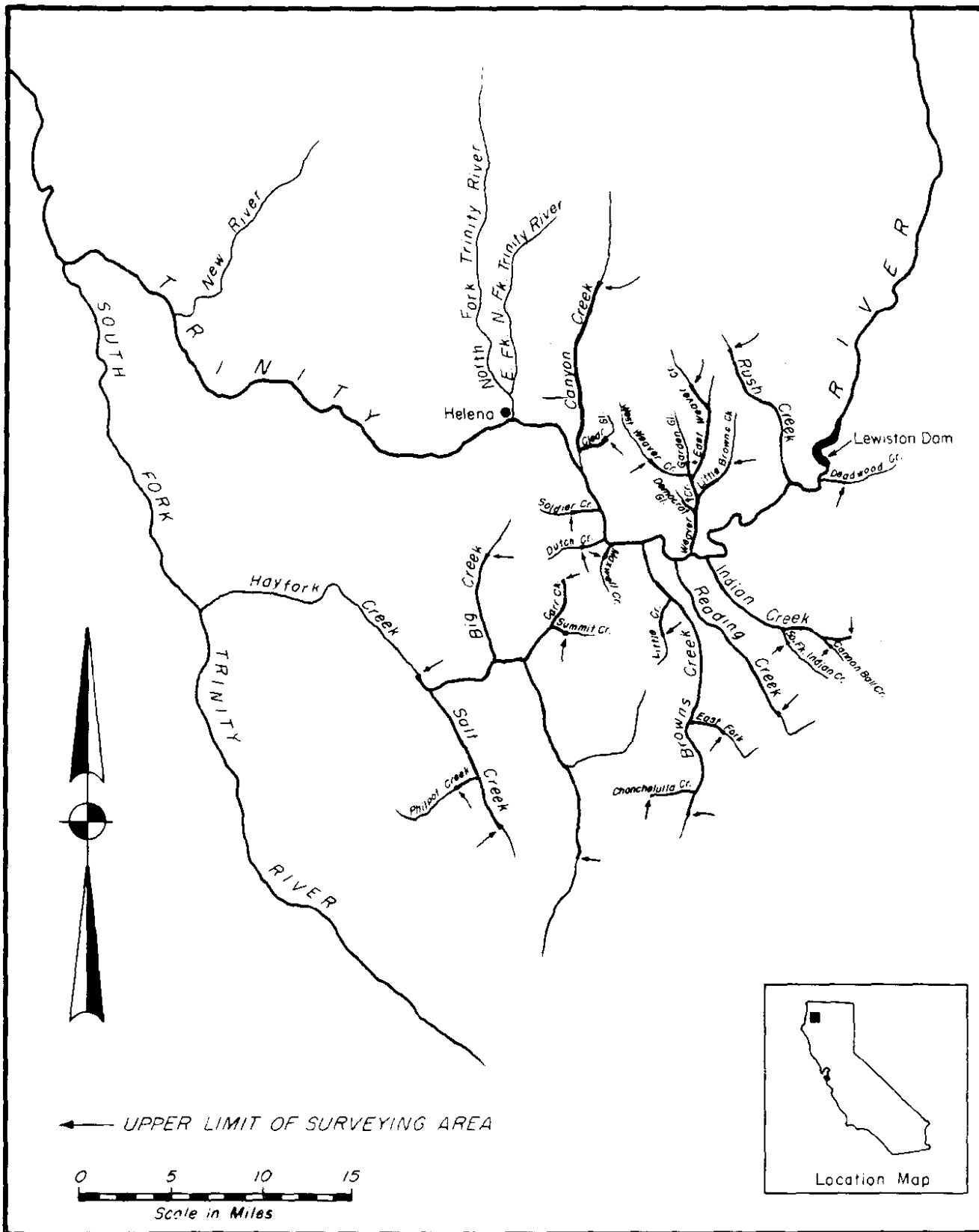


Figure 1. Streams covered in the 1971 steelhead survey in the Upper Trinity River and the Hayfork Creek Drainage. Heavy lines indicate surveyed portion.

Each redd was assumed to have represented 2.6 steelhead (La Faunce, 1965).

RESULTS

A total of 95.4 miles in the Trinity River drainage and 36.6 miles in the Hayfork Creek drainage was surveyed (Table 2).

Based on 2.6 fish per redd (La Faunce, op. cit.), the 158 redds observed in the Trinity River tributaries represented an estimated escapement of 413 spawners. In the Hayfork Creek drainage the 89 redds represent an estimated 232 spawners.

The Hayfork Creek drainage averaged 2.41 redds per mile of stream while in the Trinity River tributaries the average was 1.66 per mile.

DISCUSSION

The results of this survey were compared with results of the 1964 survey. The main Trinity River and the North Fork were important spawning streams in 1964, but were not surveyed in 1971, because of high water. Canyon Creek, another important spawning stream, was not surveyed to the limit of steelhead access in 1971. Spawning estimates for 18 of the 22 Trinity tributary streams which were surveyed in 1971, were comparable to 1964 estimates (Table 2). The combined estimate for these 18 tributaries in 1971, is 392 spawners, as compared with 5,031 in 1964.

The reliability of steelhead population estimates from redd counts depends upon survey timing and conditions for observation.

Spawning apparently peaked before this survey was started. Few steelhead were seen and only two were observed spawning. Observation was hampered by high, murky water.

Redd counts, especially in the Hayfork Creek drainage, are probably excessive. There is reason to believe that occasionally lamprey redds, which were abundant, were mistakenly counted as steelhead redds by one member of the survey team. However, comparing the estimated 5,031 spawners in 1964, with 392 in 1971, indicates a significant reduction in the size of the spawning run in 1971.

Table 2

Summary of Steelhead Survey, Trinity River
Tributaries and the Hayfork Creek Drainage, 1971

Stream	Miles Surveyed	Miles Available to Steelhead	Barrier	Redds Observed	Temp. °F	Redds per Mile	Est. ^{1/} Pop.
Deadwood Creek	2.0	2.0	Falls	0	42	0	0
Rush Creek	9.2	9.0	Falls	13	-	1.4	34
Indian Creek	11.0 ^{2/}	11.0	None	2	44	.13	5
Cannon Ball Cr. ^{1/}	0.5 ^{2/}	0.5	None	0	-	0	0
S. Fk. Indian Cr.	1.0	1.0	Falls	3	50	3.0	8
Weaver Cr.	6.0	6.0	None	5	44	0.8	13
East Weaver Cr.	4.7	4.7	- Dam	0	-	0	0
East Branch ^{1/}	0.0	0.1	Culvert	0	-	0	0
West Weaver Cr.	1.5 ^{2/}	?	?	0	-	0	0
Garden Gl. ^{1/}	0.5 ^{2/}	?	?	0	-	0	0
Little Browns Cr.	3.0 ^{3/}	?	None	3	43	1.0	8
Democrat Gl.	1.7	1.7	None	1	44	0.6	3
Reading Cr.	10.4 ^{2/}	10.4	None	35	42	3.4	91
Browns Cr.	21.4 ^{2/}	21.4	None	56	45	2.6	146
Chanchelulla Cr.	0.5 ^{2/}	?	?	0	-	0	0
E. Fk. Browns Cr.	2.2	2.2	Falls	11	-	5.0	29
Little Cr.	3.0 ^{3/}	3.0	Culvert	19	-	6.3	49
Maxwell Cr.	0.9 ^{3/}	?	?	1	51	1.1	3
Dutch Cr.	1.0	?	?	0	-	0	0
Soldier Cr.	1.6	?	?	1	-	0.6	3
Canyon Cr. ^{1/}	11.2 ^{3/}	17.0	Falls	8	49	0.7	21
Clear Gl.	2.1 ^{2/}	2.1	None	0	44	0	0
Totals		95.4		158		1.66	413
Hayfork Cr. ^{1/}	10.2 ^{4/}	37.2	None	31	-	3.0	81
Carr Cr. ^{1/}	2.7 ^{2/}	2.7	None	7	51	2.6	18
Summit Cr. ^{1/}	1.6 ^{2/}	1.6	None	0	51	0	0
Big Cr. ^{1/}	7.3 ^{3/}	?	?	35	44	4.5	91
Salt. Cr. ^{1/}	12.3	?	?	16	44	1.3	42
Philpot Cr. ^{1/}	2.0	1.5	Falls	0	-	0	0
Totals		36.6		89		2.43	232

^{1/} Survey area not comparable to that of 1964.

^{2/} Assumed limit of steelhead migration at current flow.

^{3/} Not surveyed to limit of steelhead migration.

^{4/} Lower 27 miles were not surveyed

REFERENCES

- La Faunce, D. A. 1965. A steelhead spawning survey of the Upper Trinity River System. Calif. Dep. Fish and Game, Marine Resources Admin. Rep. No. 65-4, 5 p. (mimeo).
- Murray, Robert. 1966. Annual report Trinity River Salmon and Steelhead Hatchery eighth year of operation 1965-66. Calif. Dep. Fish and Game, Inland Fisheries Admin. Rep. No. 66-13, 25 p. (mimeo).