State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
SOUTH FORK TRINITY RIVER
SUMMER STEELHEAD SNORKEL SURVEY, 2000-2001
PROJECT 1c1

by

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Abstract

Snorkel surveys were conducted on the South Fork Trinity River and Hayfork Creek on August 21, 22, and 23, 2001. The survey of South Fork Trinity River yielded 51 steelhead, 26 1/2lb. steelhead, 131 spring-run chinook salmon and 22 jacks. The survey of Hayfork Creek yielded 25 adult steelhead, 13 1/2lb. steelhead, 13 adult spring-chinook and 0 jacks. A total of 16 sections were surveyed. Sections K and N were surveyed on August 23, due to logistical complications. Section X in Hayfork Creek was surveyed from its original start point at Little Creek.

Introduction

The South Fork of the Trinity River (SFTR) is the largest tributary of the Trinity River and supports natural and possibly endemic populations of spring-run chinook salmon and summer steelhead. The status of these stocks are of concern because their numbers have declined dramatically from historical levels. Escapement estimates for spring chinook salmon have decreased from 11,604 fish in 1964 to 166 fish in 2001; estimates for steelhead show a similar trend. Snorkel surveys have been conducted on the South Fork Trinity River to estimate spring run chinook and summer steelhead since the early sixties (pers. comm. Terry Healey, 1999). Most recently, snorkel surveys have been organized by the Department's Trinity River Project. Due to federal funding problems through the Bureau of Reclamation and lack of staffing, last year's snorkel survey (2000) was organized by the Department's Steelhead Research and Monitoring Program. Snorkel survey crews are recruited from multiple agencies to minimize time needed to complete surveys. Traditionally, the complete survey of sixteen sections is completed in two to three days. Last year's participants included fisheries biologists and technicians from U.S. Forest Service, Hoopa Valley Tribal Fisheries Program, CA Department of Fish and Game, Natural Resources Conservation Service, and the South Fork CRMP and the South Fork Land Conservancy.

Methods

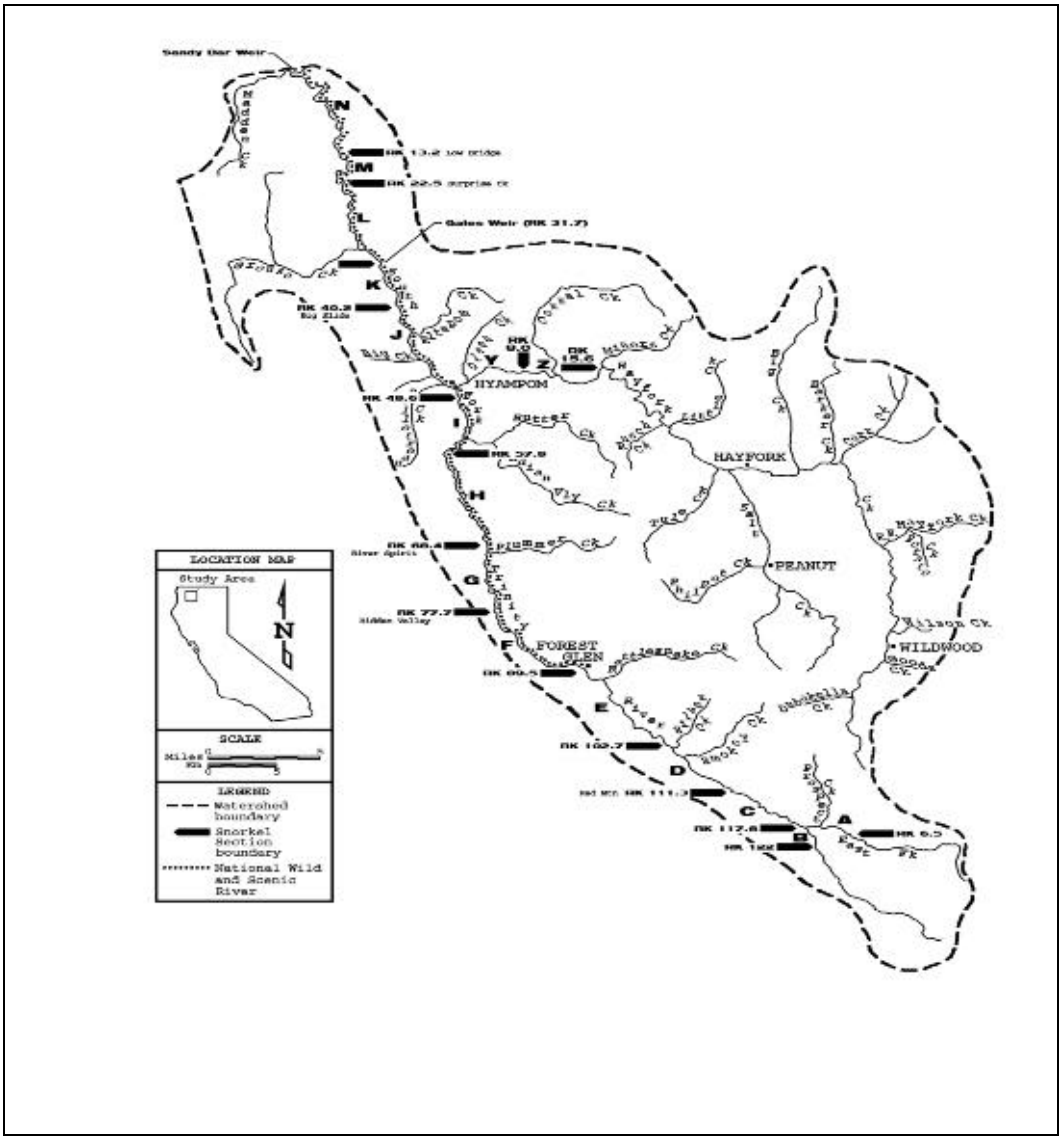
Teams of snorkel surveyors examined portions of the South Fork Trinity River (SFTR) basin to count spring-run chinook salmon and summer steelhead from August 21 through August 23, 2001. We surveyed a total of 16 sections on the SFTR from the East Fork of the SFTR downstream to the confluence with the Trinity River and three adjacent sections of Hayfork Creek from approximately RK 21.0 downstream to the confluence with the SFTR .

Snorkel surveyors were given a short safety lecture and then told to record sightings of steelhead, ½ lb. steelhead, spring-run chinook and spring-run chinook jacks. Surveyors were also asked to make any pertinent comments they felt necessary. An additional

request was made by the Department's Natural Stocks Assessment Program to document any juvenile coho salmon sightings.

Crews were told to classify any steelhead from 14-16 inches as a ½ lb. steelhead, and any steelhead over 16 inches as an adult steelhead. Jacks are classified as all salmon that have made a trip to the ocean and are under the length of 22 inches.

Figure 1. Map of South Fork Trinity River with Snorkel Survey Sections.



South Fork Trinity River Chinook Salmon Snorkel Survey Sections.

Results

Table 1. South Fork Trinity River summer steelhead and spring chinook snorkel survey results by section.

Section	Steelhead	½ lb Steelhead	Adult Chinook	Chinook Jacks
A (East Fork South Fork Trinity River)	0	0	0	0
B (Raspberry Creek to East Fork confluence)	0	4	0	0
C (East Fork confluence to Red Mountain Creek)	0	1	1	0
D (Red Mountain Creek to Silver Creek)	0	1	2	0
E (Silver Creek to Scott's Flat)	3	2	6	2
F (Scott's Flat to Hidden Valley Ranch)	21	3	39	13
G (Hidden Valley Ranch to River Spirit)	15	0	5	0
H (River Spirit to Hitchcock Creek)	3	5	35	1
I (Hitchcock Creek to Lover's Leap)	15	0	11	0
J (Lover's Leap to Big Slide campground)	3	1	3	0
K (Big Slide campground to old Gates weir)	7	2	21	3
L (Old Gates weir to Surprise Creek)	1	0	0	0
M (Surprise Creek to Low Bridge)	0	6	8	3
N (Low Bridge to Sandy Bar)	0	1	0	0
Total South Fork Trinity	51	26	131	22

Table 2. Hayfork Creek summer steelhead and spring chinook snorkel survey results by section.

Section	Steelhead	½ lb Steelhead	Adult Chinook	Chinook Jacks
X (Little Creek to Miners Creek)	12	6	3	0
Y (Miner's Creek to Bar 717 Ranch)	13	6	9	0
Z (Bar 717 Ranch to Mouth)	0	0	1	0
Total Hayfork Creek	25	12	13	0

Discussion

The one-pass snorkel survey of the SFTR is the best source of adult summer steelhead and spring-chinook trend data in the entire Trinity River basin. Surveys have been conducted annually back to pre-1960. Historically, salmon and steelhead numbers in the South Fork Basin were significantly higher. The last pre-1964 flood survey reported 11,604 spring chinook in the South Fork Trinity, not including Hayfork Creek (CDFG, 1996).

Table 3. Total numbers of adult summer steelhead and spring chinook counted in the South Fork of the Trinity River and Hayfork Creek during previous year's snorkel surveys.

Year	Total Adult Steelhead	Total Chinook (including jacks)
1991	8	66
1992	21	166
1993	23	284
1994	22	243
1995	42	579
1996	11	1097
1997	95	655
1998	37	172
1999*	38	175
2000	76	256
2001	76	166

*1999 numbers are incomplete due to excessive turbidity caused by Hitchcock Creek slide. Five reaches were left unsurveyed.

Total adult steelhead numbers were identical to last year and higher than in most recent years. Numbers of spring-run chinook were the second lowest in the last ten years of surveys.

Turbidity is historically a problem that complicates surveying during the SFTR snorkel surveys. The combination of loose underlying geological terrains (South Fork Mountain schist and the Galice) and a high density road matrix cause chronic mass-wasting, which exacerbates problems with excessive sediment discharge. In 1999, Hitchcock Creek was discharging so much sediment (blue goo) that surveys of the river below Section I were

cancelled due to poor visibility. Section I was again not surveyed in 2000 due to discharge from Hitchcock Creek. In 2001, Hitchcock Creek did not discharge excess sediment during survey dates, but a small tributary approximately one mile above Hitchcock was observed to be discharging "blue goo"

and rendering visibility negligible for the next half mile. No other visibility problems were encountered during the survey.

Overall, this year's survey was a logistical success. The South Fork dives traditionally have had problems with access, crews getting lost or hurt, or arriving late. We had planned to complete the survey in two days, but it took three. Section L was surveyed out of sequence on August 23, because of problems with last minute crew scheduling. Section N was also surveyed on August 23, due to a late start. Tuesday night's barbeque was a great success, Michael Sparkman brought albacore from the coast, and the camaraderie of local fisheries biologist seemed to make us forget the day's low steelhead and salmon numbers.

Recommendations

I have several recommendations to improve the mechanics of this annual snorkel survey.

First, it is important to obtain strong commitments from survey volunteers as to the number of people coming from their agency. Once you receive a commitment, it is always a good idea to send them maps and reach assignments several weeks in advance. Also, it would be prudent to require that survey participants commit to both days of the survey and bring a suitable vehicle. This year, we had eight people cancel for the second day at the last minute, severely complicating logistics.

A crew should be committed to completing the lower two sections (L and M) independent of base camp. Sections L and M are too far in distance from the Scott's Flat base camp in Forest Glen; the second day's trip from Forest Glen to the South Fork confluence in Salyer takes three hours of driving. In 2000, the crews on sections M and N got lost and did not arrive at their start point for five and a half hours.

The survey coordinator (lead biologist) should not receive any reach assignments. The survey coordinator has to deal with shuttle logistics, changing reach assignments, and safety. He or she should be available at base camp, should any problems arise.

Ideally, each reach would have on the crew a fisheries biologist with previous experience on that reach. In absence of that, I would recommend that at the minimum, at least one member of the crew has previous knowledge of the specific reach. This should reduce the danger of crews getting lost or not finishing on time. Also, at least one member of the crew should be at the minimum an experienced fisheries technician. I believe that following these few recommendations would lead to a smoother running, less stressful, and safer SFTR summer snorkel survey.

Literature Cited

CDFG. 1991-1996. Annual Reports Trinity Basin Salmon and Steelhead Monitoring Project 1989-1995 seasons. Inland Fisheries Division.

Healey, T. P. 1963. Salmon—South Fork of the Trinity River. Memorandum to Elton Baily, Fisheries Management Supervisor, December 10, 1963. 4 pp.

Acknowledgements

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Appendix 1: Comments made by snorkel survey crews.

Section	Comments
A (East Fork South Fork Trinity River)	Very few pools, lots of fish less than 10" in length.
B (Raspberry Creek to East Fork confluence)	Did not survey pool below bridge.
C (East Fork confluence to Red Mountain Creek)	No Coho observed.
H (River Spirit to Hitchcock Creek)	Most fish observed in upper half of reach. One adult lamprey carcass. Small creek about 1-1.5 miles above Hitchcock Creek dumping blue goo sediment and creating turbidity in South Fork for ½ mile.
J (Lover's Leap to Big Slide campground)	Lots of walking, few pools, no good cover.
K (Big Slide campground to old Gates weir)	Good visibility.
L (Old Gates weir to Surprise Creek)	Lots of algae, snails and turtles. We observed 8 dead suckers, one lamprey carcass, and two dead 1+ steelhead. No fish throughout middle of reach.
M (Surprise Creek to Low Bridge)	Setting ropes for gillnets ¾ mile upstream of Low Bridge.
Y (Miner's Creek to Bar 717 Ranch)	One dead adult Chinook.
Z (Bar 717 Ranch to Mouth)	Abundant algae, poor visibility (6-10 feet)