

State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

STANDING STOCKS OF FISHES IN
SECTIONS OF LITTLE LAST CHANCE
CREEK, PLUMAS COUNTY, 1991

by

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INTRODUCTION

The Department of Water Resources (DWR) initiated an instream flow program in 1976 to identify streams that would benefit from flow enhancement and to assess instream values. The Northern District of DWR selected Little Last Chance Creek below Frenchman Reservoir (Figure 1) as one of the streams to study under this program.

Department of Fish and Game (DFG) biologists studied trout populations in Little Last Chance Creek in 1976, 1981, and 1986. Rainbow trout (Oncorhynchus mykiss) and brown trout (Salmo trutta) were the only game fish caught each year. Sacramento suckers (Catostomus occidentalis) were also caught each year (Brown 1976, Bumpass et al. 1989, Brown 1991).

This report documents the results of sampling conducted in 1991. The purpose of this study is to evaluate the effects of the operation of Frenchman Reservoir on populations of trout in Little Last Chance Creek through the periodic sampling of fish at established stations in that creek. Results of this report and previous reports on Little Last Chance Creek will be discussed in a summary report that will be written in 2001.

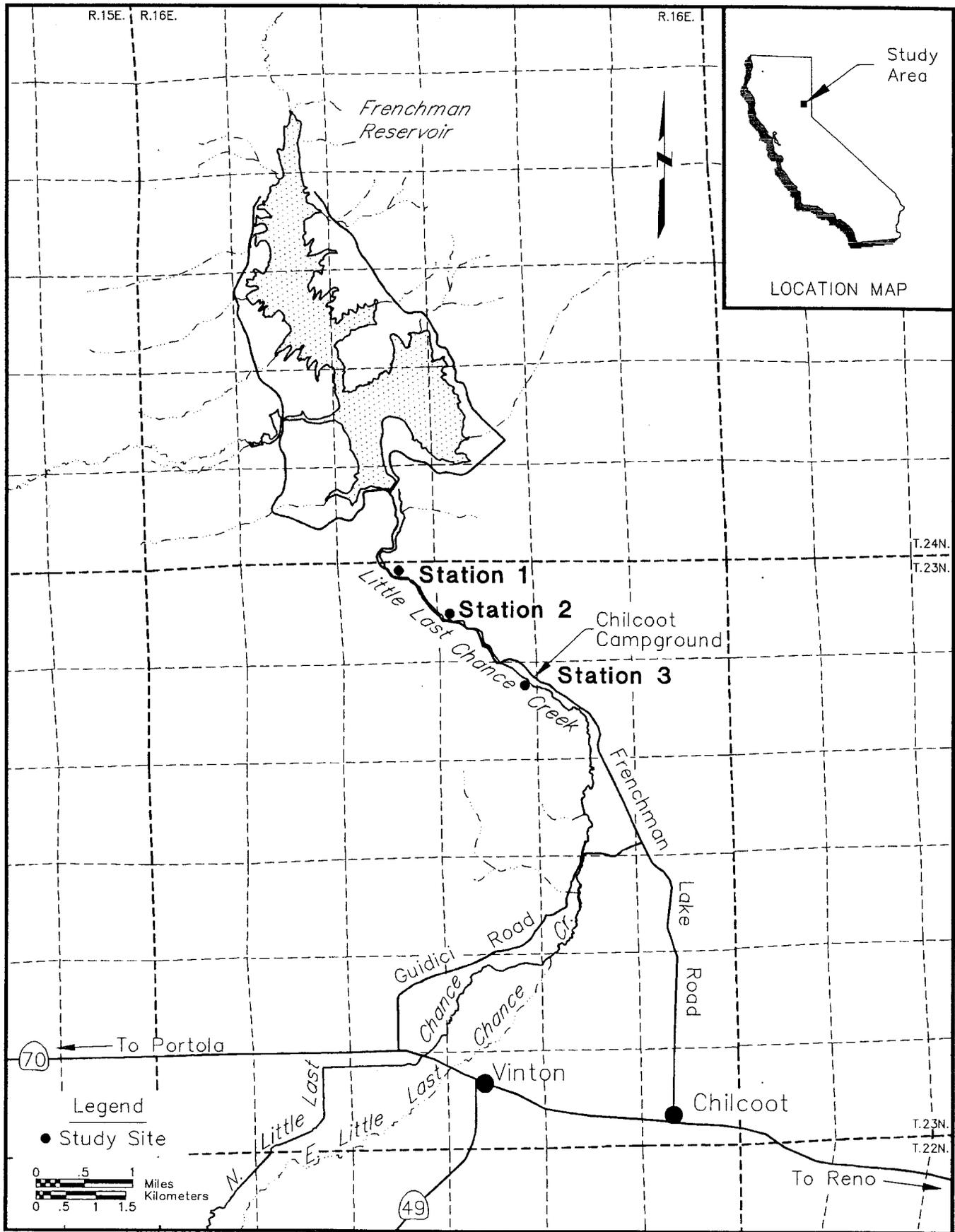


Figure 1. Stations Sampled to Estimate Standing Stocks of Fish in Little Last Chance Creek, Plumas County, 1991.

METHODS

Standing stocks of fishes were estimated at three stations in Little Last Chance Creek (Figure 1) in Plumas County. Stations were intentionally selected to be near stations sampled in previous DFG studies (Appendix 1). Markers had previously been placed in trees along the stream to identify station boundaries. Stations varied in length from 45.0 to 64.1 m. The length, average width, and average depth of each station was measured. Fish were captured with a battery-powered backpack electroshocker in stream sections blocked by seines. Captured fish were removed from the net-enclosed section on each pass. Standing stock estimates were developed using the two-count method of Seber and LeCren (1967) or the multiple-pass method of Leslie and Davis (1939) with limits of confidence computed using a formula proposed by DeLury (1951).

The weight of a brown trout and a Sacramento sucker were determined by displacement. Fork length (FL) of each fish was measured to the nearest millimeter.

A scale sample was taken from the brown trout. Scales were mounted dry between microscope slides, and their images were projected on a NCR microfiche reader at a magnification of 42x. Scale measurements for the calculation of growth were recorded to the nearest millimeter along the anterior radius of the anterior-

posterior axis of the scale.

Distribution of both fish caught is listed according to location. Standing crops of the brown trout and the sucker were calculated for individual stations where each fish was caught.

RESULTS AND DISCUSSION

A brown trout was caught at station 2. A Sacramento sucker was caught at station 3 (Table 1).

TABLE 1. Distribution of Fishes in Sections of Little Last Chance Creek, Plumas County, 1991.

	Station Number		
	<u>1</u>	<u>2</u>	<u>3</u>
Distance below Frenchman Dam (km)	1.6	3.2	4.4
Brown trout		X	
Sacramento sucker			X

Brown trout biomass was 0.7 g/m^2 at one station. Biomass for brown trout large enough for fishermen to catch and keep ($\geq 127 \text{ mm FL}$) also was 0.7 g/m^2 at one station (Table 2).

TABLE 2. Estimate of Brown Trout Standing Crop in Little Last Chance Creek, Plumas County, 1991.

Distance Below Frenchman Dam (km)	Population Estimate	95% Confidence Interval	Biomass (g/m ²)	Estimate of Catchable Trout (>127 mm FL)	Biomass of Catchable Trout (g/m ²)
1.6	0	-	-	-	-
3.2	1	1-1	0.7	1	0.7
4.4	0	-	-	-	-

Sacramento sucker was the only non-salmonid fish caught in Little Last Chance Creek. Biomass was 3.8 g/m² at one station (Table 3).

TABLE 3. Estimate of Standing Crop of Nongame Fishes in Little Last Chance Creek, Plumas County, 1991.

Distance Below Frenchman Dam (km)	Species	Population Estimate	95% Confidence Interval	Biomass (g/m ²)
4.4	Sacramento sucker	1	1-1	3.8

The brown trout was 300 mm FL and weighed 180 g. This fish was emaciated and appeared to have frayed and worn fins. Past sampling in this creek has produced trout that weigh about 300 g when they reach a length of 300 mm FL (Brown 1991).

Scale reading demonstrated that the trout was age 1+. It reached the length of 175 mm FL at age 1. Brown trout in this creek averaged 99 mm FL at age 1 in 1988 (Brown 1991) and 159 mm FL at age 1 in 1986 (Bumpass et al. 1989).

Brown trout population estimates in previous years averaged between 1 and 21 while biomass averaged between 1.2 and 5.5 g/m². Rainbow trout population estimates ranged from 8 to 43 and biomass averaged between 4.0 and 13.9 g/m² (Table 4).

TABLE 4. Average Standing Crops and Biomass for Brown and Rainbow Trout in Little Last Chance Creek, 1976-1991.

Year	Brown Trout		Rainbow Trout	
	Population Estimate	Biomass g/m ²	Population Estimate	Biomass g/m ²
1976	1	1.2	8	13.9
1981	6	2.7	17	4.0
1986	10	3.7	96	3.8
1988	21	5.5	43	6.5
1991	<1	0.3	0	0

So few fish were caught because DFG treated Frenchman Reservoir, Little Last Chance Creek and parts of the Feather River with rotenone to kill northern pike (Esox lucius). DFG killed northern pike in this watershed to prevent them from migrating downstream into the Sacramento River. DFG feels that pike could become established in the Sacramento River and become significant predators on juvenile salmonids.

LITERATURE CITED

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APPENDIX 1

PERMANENT FISH POPULATION STATIONS FOR LITTLE LAST CHANCE CREEK, PLUMAS COUNTY SEPTEMBER 1991

Station 1 (1-Mile Station) - Located 1.6 km below Frenchman Dam just downstream from the first bridge at elevation of 1659 m MSL in NW 1/4 of NE 1/4, Section 4, T23N, R16E. This station begins in a rapid beneath the bridge carrying Frenchman Lake Road, then enters a pool with a deeply undercut room-sized boulder on the right bank. The remainder of the station is a short rapid and a shallow pool/run. About 55 percent of the station is pool and 45 percent rapid. Substrate is boulder, rubble, and sand. The station is 45 m long with a surface area of 184.5 m² at a flow of 7 cms.

Station 2 (2-Mile Station) - Located 3.2 km below Frenchman Dam adjacent to the upper end of a large turnout at an elevation of 1610 m MSL in NW 1/4 of SW 1/4, Section 3, T23N, R16E. This station begins in a large plunge pool followed by two shallow pool/run areas and two short rapids. About 45 percent of the station is pool and 55 percent rapid. Substrate is boulder, rubble, and sand. The station is 64.1 m long with a surface area of 275.6 m² at a flow of 7 cms.

Station 3 (Campground Station) - Located 4.4 km below Frenchman Dam adjacent to the cutoff road in the center of Chilcoot Campground at an elevation of 1561 m MSL in NE 1/4 of NE 1/4, Section 10, T23N, R16E. This station begins in a steep rapid followed by a long pool with undercut right bank, then a short rapid, a short pool, and finally, another steep rapid. The station is 40 percent pool and 60 percent rapid. Substrate is boulders, rubble, and sand. The station is 58 m long with a surface area of 272.6 m² at a flow of 7 cms.