

Ken Aasen, Fisheries Management Supervisor

November 7, 1983

- Region 3

Summer Electrofishing survey, Lagunitas Creek, Marin County

During the summer of 1982, 22 stations were sampled by electrofishing in the Lagunitas Creek drainage. These included 3 stations in Devil's Gulch, 2 in Olema Creek, 5 in San Geronimo Creek, and 12 in mainstem Lagunitas Creek. Nine of these stations were resampled in 1983. These nine stations were selected to get the best comparable results. The remaining 13 stations were not sampled due to the excessive amount of time which would have been required. The 1983 stations included 2 in Devil's Gulch, 2 in Olema Creek, 1 in San Geronimo Creek, and 4 in mainstem Lagunitas Creek.

The attached table shows the results of the 1982 and 1983 sampling. Calculated populations for 30-meter stations are shown in the table. Calculated populations are based on either a two-pass (Seber and LeGren) or three-pass (Leslie) sampling effort. Not shown on the table is population data for lamprey and stickleback which were captured at several stations.

Sampling results varied considerably from 1982 to 1983. Data have been combined below for the four sampled streams and then for the entire drainage.

Lagunitas Creek (4 stations)

	<u>1982</u>	<u>1983</u>	<u>% Change</u>
Steelhead	255.0	170.7	- 33.1
Coho salmon	1.0	4.0	+ 300.0
Sculpin	161.9	33.0	- 79.6
Sucker	0	9.0	--
Roach	226.8	168.3	- 25.8

Olema Creek (2 stations)

	<u>1982</u>	<u>1983</u>	<u>% Change</u>
Steelhead	249.7	27.9	- 68.8
Coho salmon	0	12	—
Sculpin	87.2	15.3	- 82.5
Sucker	0	15	—
Roach	96.0	106.0	+ 10.4

Devil's Gulch (2 stations)

	<u>1982</u>	<u>1983</u>	<u>% Change</u>
Steelhead	107.4	190.6	+ 77.5
Coho salmon	15.1	18.1	+ 19.9
Sculpin	61.8	38.4	- 37.9

San Geronimo Creek (1 station)

	<u>1982</u>	<u>1983</u>	<u>% Change</u>
Steelhead	50.8	25.6	- 49.6
Coho salmon	0	2.0	—
Sculpin	10.4	5.0	- 51.9
Roach	17.6	12.0	- 31.8

Lagunitas Creek Drainage (9 stations)

	<u>1982</u>	<u>1983</u>	<u>% Change</u>
Steelhead	662.9	464.8	- 29.9
Coho salmon	16.1	36.1	+ 124.0
Sculpin	321.3	91.7	- 71.5
Sucker	0	24.0	—
Roach	340.4	286.3	- 15.9

All but coho salmon showed a decline between 1982 and 1983. Only in Devil's Gulch did steelhead show an increase in numbers. For each station, sampling effort was essentially the same as last year, with two possible exceptions. In 1982, each electrofishing crew of three persons normally had two Department employees, one biologist and one Seasonal Aide, with some prior electrofishing experience, or two biologists. In 1983, the crew had only one experienced biologist and two inexperienced helpers (one of these was present all five days so soon gained experience). Roach may not have been sampled as intensively in 1983 and in 1982; many very small roach were present which could not be effectively sampled. The sampling equipment in 1983, Smith-Root type XI electrofisher, was the same machine used in 1982 on both Olema Creek stations, the San Geronimo station, and station 3 of Lagunitas Creek.

For all sampling sites except in Devil's Gulch, substantial substrate changes appeared to have occurred between 1982 and 1983. Stream sections were generally wider in mainstem Lagunitas Creek, which would be due in part to the greater flow, approximately 6 cfs as opposed to the 3 to 3.5 in 1982. In some areas, depths were less than in 1982; in some areas they were greater. The high run-off and erosion of 1981-82 and 1982-83 are probably responsible for much of the substrate change and thence for some of the fish population changes.

The hatchbox program cannot be credited for the increase in coho salmon as the greatest part of that increase was noted in the tributaries where no hatchbox coho were released.

Additional sampling effort was expended in the impounded area, reaching about 1.5 miles upstream from Giacomini's dam. The electrofishing boat was operated for about 2.5 daylight hours throughout this area on October 17 to look for salmonids. Only one trout was caught and no salmon. Many carp and goldfish were observed and a few young-of-the-year bluegill and largemouth bass. The water was highly turbid, which may have made salmonids difficult to see even if they were present. I would think, however, that if they were abundant, we would have seen more than one.

I recommend that the downstream trapping be continued next spring with emphasis on the lower stream rather than the tributaries. Also, the impoundment should be boat electrofished again soon after the dam goes in and in mid-summer. Simultaneous with the boat electrofishing should be gill netting to supplement the electrofishing.

**COPY ORIGINAL SIGNED BY
P. N. BAKER**

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Fishery Biologist

WGC:tf

Attachment

cc: D. W. Kelley and Associates
Marin Municipal Water District

bcc: Bill Cox, Lt. Ken Bain

Calculated fish populations per 30 meter section of stream.

station	steelhead		coho		sculpin		sucker		roach		
	1982	1983	1982	1983	1982	1983	1982	1983	1982	1983	
Lagunitas	1	26.0	2.5	—	—	83.0	2.5	—	—	5.0	6.6
"	2	6.7		—		9.0		—		44.4	
"	3	70.7	34.4	—	—	26.3	—	—	5.0	155.8	104.0
"	4	16.0		—		34.9		1.0		213.6	
"	5	14.0		—		14.0		—		1.0	
"	6	138.0		6.0		29.4		10.4		58.3	
"	7	60.4	69.2	1.0	4.0	38.6	19.9	—	4.0	63.0	57.7
"	8	97.9	64.6	—	—	14.0	10.6	—	—	3.0	—
"	9	87.6		—		27.6		—		25.0	
"	10	68.0		—		23.8		11.4		26.0	
"	11	138.0		—		9.0		—		1.0	
"	12	62.5		—		55.9		—		3.0	
Olema	1	45.0	31.5	—	—	46.1	2.0	—	6.0	44.0	98.0
"	2	204.7	46.4	—	12.0	41.1	13.3	—	9.0	52.0	8.0
Devil's Gl.	1	57.2	75.6	10.1	9.0	28.9	23.3	—	—	—	—
"	2	50.2	115.0	5.0	9.1	32.9	15.1	—	—	—	—
"	3	74.4		—		30.3		—		—	
San Geronimo	1	67.4		2.0		1.0		—		197.8	
"	2	155.1		5.1		—		—		50.5	
"	3	33.3		—		3.0		—		27.0	
"	4	50.8	25.6	—	2.0	10.4	5.0	—	—	17.6	12.0
"	5	28.5		1.0		18.3		—		—	