6B. Long-Term monitoring recommendations for fishes in the Cosumnes and Mokelumne River basins

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Introduction

The purpose of this section is to present recommendations for long-term monitoring of the Cosumnes and Mokelumne river basins. The upstream and downstream portions of the two basins present different monitoring challenges, so they are presented separately by region and by basin.

Cosumnes River basin

Resident fish: watershed

Trends in fish and invertebrate distribution and abundance can track land use reflect degradation or improvement of the watershed at both local and watershed scales. The purpose of a monitoring program would be alert managers to developing problems, including invasions of alien species. Of particular concern is the spread of redeye bass and green sunfish above barriers that still protect the distinctive California roach populations in the watershed.

We recommend annual sampling for fish by snorkeling or single-pass electrofishing at a minimum of five sites in the upper watershed (Table 1). Every five years, a more extensive survey should be conducted that includes rapid bioassessment using invertebrates and sampling of fish using a variety of techniques, but including quantitative 3-pass electrofishing at a minimum of 10 sites widely distributed through the watershed (Table 1).

Site #	Latitude	Longitude	Description
1	38 33 35.39	120 31 6.98	Sopiago Creek
2	38 34 4.48	120 26 42.53	PiPi campground @M.F.Cosumnes
3	38 36 10.45	121 1 20.13	Deer Creek @ Latrobe
4	38 39 9.09	120 37 30.03	N.F. Cosumnes @ Sweenys Crossing
5	38 39 30.32	120 39 39.36	Camp Creek @ Happy Valley Rd.
6	38 32 53.92	120 42 49.69	Scott Creek @ Bridgeport School Rd.
7	38 31 39.95	120 41 5.69	S.F. Cosumnes @ Tyler Rd.
8*	38 32 47.25	120 44 10.02	S.F. Cosumnes @ Hwy. E16
9*	38 31 21.11	120 57 16	Cosumnes River @ Latrobe Rd.
10	38 33 3.12	120 50 53.10	Cosumnes River @ Hwy. 49
11*	38 37 35.24	120 41 56.09	M.F. Cosumnes @ Hwy. E16
12*	38 39 36.21	120 59 21.9	Deer Creek @ Country Club Drive
13	38 42 51.15	120 33 42.20	Sly Park Creek @ Morman Emigrant
14*	38 40 48.51	120 24 57.15	Camp Creek @ North-South Rd.
15	38 29 50.14	121 3 40.83	Van Vleck Lake @ Cosumnes River
16	38 29 30.44	121 5 26.29	Cosumnes River @ Hwy. 16
17	38 25 .85	121 16 43.60	Cosumnes River @ Wilton Rd.
18	38 21 39.56	121 20 23.25	Cosumnes River @ confluence Deer Crk.
19	38 21 39.19	121 20 26.55	Deer Creek @ confluence Cosumnes River
20	38 22 4.48	121 20 23.72	Deer Creek @ Wells Cattle Ranch
21-1	38 18 30.2	121 22 36.32	Cosumnes River @ Mellonetta's
21-2	38 18 29.46	121 22 37.11	Cosumnes River @ Mellonetta's
21-3	38 18 25.98	121 22 38.68	Cosumnes River @ Mellonetta's
21-4	38 18 40.5	121 22 29.88	Cosumnes River @ Mellonetta's
21-5	38 18 32.19	121 22 35.22	Cosumnes River @ Mellonetta's
22	38 17 26.77	121 22 45.98	Cosumnes River @ Twin Cities Rd.
23	38 40 47.81	121 39 48.87	Clear Creek @ Hwy. E16
24	38 15 15.29	120 39 52.43	N.F. Cosumnes @ Happy Valley Rd. Bridge
25	38 36 20.58	120 36 51.0	M.F. Cosumnes @ Rocky Bar Rd.
26	38 20 28.68	121 21 4.96	Cosumnes River @ 1.5 km below Hwy 99
27	38 21 18.79	121 20 43.0	Cosumnes River @ .4 km below Hwy. 99
28	38 31 25.62	120 54 27.87	Cosumnes River @ 4 km below Latrobe Rd.
29	38 38 45.73	120 23 36.19	N.F. Cosumnes River @ Capps crossing
30	38 36 22.49	120 26 4.27	Dogtown Creek @ N.S. Rd.
31	38 35 50.18	120 18 45.97	Cat Creek @ Cat Creek Rd.
32*	38 35 5.55	120 17 52.86	M.F. Cosumnes River@ Cat Creek Rd.
33	38 40 47.81	120 39 48.87	Deer Creek @ Kiefer Rd.
34*	38 39 18.22	120 39 55.40	N.F. Cosumnes @ Camp Creek confluence
35	38 37 54.87	120 15 20.83	N.F. Cosumnes @ Lower Leek Springs
36*	38 35 53.1	120 14 22.68	M.F. Cosumnes @ Lower Foster Meadows
37	38 35 22.67	120 15 15.64	M.F. Cosumnes @ Foster Meadows Rd.
38	38 35 12.59	120 17 30.94	M.F. Cosumnes @ above Cat Creek Rd.
39*	38 38 7.02	120 14 45.09	N.F. Cosumnes @ Upper Leek Springs
40	38 36 39.35	120 18 1.03	Cat Creek @ upper Cat Creek
41	38 30 51.66	120 59 28.79	Erwin Ranch @ just below Latrobe Falls
42	38 32 12.49	120 56 16.29	Big Canyon Creek @ 1.3km above Cosumnes
43	38 31 41,05	120 56 16.89	Cosumnes River @ confluence of Big Canyon Crk.
44	38 32 12.49	120 59 58.06	Little Indian Creek @ headwaters

Table 1. Sites with latitude and longitude that were sampled in the Cosumnes River basin. An * indicates a site that is a proposed monitoring site.

Migratory fish

One of the least understood aspects of the Cosumnes River is its use by migratory fish including chinook salmon, Pacific lamprey, Sacramento suckers and Sacramento pikeminnow. The only monitoring of these populations at present is the annual carcass counts of chinook salmon, which need to be regularized. We recommend the following:

1. Annual carcass counts of salmon on at least a weekly basis, from November through December (if salmon are likely to be present, as determined by flows.
2. Investigate the possibility of setting up a video monitoring site on the lower river, to record migrations of all fish, such as has been established at Woodbridge Dam on the Mokelumne River.

Floodplain fishes and invertebrates

Annual surveys of use of the Cosumnes Floodplain by juvenile fishes is a good way to determine spawning success of native fishes that are riverine and floodplain spawners. It is also a good way to determine the success of management actions on the floodplain site. We recommend the following:

1. Every year use a 1-5 x1.5 m, 7 mm stretch mesh, bag seine to sample fish in the areas around Pond 1 and Pond 2 and at two river or slough sites, Cosumnes River Preserve. Sampling should occur at least once every two weeks from mid-February through mid-May, longer if native fishes are still abundant in May.
2. Every five years, conduct a weekly survey, as above, through mid-June, provided the year has average or above average flows in the river.

3. Conduct weekly sampling of planktonic and benthic invertebrates using protocols established in section 6A, from February through May, every five years, to determine if productivity of the system has changed. This should be done on a year when flooding occurs continuously during the period.

Mokelumne River

1. The sampling now conducted by East Bay Municipal Utility District on the lower Mokelumne River should be continued on at least an annual basis, during February-June.
2. Electrofishing and snorkeling surveys conducted by the California Department of Fish and Game on the North Fork Mokelumne should be repeated at least once every five years.