

# Cruise Report for the Surface Waters Ambient Monitoring Program (SWAMP) Bioaccumulation Monitoring Program

## Panel 5 of Long-Term Monitoring of Bass Lakes and Reservoirs in California

Sampling Dates: April 3, 2023-September 18, 2023

Prepared by the Marine Pollution Studies Laboratory (MPSL) at Moss Landing  
Marine Laboratories

### Introduction

This report describes the sampling activities in Lakes and Reservoirs identified for long-term monitoring of bioaccumulated contaminants as part of the Surface Water Ambient Monitoring Program (SWAMP) Bioaccumulation Monitoring Program. Bioaccumulation monitoring is a very effective and an essential tool for evaluating current status and is the most cost-effective tool for evaluating trends for many contaminants. Monitoring was conducted every other year for ten (10) years in five (5) panels of lakes to allow coverage of the entire set of identified lakes and reservoirs. This report covers lakes from Panel 5, sampled during the 2023 field season.

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## 1.0 Cruise Report

### 1.1 Objectives

For each lake, 14 adult/subadult bass were collected across a defined size range as outlined in the 2023 Monitoring and Analysis Plan ([Monitoring Plan](#)) for bass lakes, along with 10 each of three prey species (25-100 mm TL). Changes to the number of fish or addition of other additional species to be collected were requested at some lakes by the Office of Environmental Health Hazard and Assessment (OEHHA) or by Regional Water Quality Control Boards (Regional Boards) on a lake-by-lake basis.

### 1.2 MPSL Sampling personnel

Gary Ichikawa	Project Assistant, Crew Lead
William Jakl	Project Associate, Crew Lead
Scot Lucas	Research Technician, Crew Lead
Chris Beebe	Research Technician, Crew Lead
April Sjoboen Guimaraes	Research Technician
Jon Goetzl	Project Assistant
Nadia McCoy	Project assistant
Harley Thompson	Project assistant

### 1.3 Authorization to collect samples

MPSL personnel were contracted through agreement # 20-006-270 between the State of California and San Jose State University Research Foundation to conduct the sample collection activities listed herein.

All work was completed under MPSL scientific collecting permit # S-183470004-20339-001 authorized by the California Department of Fish and Wildlife.

### 1.4 Station selection

Based upon the random selection of the [2007-2008 Lakes and Reservoir Screening Study](#), with pre-sampling input from the Regional Boards, 44 lakes/reservoirs were selected (Panel 5) to resample in 2023. Ultimately, 35 lakes were sampled (see [Discussion](#) for details).

### 1.5 Summary of types of samples authorized to be collected

Up to fourteen black bass per location within each lake were targeted. One to three prey species (10 fish/species; TL = 25 mm - 100 mm) per water body (or per location if more than

one location in the lake was sampled) were also targeted. Fifteen of the lakes sampled were designated for additional bottom species collection for PCB and/or OCH analyses. Changes to the number of fish or addition of species to be collected were requested by the OEHHA or the Regional Boards on a lake-by-lake basis.

Upon collection, each sport-sized fish was tagged with a unique ID that corresponded to the latitude/longitude where it was collected. Physical parameters collected for each individual fish included weight, total length, fork length (if fork present) and presence of any abnormalities. Fish samples were stored on dry ice until returned to the laboratory facility. Once transferred to the lab, samples were stored at -20°C until they were processed for authorized dissection and analysis.

Details on sampling and analysis, including the description of the locations, number of samples and species necessary to be collected at each lake can be found in Tables 6 and 8 of the 2023 Monitoring Plan.

## **1.6 Results**

A detailed fish catch summary can be found below. Maps of all stations are provided showing locations of successful fishing effort and unsuccessful fishing effort. Tables below each figure summarize the species, quantity, and sizes (total length [TL] in mm) of fish caught at each site. The [Table of Contents](#) above indicates on which page collection details for each station can be found.

## Dead Lake (103PDE006)

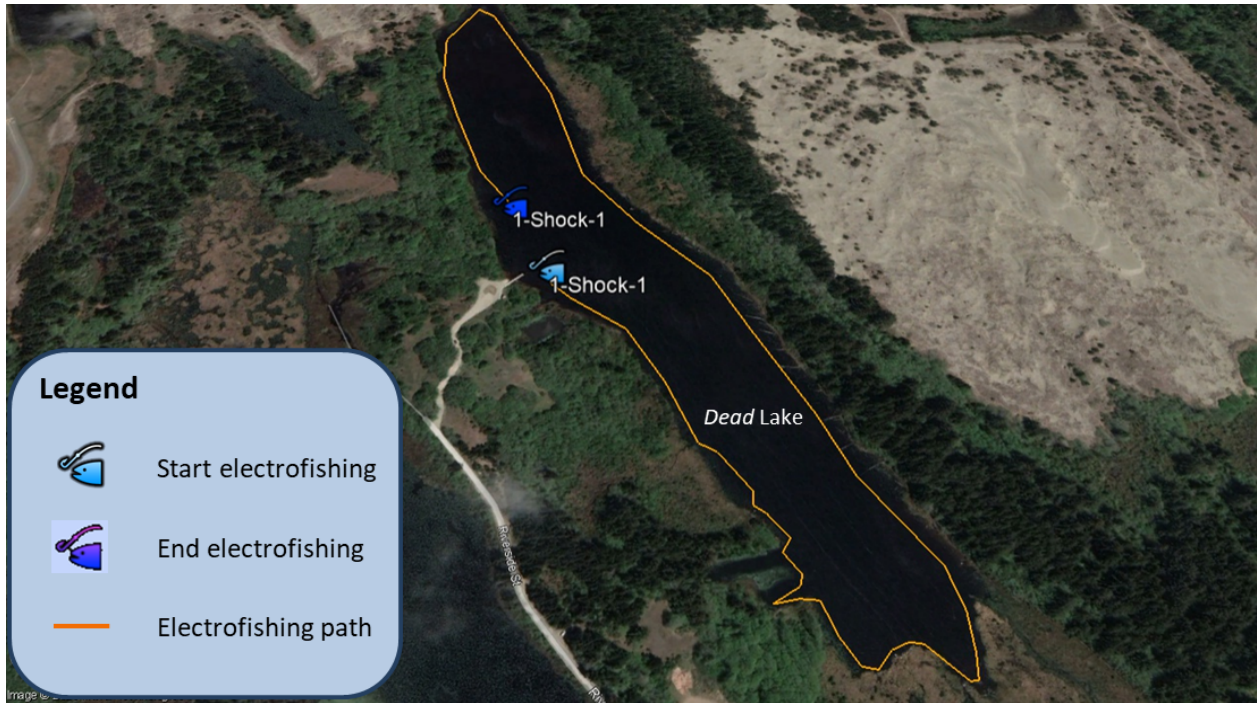
Latitude: 41.78359

Longitude: -124.22669

Collection Method: Electroshock

Dates of Collection: 6/12/2023-6/13/2023

Samplers: Scot Lucas and April Sjoboen Guimar?es



Bluegill (Prey), TL (mm)			
85	87	102	106

Bluegill, TL (mm)				
155	155	158	161	181

Green Sunfish (Prey), TL (mm)									
57	58	60	75	77	83	84	90	93	95

Green Sunfish, TL (mm)				
123	135	143	145	148

Largemouth Bass (Prey), TL (mm)									
58	70	72	83	85	86	90	95	96	99

Largemouth Bass, TL (mm)						
200	225	281	284	318	325	365
368	373	374	390	397	405	425

**Comments:** A small lake on the outskirts of Crescent City, CA, Dead Lake is fished mostly by local shore, small skiff and kayak anglers. The entire lake was sampled by electrofishing.

# Lake Mendocino (114PLM149)

Latitude: 39.20525

Longitude: -123.16811

Collection Method: Electroshock

Dates of Collection: 7/25/2023-7/26/2023

Samplers: Scot Lucas and Jon Goetzl



Location 1 Bluegill (Prey), TL (mm)									
77	80	80	84	88	90	93	93	99	100

Location 1 Channel Catfish, TL (mm)				
448	521	530	535	545

Location 1 Common Carp, TL (mm)				
305	334	362	380	392

Location 1 Largemouth Bass (Prey), TL (mm)									
50	51	55	58	61	65	67	70	73	75

Location 1 Largemouth Bass, TL (mm)						
232	242	245	250	258	302	332
385	392	411	421	423	465	470

Location 1 Mississippi Silverside (Prey), TL (mm)									
43	47	50	51	53	59	61	80	83	93

Location 1 Redear Sunfish, TL (mm)				
145	147	150	151	157

Location 2 Bluegill (Prey), TL (mm)									
70	73	78	82	85	88	89	92	94	95

Location 2 Bluegill, TL (mm)				
145	147	150	151	157

Location 2 Channel Catfish, TL (mm)				
515	525	525	530	605

Location 2 Common Carp, TL (mm)				
515	525	525	530	605

Location 2 Largemouth Bass (Prey), TL (mm)									
36	40	40	42	69	72	82	82	83	86

Location 2 Largemouth Bass, TL (mm)						
215	249	260	295	315	318	322
360	382	390	408	410	485	528

Location 2 Mississippi Silverside (Prey), TL (mm)									
49	49	52	53	56	59	77	78	87	98

Location 2 Redear Sunfish (Prey), TL (mm)				
72	75	85	86	96

**Comments:** Fish were collected at Mendocino Lake, a two-location lake, over a two-day period. Striped bass, rainbow trout and threadfin shad were requested but none were seen. All fish were collected by electrofishing.



## Spring Lake (114PSP009)

**Latitude:** 38.45571

**Longitude:** -122.65339

**Collection Method:** Electroshock

**Dates of Collection:** 6/14/2023

**Samplers:** Scot Lucas and April Sjoboen Guimar?es



Bluegill (Prey), TL (mm)									
51	58	60	60	63	67	68	78	79	79

Largemouth Bass (Prey), TL (mm)									
36	36	39	39	40	41	44	46	46	50

Largemouth Bass, TL (mm)						
247	247	275	276	319	331	340
341	350	376	395	410	477	484

**Comments:** Bass, bluegill and sunfish were the only species seen at Spring Lake. All fish were collected by electrofishing. The entire lake was shocked.

## Bon Tempe Lake (201PBT189)

Latitude: 37.95301

Longitude: -122.60579

Collection Method: Electroshock

Dates of Collection: 6/19/2023

Samplers: Scot Lucas and Gary Ichikawa



Bluegill (Prey), TL (mm)									
48	49	53	54	55	56	57	60	64	65

Largemouth Bass (Prey), TL (mm)									
85	86	89	89	91	97	97	98	98	99

Largemouth Bass, TL (mm)						
204	215	269	270	342	350	376
380	385	386	390	410	480	485

Rainbow Trout, TL (mm)	
270	323

**Comments:** After a hot pressure wash, boat decontamination and a pre-launch inspection at Marin Water headquarters, staff there granted access through a small, gated launch at the southeast end of Bon Tempe Lake.

## San Pablo Reservoir (206PSP205)

Latitude: 37.92298363

Longitude: -122.237903

Collection Method: Electroshock

Dates of Collection: 9/18/2023

Samplers: Scot Lucas and Gary Ichikawa



Bluegill (Prey), TL (mm)									
67	70	76	79	82	84	85	88	93	98

Common Carp, TL (mm)				
520	532	535	569	617

Largemouth Bass (Prey), TL (mm)									
59	59	61	62	66	71	72	85	87	95

Largemouth Bass, TL (mm)						
202	248	293	297	306	310	310
315	342	355	376	407	410	439

Mississippi Silverside (Prey), TL (mm)									
44	57	58	59	60	63	68	70	71	83

Threadfin Shad (Prey), TL (mm)									
51	52	54	54	55	58	58	59	60	61

**Comments:** San Pablo Reservoir was sampled at the request of Region 2 staff. Carp and adult bluegill were requested in addition to adult bass. No adult bluegill were seen.

## Hernandez Reservoir (305PHR112)

**Latitude:** 36.38452

**Longitude:** -120.8216

**Collection Method:** Electroshock

**Dates of Collection:** 5/3/2023

**Samplers:** Gary Ichikawa and Jon Goetzl



Bluegill (Prey), TL (mm)									
50	59	63	64	67	71	72	73	80	81

Largemouth Bass, TL (mm)						
207	332	332	350	352	355	355
356	360	360	360	401	409	414

**Comments:** Unexpected late-season rainfall made trailering a boat in and out of Hernandez Reservoir, and subsequent shore launch, dangerous. We suggest not sampling this lake again unless the access road is repaired. Hernandez is not open to the public.

## Oso Flaco Lake (312POF158)

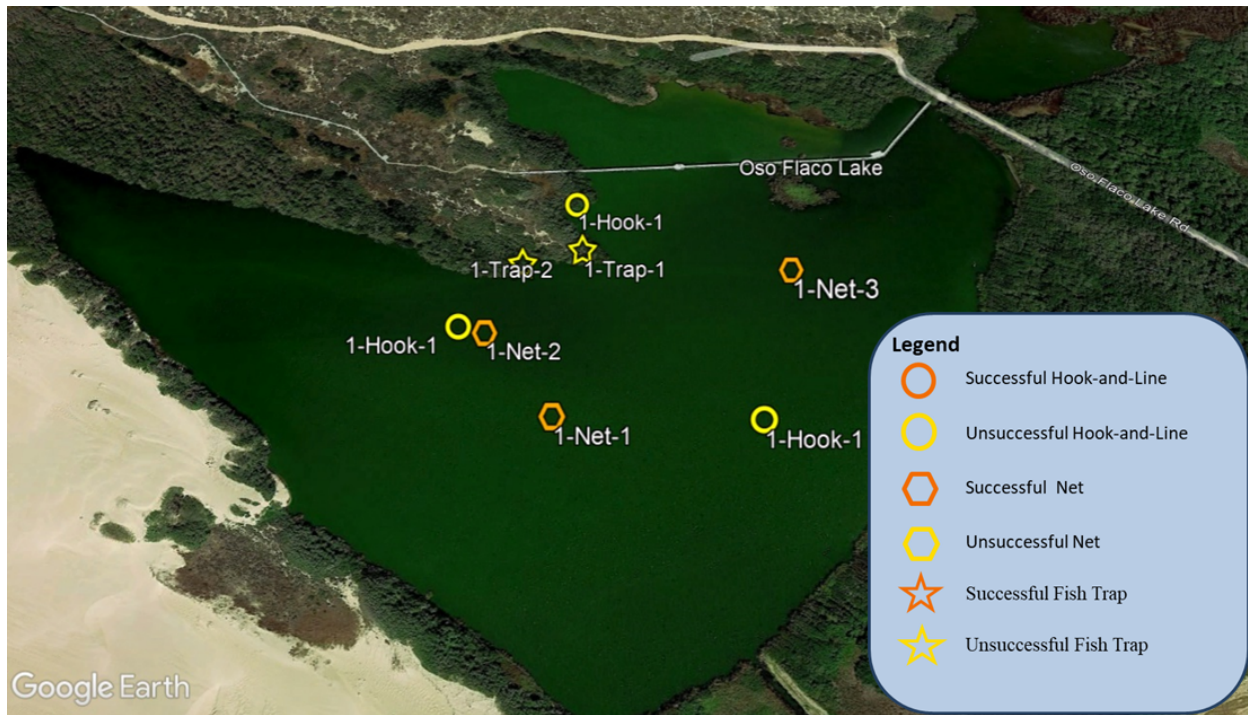
**Latitude:** 35.03144

**Longitude:** -120.62005

**Collection Method:** Gill Net, Hook-and-Line, Fish Trap

**Dates of Collection:** 6/13/2023

**Samplers:** Gary Ichikawa and Jon Goetzl



Hitch, TL (mm)									
230	241	252	255	262	280	280	285	305	315

Striped Mullet, TL (mm)
270

**Comments:** Oso Flaco Lake conditions (conductivity, visibility, water temperature) did not allow for electrofishing. Launch areas were limited therefore a portable aluminum skiff was used to set nets, traps and hook-and-line for fish. Access was granted by a local landowner, enabling a manual launch from the southern shoreline.

## Uvas Reservoir (305PUR072)

**Latitude:** 37.07572

**Longitude:** -121.70306

**Collection Method:** Electroshock

**Dates of Collection:** 6/27/2023

**Samplers:** Chris Beebe and Harley Thompson



Bluegill (Prey), TL (mm)									
57	59	59	60	65	69	69	73	80	82

Largemouth Bass (Prey), TL (mm)									
40	40	41	42	44	44	44	46	51	56

Largemouth Bass, TL (mm)						
224	245	253	254	292	295	324
353	375	380	388	455	472	479

**Comments:** Uvas Reservoir, a water consumption recharge lake, does not allow boats and so special arrangements and permits with Santa Clara County Parks and Valley Water were required prior to sampling. Requirements included: preliminary paperwork filed in advance of sampling, power wash, decontamination and an onsite visual inspection of the electrofisher boat. Key access was granted to the locked boat ramp gate.

## Calabasas Lake (412CALBLK)

**Latitude:** 34.1531

**Longitude:** -118.63766

**Collection Method:** Gill Net, Beach Seine

**Dates of Collection:** 8/15/2023

**Samplers:** Scot Lucas and Gary Ichikawa



Channel Catfish, TL (mm)
692

Largemouth Bass (Prey), TL (mm)									
61	63	64	65	66	66	72	77	78	79

Largemouth Bass, TL (mm)						
215	220	223	225	234	238	248
288	305	317	391	435	--	--

**Comments:** Hot weather created warm water temperatures which prevented electrofishing at Calabasas Lake. A system of set gill nets and repeated beach seines was used to get all fish. This private community lake is treated with an algicide and hence the water color is blue/purple.



## Lincoln Park Lake (412LINPRK)

**Latitude:** 34.06616

**Longitude:** -118.20273

**Collection Method:** Electroshock

**Dates of Collection:** 6/7/2023

**Samplers:** Gary Ichikawa and Jon Goetzl



Bluegill (Prey), TL (mm)									
64	70	71	72	75	75	77	80	81	85

Channel Catfish, TL (mm)
608

Largemouth Bass (Prey), TL (mm)									
53	54	55	58	60	60	61	62	69	70

Largemouth Bass, TL (mm)						
206	218	297	320	329	339	340
356	360	369	371	407	420	441

**Comments:** Part of Los Angeles City Parks, access to Lincoln Park Lake was arranged by prior communication and permission from the lake maintenance supervisor. A small concrete ramp at the East end of the lake was used to launch. All fish collected using an electrofisher boat and the entire lake was sampled.

## Lake Piru (403PIRULK)

Latitude: 34.46296

Longitude: -118.75035

Collection Method: Electroshock

Dates of Collection: 4/19/2023

Samplers: Gary Ichikawa and Jon Goetzl



Largemouth Bass, TL (mm)						
238	260	280	288	295	306	308
315	331	337	340	355	355	555

**Comments:** High winds prevented covering much area of Lake Piru with the electrofisher boat. Sampling was limited to one protected cove area near the boat ramp. No prey sized fish were seen.

## Westlake Lake (404WESTLK)

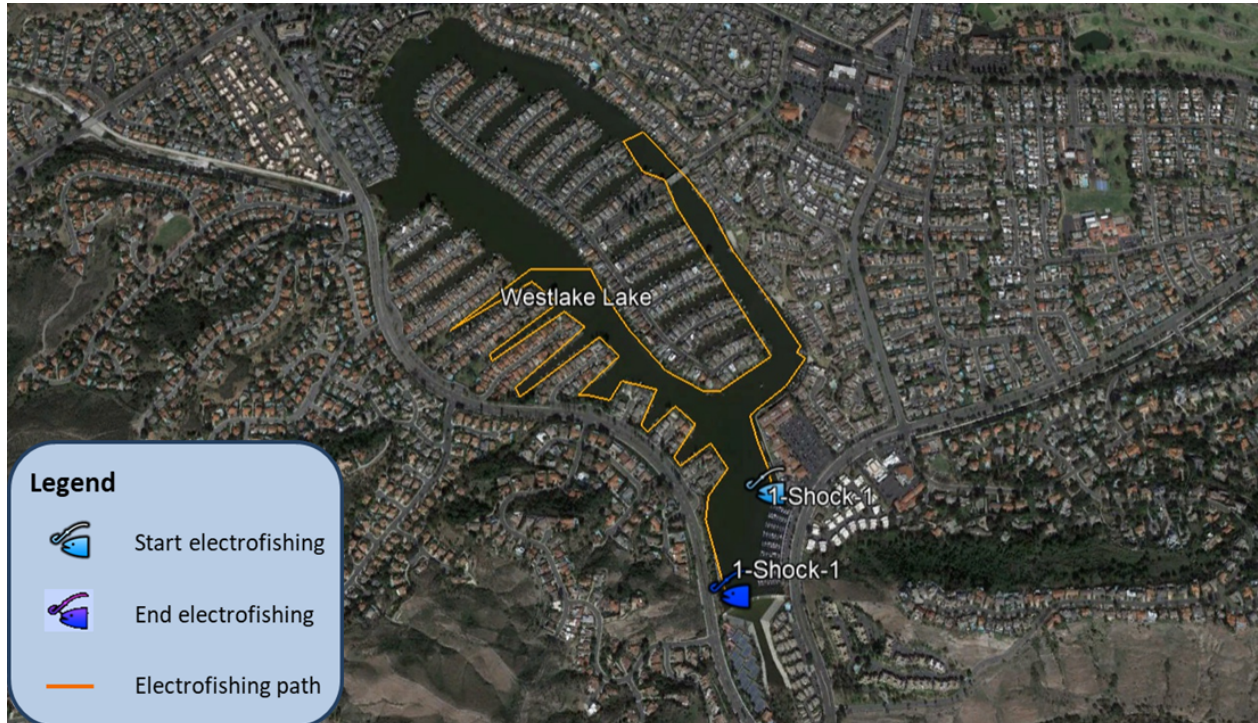
**Latitude:** 34.14249

**Longitude:** -118.82919

**Collection Method:** Electroshock

**Dates of Collection:** 4/18/2023

**Samplers:** Gary Ichikawa and Jon Goetzl



Bluegill (Prey), TL (mm)									
40	45	48	49	50	59	61	66	71	95

Largemouth Bass (Prey), TL (mm)									
70	71	72	72	76	77	78	84	85	87

Largemouth Bass, TL (mm)						
235	271	284	300	345	362	390
391	395	395	406	410	485	530

**Comments:** Westlake Lake is a private lake community in Los Angeles and was accessed by prior arrangement with the lake manager to have the small, gated ramp at the South end unlocked. All fish were collected by electrofishing.

## Lake Almanor (518PLA165)

**Latitude:** 40.22886

**Longitude:** -121.15465

**Collection Method:** Electroshock

**Dates of Collection:** 5/1/2023 through 5/4/2023

**Samplers:** William Jakl and Chris Beebe



Location 1 Mississippi Silverside (Prey), TL (mm)				
65	68	68	71	84

Location 1 Sacramento Sucker, TL (mm)				
460	475	550	560	570

Location 1 Smallmouth Bass, TL (mm)						
360	415	421	425	425	430	430
430	435	450	452	460	470	475

Location 2 Mississippi Silverside (Prey), TL (mm)									
51	55	55	55	56	58	60	61	62	66

Location 2 Sacramento Sucker, TL (mm)				
425	455	462	470	470

Location 2 Smallmouth Bass, TL (mm)						
319	365	365	379	385	400	400
402	420	440	445	450	470	472

Location 3 Mississippi Silverside (Prey), TL (mm)						
55	55	57	61	62	64	67

Location 3 Sacramento Pikeminnow (Prey), TL (mm)									
84	85	85	85	90	95	95	100	100	100

Location 3 Sacramento Sucker, TL (mm)				
350	366	440	441	516

Location 3 Smallmouth Bass, TL (mm)						
277	285	295	313	322	325	365
374	390	390	400	402	410	412

Location 3 Warmouth (Prey), TL (mm)									
48	49	49	50	50	54	65	67	75	100

Location 4 Mississippi Silverside (Prey), TL (mm)									
57	57	57	57	60	60	61	62	66	66

Location 4 Smallmouth Bass, TL (mm)						
360	365	385	395	400	410	435
435	435	440	445	450	465	475

**Comments:** Lake Almanor is designated as a four-location, extra-large lake. Snowy conditions hindered collections, but all four sites were collected with most of the fish species and sizes accounted for.

## Bethany Reservoir (543BETRES)

**Latitude:** 37.7799

**Longitude:** -121.61041

**Collection Method:** Electroshock

**Dates of Collection:** 4/3/2023

**Samplers:** Gary Ichikawa and Jon Goetzl



Bluegill (Prey), TL (mm)									
50	59	60	63	66	67	76	90	90	95

Largemouth Bass (Prey), TL (mm)									
64	70	76	77	78	78	78	85	91	92

Largemouth Bass, TL (mm)						
214	232	283	300	318	339	350
355	363	378	393	414	435	450

Mississippi silverside (Prey), TL (mm)									
46	50	55	59	61	68	75	79	80	88

**Comments:** Located at the Northern terminus of the California aqueduct, Bethany Reservoir is open to the public for fishing in small boats and from shore. All fish were collected by electroshock.

## Lake California (508TU0081)

**Latitude:** 40.34438

**Longitude:** -122.2006

**Collection Method:** Electroshock

**Dates of Collection:** 8/7/2023

**Samplers:** Gary Ichikawa and Jon Goetzi



Bluegill (Prey), TL (mm)									
69	71	72	72	80	82	83	86	88	99

Green Sunfish (Prey), TL (mm)									
48	48	49	49	50	53	53	54	54	78

Largemouth Bass (Prey), TL (mm)									
54	58	59	63	64	68	69	79	86	88

Largemouth Bass, TL (mm)						
207	207	296	326	337	339	351
352	372	378	390	412	425	442

**Comments:** Lake California is a private community lake situated off the Sacramento River near Red Bluff, CA. With approval of the lake manager, the lake was sampled with an electrofisher boat.

# Clear Lake (513PCL173)

Latitude: 39.025

Longitude: -122.79127

Collection Method: Electroshock

Dates of Collection: 7/10/2023 and 7/11/2023

Samplers: Scot Lucas and Gary Ichikawa







Location 1 Bluegill (Prey), TL (mm)									
70	70	75	77	80	82	83	85	90	91

Location 1 Common Carp, TL (mm)				
355	396	400	403	555

Location 1 Largemouth Bass (Prey), TL (mm)									
47	49	53	56	56	60	65	65	74	85

Location 1 Largemouth Bass, TL (mm)						
224	247	248	256	323	361	380
391	397	414	426	436	439	472

Location 1 Redear Sunfish, TL (mm)				
178	206	308	320	325

Location 2 Bluegill (Prey), TL (mm)									
47	49	50	52	53	65	70	90	98	98

Location 2 Bluegill, TL (mm)				
156	159	160	179	185

Location 2 Common Carp, TL (mm)				
411	451	552	575	578

Location 2 Largemouth Bass (Prey), TL (mm)									
49	53	53	53	55	56	76	80	84	89

Location 2 Largemouth Bass, TL (mm)						
225	240	252	277	317	352	354
380	382	384	396	415	470	471

Location 3 Bluegill (Prey), TL (mm)									
45	45	47	50	55	57	60	61	82	85

Location 3 Bluegill, TL (mm)				
115	166	172	179	188

Location 3 Common Carp, TL (mm)				
395	402	429	509	546

Location 3 Largemouth Bass (Prey), TL (mm)									
45	46	48	50	52	52	56	63	64	66

Location 3 Largemouth Bass, TL (mm)						
330	361	379	380	384	390	392
395	400	400	400	406	410	429

Location 4 Bluegill (Prey), TL (mm)									
30	30	33	36	40	46	60	63	67	75

Location 4 Common Carp, TL (mm)				
518	520	534	551	576

Location 4 Largemouth Bass (Prey), TL (mm)									
36	38	40	45	46	46	46	48	50	51

Location 4 Largemouth Bass, TL (mm)						
245	264	288	304	318	322	342
367	374	391	392	411	462	546

Location 4 Redear Sunfish, TL (mm)			
250	269	282	323

**Comments:** The top image above shows the general area of each of the four locations sampled within Clear Lake, and the bottom two images show higher resolution details of the specific paths of where fish were collected for each of the four locations. Rainbow trout, a desired species, was not seen.

## Contra Loma Reservoir (543PCL017)

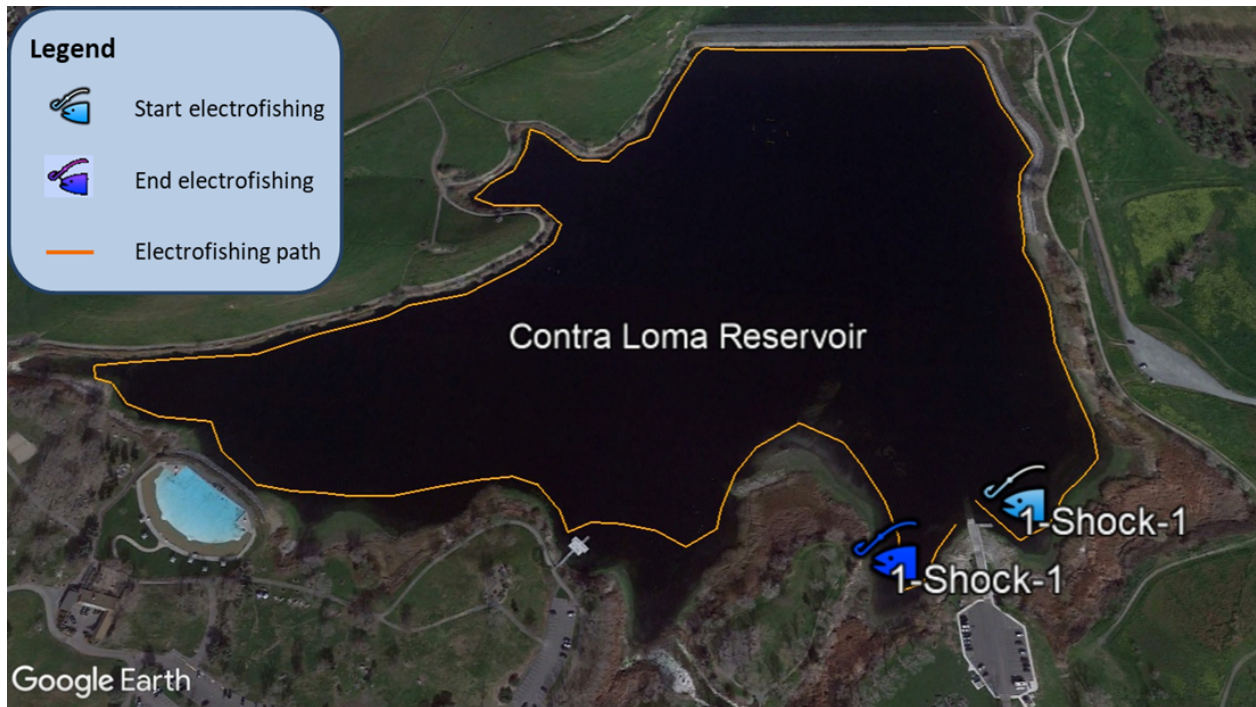
Latitude: 37.97438

Longitude: -121.82701

Collection Method: Electroshock

Dates of Collection: 5/23/2023

Samplers: Scot Lucas and April Sjoboen Guimar?es



Bluegill (Prey), TL (mm)									
57	65	93	96	97	98	98	99	100	104

Largemouth Bass (Prey), TL (mm)									
80	86	90	90	91	95	98	99	99	99

Largemouth Bass, TL (mm)						
237	240	256	280	332	334	348
355	356	388	388	489	502	525

Rainbow Trout, TL (mm)								
360	363	375	388	390	415	430	446	447

Redear Sunfish, TL (mm)									
171	172	178	185	187	192	196	199	232	242

Sculpin (Prey), TL (mm)									
73	78	79	83	84	86	95	98	98	99

**Comments:** Contra Loma Reservoir is in a small regional park for public use located near Antioch, CA. All fish were collected by electrofishing, including the middle of the lake for trout.

# Harry L Englebright Lake (517PHE065)

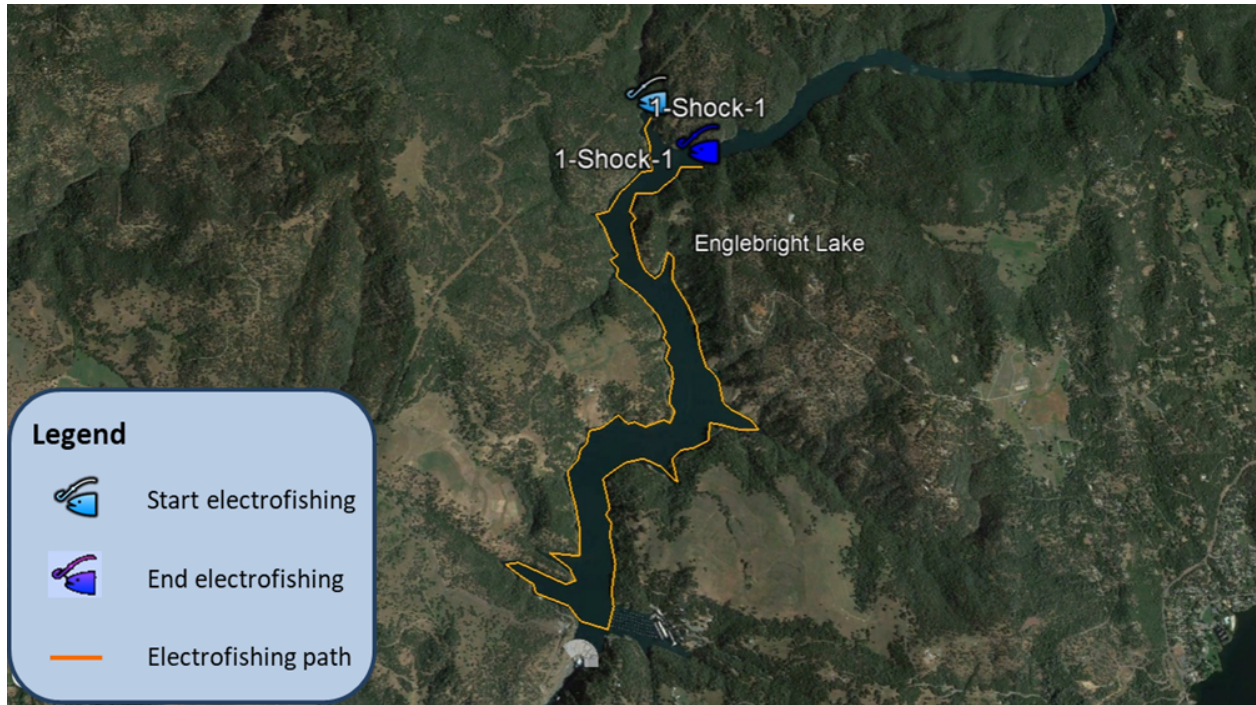
**Latitude:** 39.28318

**Longitude:** -121.23492

**Collection Method:** Electroshock

**Dates of Collection:** 8/8/2023

**Samplers:** Chris Beebe and Nadia McCoy



Bluegill (Prey), TL (mm)									
59	69	72	74	77	80	92	92	93	99

Green Sunfish (Prey), TL (mm)		
60	65	96

Largemouth Bass, TL (mm)		
387	426	558

Sacramento Sucker, TL (mm)									
171	172	178	185	187	192	196	199	232	242

Spotted Bass (Prey), TL (mm)				
72	76	79	82	86

Spotted Bass, TL (mm)						
201	212	272	274	297	297	302
303	305	344	358	383	386	400

**Comments:** Access to sample Englebright Lake was granted through a special use permit approved by the U.S. Army Corps of Engineers, who oversees the 260-foot-high dam that was created to help contain debris from legacy mining operations upstream of the lake. Carp and brown trout were also requested but none were seen. All fish were collected by electrofishing.

## Jenkinson Lake (532PJL096)

**Latitude:** 38.72138

**Longitude:** -120.55344

**Collection Method:** Electroshock, Gill Net

**Dates of Collection:** 6/21/2023

**Samplers:** Scot Lucas and Gary Ichikawa



Bluegill (Prey), TL (mm)	
68	75

Green Sunfish (Prey), TL (mm)				
61	68	69	82	86

Largemouth Bass (Prey), TL (mm)									
31	33	34	41	41	80	89	91	93	95

Largemouth Bass, TL (mm)					
195	221	247	268	352	381
414	415	430	455	460	484

**Comments:** Both net gear and electrofishing were used in attempts to get bass and requested trout species from Lake Jenkinson; nothing was caught using gill net.



# Lake Kaweah (553PLK054)

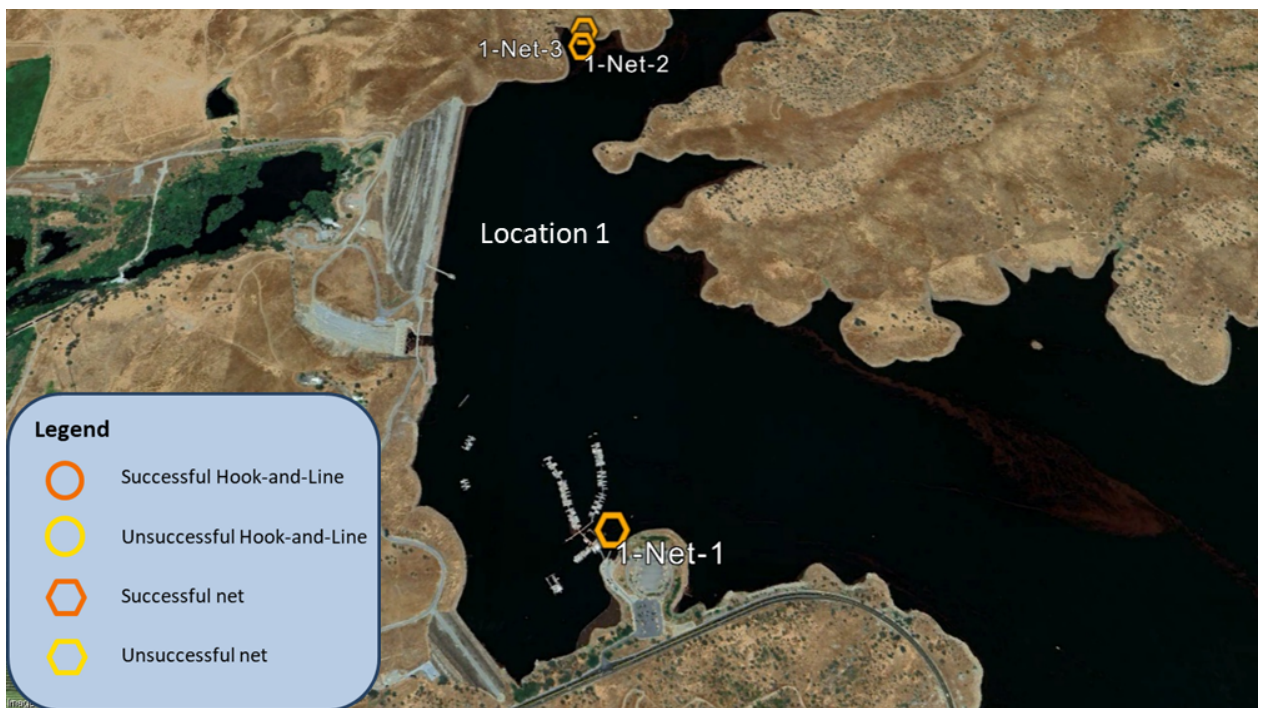
Latitude: 36.4000

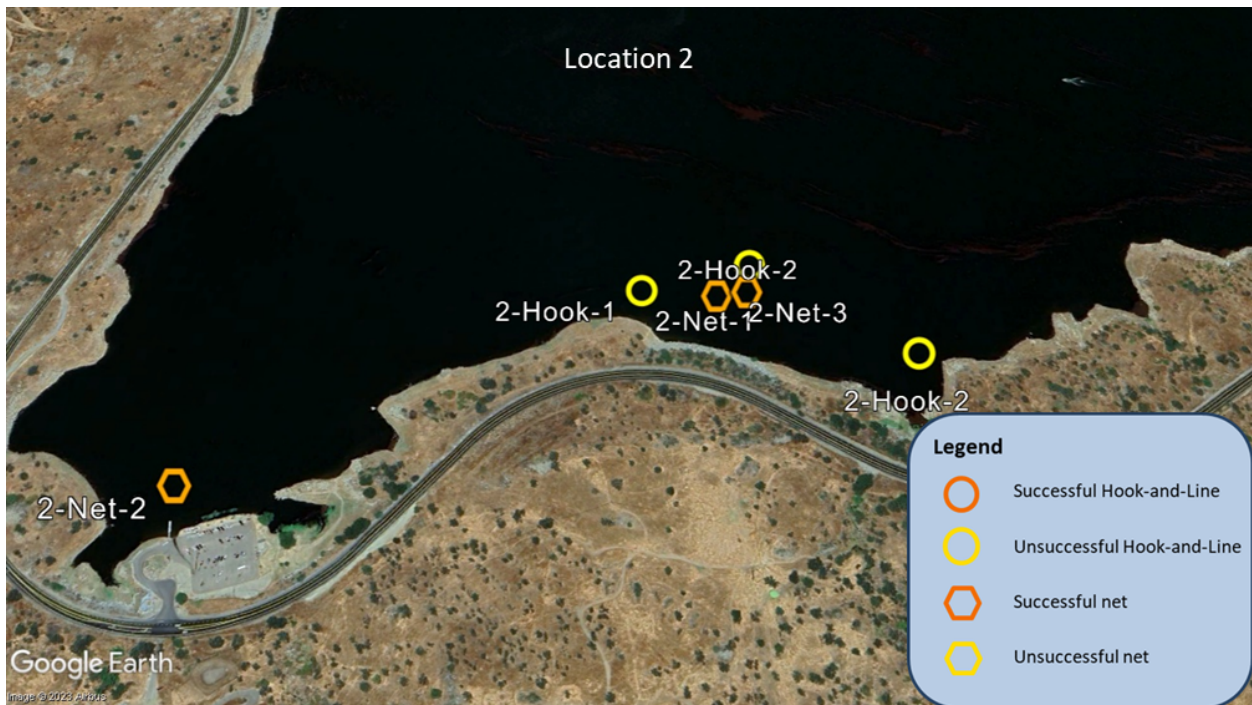
Longitude: -118.96648

Collection Method: Gill Net, Beach Seine, Hook-and-Line

Dates of Collection: 8/14/2023

Samplers: Scot Lucas and Gary Ichikawa





Location 1 Largemouth Bass (Prey), TL (mm)									
43	44	47	49	50	51	51	55	55	64

Location 1 Mosquitofish (Prey), TL (mm)				
36	38	38	39	40

Location 1 Largemouth Bass, TL (mm)	
273	

Location 1 Channel Catfish, TL (mm)	
180	202

Location 2 Largemouth Bass, TL (mm)	
243	

Location 2 Golden Shiner (Prey), TL (mm)									
56	57	60	60	60	60	65	65	65	66

Location 2 Largemouth Bass (Prey), TL (mm)									
44	45	47	47	48	50	50	50	55	57

Location 2 Spotted Bass, TL (mm)	
270	

**Comments:** Lake Kaweah, situated in the hills above Visalia, is a two-location lake. The top image above shows the entire lake and the general area of the two locations that were sampled. The bottom two images are detailed images showing more specifically where sampling occurred in each location.

Conditions were too warm for electrofishing, therefore prey items were captured using a fine mesh, 20-foot-long beach seine near the two boat ramps/docks. Hook-and-line efforts were unsuccessful and all other fish were collected using gill nets.

## Los Vaqueros Reservoir (543PLV220)

Latitude: 37.81692

Longitude: -121.73836

Collection Method: Electroshock

Dates of Collection: 4/5/2023 and 5/22/2023

Samplers: Gary Ichikawa, Jon Goetzel, Scot Lucas and April Sjoboen Guimar?es



Location 1 Largemouth Bass (Prey), TL (mm)				
74	83	86	93	98

Location 1 Largemouth Bass, TL (mm)						
230	238	240	322	323	337	344
347	352	360	382	393	408	409

Location 1 Mississippi Silverside (Prey), TL (mm)									
58	62	63	65	67	70	70	73	75	80

Location 1 Rainbow Trout, TL (mm)									
230	265	268	271	296	303	320	320	357	370

Location 2 Largemouth Bass, TL (mm)						
233	267	285	299	340	350	357
366	380	385	390	398	421	482

Location 2 Mississippi Silverside (Prey), TL (mm)									
54	54	65	65	66	69	70	73	76	80

Location 2 Rainbow Trout, TL (mm)									
329	350	354	364	367	376	380	383	402	434

Location 2 Sculpin (Prey), TL (mm)									
55	61	62	62	65	66	68	75	82	84

Location 2 Threadfin Shad (Prey), TL (mm)									
72	75	75	76	80	81	83	86	88	89

**Comments:** This two-location lake was sampled over two non-consecutive days in April and May. Only five total largemouth bass prey were seen over the two days of sampling, although all adult bass were collected.

## Lower Blue Lake (513TB0186)

Latitude: 39.16418

Longitude: -122.99971

Collection Method: Electroshock

Dates of Collection: 7/12/2023

Samplers: Gary Ichikawa and Scot Lucas



Bluegill (Prey), TL (mm)									
58	59	64	69	71	78	78	79	84	91

Bluegill, TL (mm)				
142	146	159	159	171

Largemouth Bass (Prey), TL (mm)									
41	42	44	51	56	58	58	60	63	66

Largemouth Bass, TL (mm)						
229	230	256	260	337	365	370
385	390	404	404	416	424	430

Mississippi Silverside (Prey), TL (mm)									
75	75	77	80	83	85	86	91	95	97

**Comments:** Lower Blue Lake was accessed by maneuvering into a tight space shore launch at the end of a dirt road. All fish were collected by electrofishing and the entire lake was sampled.

## Paradise Lake (521PPL170)

**Latitude:** 39.85839

**Longitude:** -121.5821

**Collection Method:** Electroshock

**Dates of Collection:** 5/2/2023

**Samplers:** William Jakl and Chris Beebe



Bluegill (Prey), TL (mm)									
59	60	61	62	67	76	77	79	79	88

Largemouth Bass, TL (mm)						
215	239	261	303	351	352	354
357	359	360	365	407	409	420

**Comments:** Paradise Lake is a small mountain lake north of Oroville. Fish were collected by electrofishing at the southeast end of the lake, covering about half of the total shoreline. Other species were requested but only bass and bluegill were seen.



# Rollins Reservoir (516PRR201)

Latitude: 39.15458

Longitude: -120.93195

Collection Method: Gill Net, Hook-and-Line, Cast Net

Dates of Collection: 8/7/2023

Samplers: Chris Beebe and Nadia McCoy



Bluegill (Prey), TL (mm)									
55	64	64	69	73	77	84	87	89	92

Spotted Bass (Prey), TL (mm)		
95	96	100

Spotted Bass, TL (mm)						
193	195	195	214	231	236	254
260	266	276	276	285	290	317

**Comments:** Rollins Reservoir was too warm to use electrofishing, therefore hook-and-line and net gear were used for collection. The southwest (near the dam) and northeast (near the inlet) ends of the lake were targeted. The second image above is an inset showing the detail of the area of sampling at the inlet end of the lake. Net gear included cast nets and gill nets.

# Turlock Lake (535PTL004)

Latitude: 37.59611

Longitude: -120.57039

Collection Method: Electroshock

Dates of Collection: 4/12/2023, 4/18/2023 and 4/19/2023

Samplers: Gary Ichikawa, April Sjoboen Guimar?es, William Jakl and Chris Beebe



Location 1 Bluegill (Prey), TL (mm)									
51	51	54	56	61	62	66	66	71	71

Location 1 Hitch (Prey), TL (mm)					
65	68	68	71	84	84

Location 1 Largemouth Bass (Prey), TL (mm)					
56	59	66	66	77	89

Location 1 Largemouth Bass, TL (mm)						
185	185	205	215	266	313	323
370	402	402	405	425	435	440

Location 2 Bluegill (Prey), TL (mm)									
50	50	51	51	52	57	58	64	66	66

Location 2 Hitch (Prey), TL (mm)									
50	50	51	51	52	54	54	55	56	56

Location 2 Largemouth Bass (Prey), TL (mm)							
54	56	66	67	76	76	81	98

Location 2 Largemouth Bass, TL (mm)						
190	193	306	318	383	400	404
405	415	420	440	440	455	485

Location 3 Hitch (Prey), TL (mm)									
43	44	50	50	50	50	51	51	51	55

Location 3 Largemouth Bass, TL (mm)						
194	245	246	330	335	382	403
412	416	417	465	475	490	520

**Comments:** Turlock Lake is categorized as a large lake when full and therefore three locations were sampled. All fish were collected by electrofishing. Of note, prey sized bluegill and bass were not seen in the location three area, and adult bass collected in all locations were skewed to the larger size of the range, in general, with the majority over 400 mm TL.

## Lake Gregory (628PGL147)

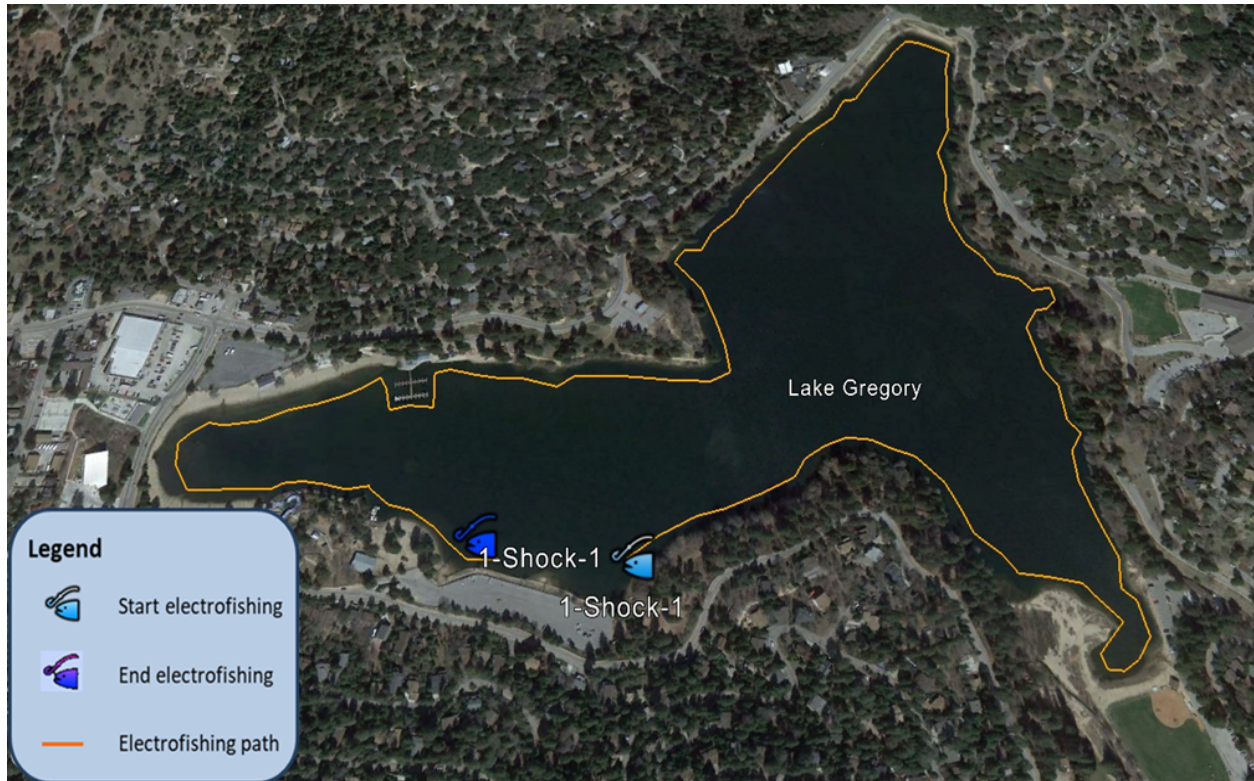
**Latitude:** 34.24208

**Longitude:** -117.27056

**Collection Method:** Electroshock

**Dates of Collection:** 4/10/2023

**Samplers:** William Jakl and Scot Lucas



Rainbow Trout, TL (mm)									
370	370	376	378	385	394	400	405	445	460

Tule Perch (Prey), TL (mm)									
66	69	69	70	70	70	73	85	96	99

**Comments:** An improvised shore launch from the parking lot was created to access Lake Gregory and all fish were collected by electrofishing. The entire lake was shocked, including much of the middle to collect trout. No bass were seen. Tule perch were the only prey sized fish seen and collected.

## Haiwee Reservoir (624TH0187)

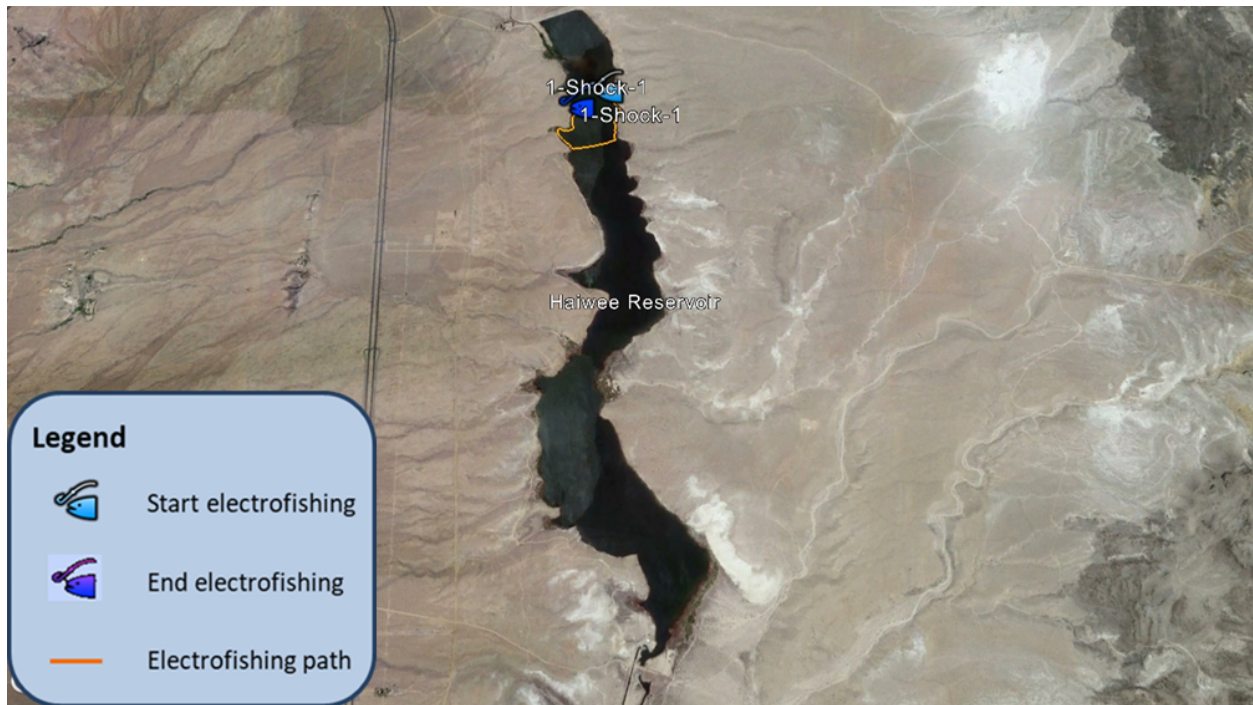
**Latitude:** 36.14677

**Longitude:** -117.94983

**Collection Method:** Electroshock

**Dates of Collection:** 5/16/2023

**Samplers:** Gary Ichikawa and Jon Goetzi



Bluegill (Prey), TL (mm)									
51	52	53	55	56	57	59	72	81	91

Bluegill, TL (mm)									
152	160	167	170	172	178	181	182	223	225

Common Carp, TL (mm)									
388	435	480	482	490	518	530	550	562	580

Largemouth Bass, TL (mm)						
224	232	251	268	320	320	327
335	338	388	395	418	420	425

**Comments:** Haiwee Reservoir is closed to the public, however through coordination with the Los Angeles Department of Water and Power, access was granted. No juvenile bass were seen. Adult spotted bass were also present, albeit in smaller numbers than largemouth bass, and all fish were collected by electrofishing. No other species were observed.

## Cucamonga-Guasti Regional Park (801CGP100)

**Latitude:** 34.0726892

**Longitude:** -117.5880834

**Collection Method:** Gill Net, Beach Seine, Hook-and-Line

**Dates of Collection:** 8/28/2023

**Samplers:** Gary Ichikawa and Scot Lucas



Bluegill (Prey), TL (mm)									
77	84	88	91	92	95	96	97	98	98

Goldfish, TL (mm)									
282	315	315	325	328	328	330	335	337	353

Mosquitofish (Prey), TL (mm)									
36	36	37	37	39	40	41	42	43	48

Threadfin Shad (Prey), TL (mm)									
63	64	68	70	70	70	73	74	75	80

**Comments:** Cucamonga-Guasti Regional Park was added to the year's collections by request of Region 8 staff. Adult goldfish were caught by gill net and prey fish were caught using a fine-meshed beach seine in the shallows. Hook-and-line gear was used unsuccessfully in between netting, and no bass were seen. A small boat was launched from the bank for access.

## Glen Helen Regional Park (801GHLL1)

Latitude: 34.208591

Longitude: -117.404638

Collection Method: Electroshock

Dates of Collection: 6/5/2023

Samplers: Gary Ichikawa and Jon Goetzl



Bluegill (Prey), TL (mm)									
64	69	75	76	77	78	79	81	85	90

Common Carp, TL (mm)									
386	394	408	413	425	430	433	434	435	455

Green Sunfish (Prey), TL (mm)									
70	72	75	76	78	81	85	88	90	90

Largemouth Bass (Prey), TL (mm)									
41	43	45	47	50	58	59	60	64	75

Rainbow Trout, TL (mm)									
254	259	269	272	272	272	287	290	312	319

Threadfin Shad (Prey), TL (mm)									
43	46	46	48	49	49	50	50	51	54



**Comments:** Glen Helen Regional Park was added to the year's collections by request of Region 8 staff. The boat was launched from shore near the concrete parking lot and all fish were collected by electrofishing. Juvenile sized bass were collected as a prey item, but no adults were seen.

# Irvine Lake (801PSR210)

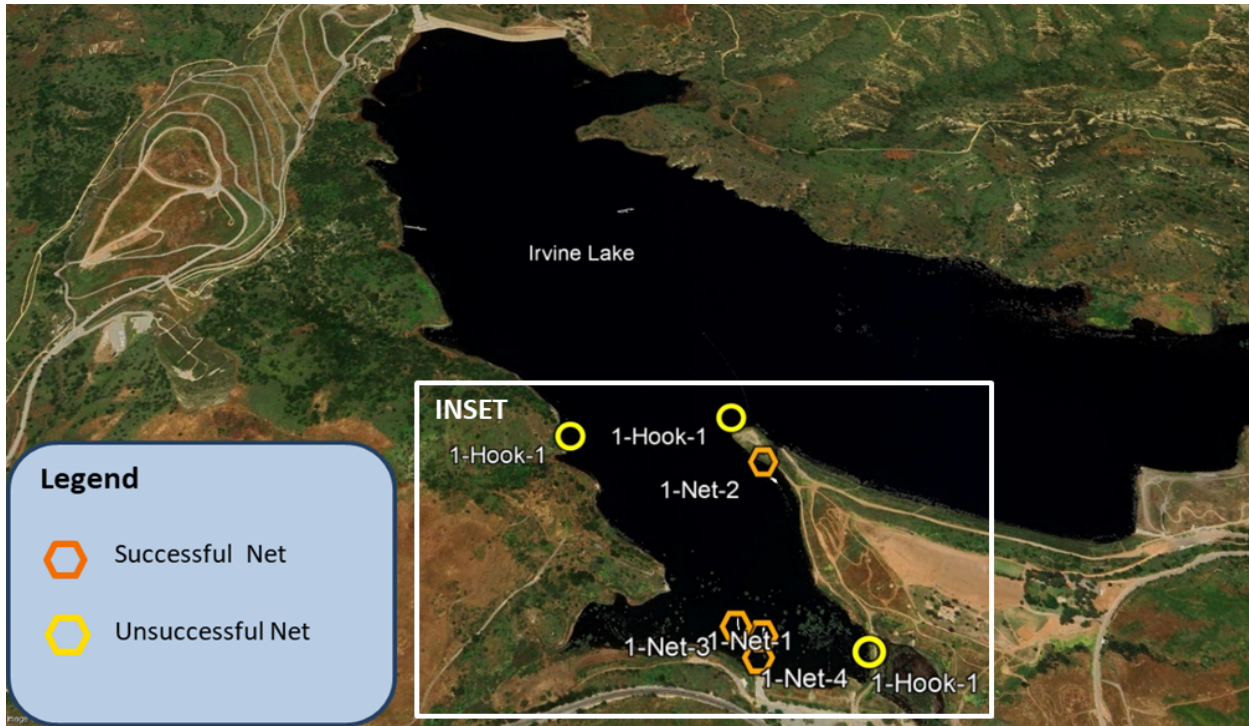
Latitude: 33.76844

Longitude: -117.71434

Collection Method: Gill Net, Beach Seine, Hook-and-Line

Dates of Collection: 8/30/2023

Samplers: Gary Ichikawa and Scot Lucas



Channel Catfish, TL (mm)	
510	516

Largemouth Bass (Prey), TL (mm)									
56	61	61	63	67	68	68	69	74	85

Largemouth Bass, TL (mm)						
237	238	240	243	244	258	290
298	310	330	383	415	469	497

Redear Sunfish, TL (mm)									
191	205	222	227	251	260	261	263	265	266

Threadfin Shad (Prey), TL (mm)									
70	71	72	74	76	77	83	85	89	89

**Comments:** Water temperature at Irvine Lake was too high for electrofishing, therefore beach seines (for prey fish) and gill nets were used to collect all fish. Hook-and-line gear was used in between net effort, with no success. The top image shows the whole lake, and the bottom image (inset) shows specific details of where sampling occurred.

# Yucaipa Regional Park Lake (801YRPML1)

**Latitude:** 34.053625

**Longitude:** -117.04866

**Collection Method:** Gill Net, Beach Seine, Hook-and-Line

**Dates of Collection:** 8/29/2023

**Samplers:** Gary Ichikawa and Scot Lucas



Bluegill (Prey), TL (mm)				
90	94	96	98	99

Channel Catfish, TL (mm)
515

Common Carp, TL (mm)				
579	604	651	698	701

Largemouth Bass (Prey), TL (mm)									
64	67	69	72	72	84	85	86	87	92

Largemouth Bass, TL (mm)		
259	276	377

Mississippi Silverside (Prey), TL (mm)									
72	73	74	75	76	76	76	78	81	85

**Comments:** Yucaipa Regional Park Lake was added to the year's collections by request of Region 8 staff. Water temperature was too high for electrofishing, therefore beach seines (for prey fish) and gill nets were used to collect all fish. Hook-and-line gear was used in between net effort, but with no success. The lake was accessed by boat from a bank launch near the main parking lot.

# Lake Henshaw (903PLH214)

**Latitude:** 33.24145

**Longitude:** -116.74673

**Collection Method:** Electroshock, Gill Net

**Dates of Collection:** 4/25/2023

**Samplers:** Gary Ichikawa and Jon Goetzl



Location 1 Largemouth Bass (Prey), TL (mm)
99

Location 1 Largemouth Bass, TL (mm)						
222	240	253	285	295	317	344
298	310	330	383	415	469	497

Location 1 Threadfin Shad (Prey), TL (mm)									
88	89	90	90	91	92	92	94	96	98

Location 2 Black Crappie, TL (mm)
308

Location 2 Largemouth Bass (Prey), TL (mm)	
86	

Location 2 Largemouth Bass, TL (mm)						
232	248	250	250	301	328	333
362	378	422	435	445	457	510

Location 2 Threadfin Shad (Prey), TL (mm)									
83	83	87	90	90	90	92	93	98	98

**Comments:** Lake Henshaw is a two-location lake located in the hills of eastern San Diego County. Electrofishing and gill nets were used, but no fish were caught in the net gear. Prey-sized bass were scarce, with only two collected, one at each location.

## Lower Otay Reservoir (910PLO182)

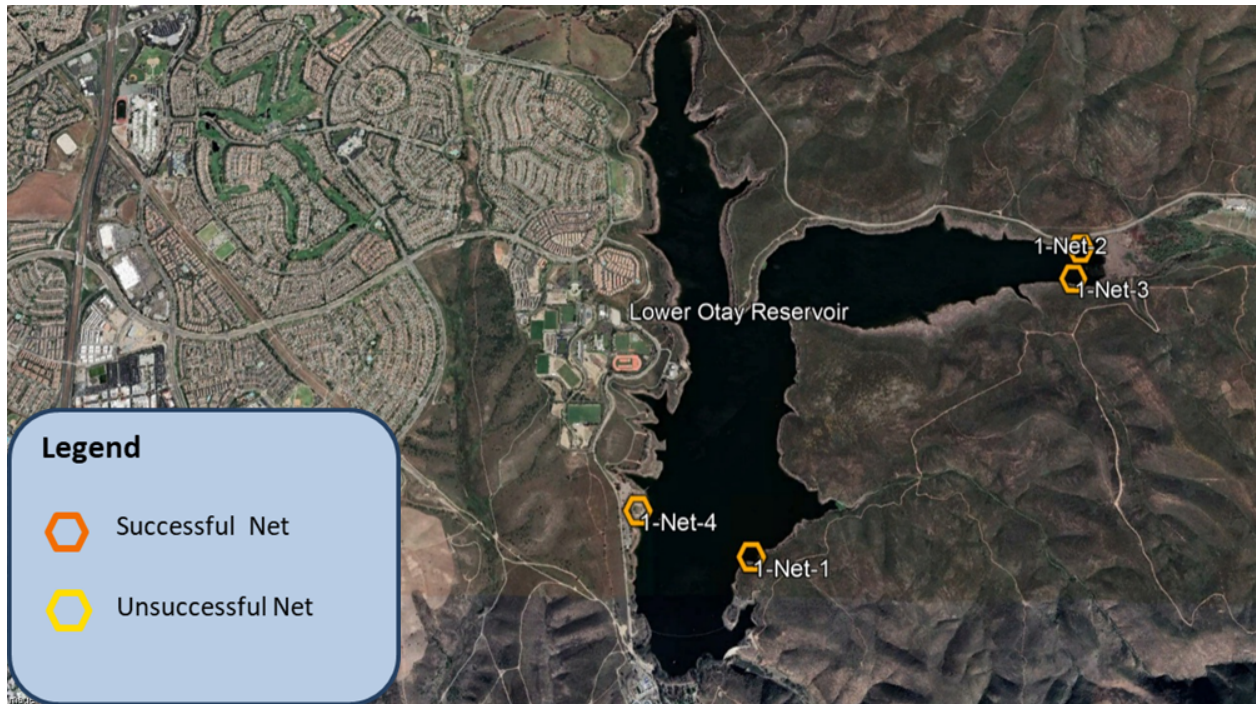
**Latitude:** 32.787635

**Longitude:** -117.042933

**Collection Method:** Gill Net, Beach Seine

**Dates of Collection:** 9/12/2023

**Samplers:** Gary Ichikawa and Jon Goetzl



Bluegill (Prey), TL (mm)									
69	76	77	78	78	79	81	82	85	85

Largemouth Bass (Prey), TL (mm)									
57	67	70	71	72	74	75	86	88	97

Largemouth Bass, TL (mm)					
204	229	235	241	246	275
322	342	368	392	392	396

**Comments:** Lower Otay Reservoir, the farthest south of the Panel 5 lakes, was constrained by elevated water temperature and conductivity, precluding the use of electrofishing gear. Prey fish were collected by fine-mesh beach seines and adult bass were collected by gill nets. No additional species were seen.



## Lake Miramar (906PLM142)

**Latitude:** 32.91638

**Longitude:** -117.09727

**Collection Method:** Gill Net, Hook-and-Line

**Dates of Collection:** 5/9/2023

**Samplers:** Scot Lucas and April Sjoeben Guimar?es



Largemouth Bass, TL (mm)					
256	259	261	265	268	268
281	283	285	293	291	

Rainbow Trout, TL (mm)			
260	263	327	355

**Comments:** High conductivity in Miramar Reservoir restricted the use of electrofishing. While hook-and-line and net gear were used, fish were only successfully collected using nets. All bass seen were between 250 mm and 300 mm total length. No juvenile bass were seen, nor were additional species.

## Lake Murray (907LKMURR)

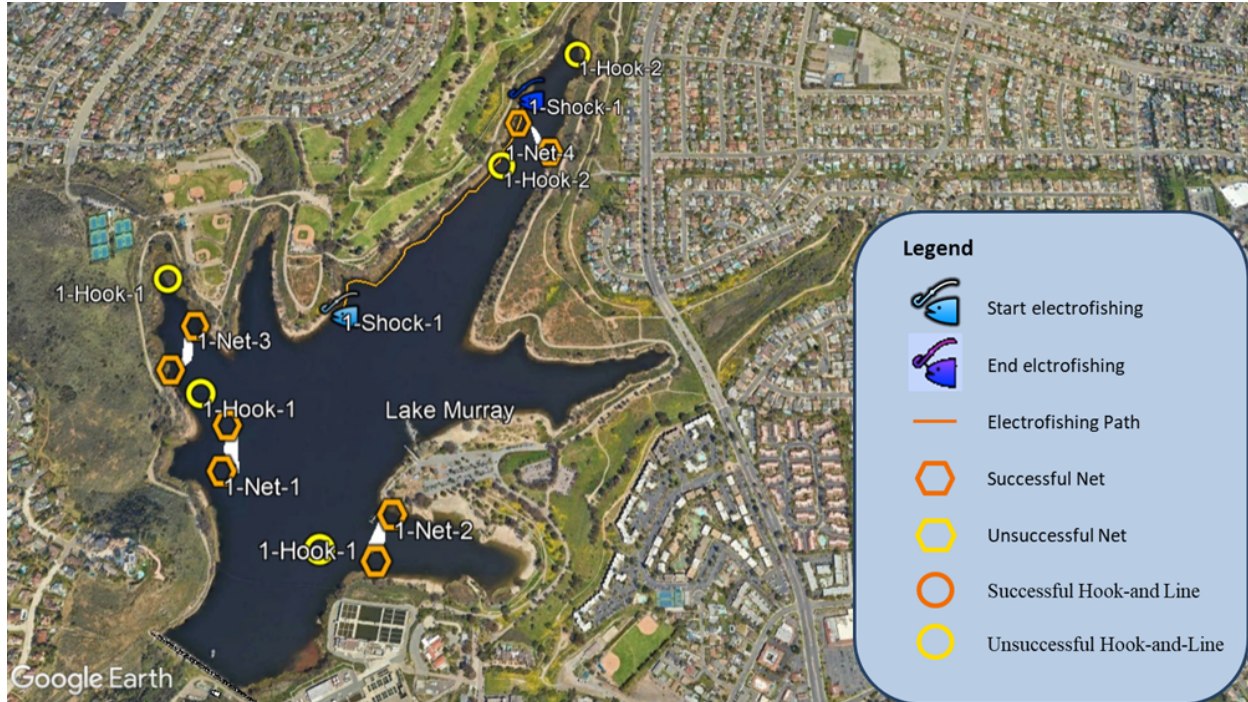
**Latitude:** 32.787635

**Longitude:** -117.042933

**Collection Method:** Electroshock, Gill Net, Hook-and-Line

**Dates of Collection:** 5/8/2023 and 5/10/2023

**Samplers:** Scot Lucas and April Sjoeben Guimar?es



Bluegill (Prey), TL (mm)								
53	57	62	64	70	83	94	97	99

Largemouth Bass, TL (mm)						
244	255	260	262	346	362	363
365	369	380	395	415	421	507

Rainbow Trout, TL (mm)		
274	299	352

**Comments:** Lake Murray was sampled over two days using electrofishing, hook-and-line and net gear. No juvenile bass were seen.

## **1.7 Discussion**

Representatives from the Regional Water Quality Control Boards in San Francisco (Region 2), Santa Ana (Region 8) and San Diego (Region 9) requested one or more water bodies be added to the collection of Panel 5 in 2023, bringing the total to 44 lakes or reservoirs. Of the 44, several were eliminated either because they were recently sampled, recent maintenance affected fish populations, or sites were inaccessible.

Sample sites were accessed by boat, when possible, or from shore. Gear used to collect fish included electroshock (electrofishing), net gear, fish traps and hook-and-line, depending on lake parameters and accessibility. Following a rainy Fall and Winter, most lakes returned to full or near full status, and the number of locations sampled within each water body, designated as small, medium, large, or extra-large, were collected.

Collection of the requested species, number of fish and size ranges for each site was made by all means available. More than 1700 fish were collected among the 31 Panel 5 Lakes and Reservoirs, as well as the 4 additional lakes requested by the Regional Boards.