State of California
Department of Fish and Wildlife

M e m o r a n d u m

Date: May 16, 2025

To: Leslie Alber
Sierra District (Fisheries) Supervisor
Department of Fish and Wildlife

From: Ben Ewing
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Department of Fish and Wildlife

Cc: Region 2 Fish Files

Re: 2024 Lower Blue Lake Electrofishing Survey

On November 6, 2024, California Department of Fish and Wildlife (Department), Lake County, Big Valley Rancheria, and Habematolel Rancheria staff conducted a general fish survey on Lower Blue Lake (Lower Blue) (Lake County), which is located at 39.163095 N, 122.998289 W and 1,343 feet above mean sea level (**Figure 1**). The shoreline is a mix of tules, rocks, and oak woodland. Lower Blue receives water from Upper Blue Lake.

The purpose of the survey was to gather information on Lower Blue's fall fishery and compare it to the 2015 survey (Ewing 2015). The majority of Lower Blue's shoreline was sampled using an electrofishing boat, however due to heavy angler use, approximately a quarter of Lower Blue was not sampled (**Figure 2**).

The species, number, mean total length and weight, length ranges, for species collected on November 6, 2024 and during the 2015 survey, are presented in **Table 1**. Largemouth Bass (*Micropterus salmoides*) (LMB), Bluegill (*Lepomis macrochirus*) (BG), Green Sunfish (*Lepomis cyanellus*) (GSF), White Crappie (*Pomoxis annularis)* (WCR)*,* and Sacramento Sucker (*Catostomus occidentalis)* (SS) were collected during the 2024 survey. During the 2015 survey, LMB WCR, BG, GSF, SS, and Black Crappie (*Pomoxis nigromaculatus*) (BCR), were collected (Ewing 2015).

Figure 1. Lower Blue Lake (Lake County). Lower Blue Lake is also indicated by red dot in smaller data frame in relation to Santa Rosa and San Francisco Bay area.

Figure 2. Map of Lower Blue Lake in which it is divided into quadrants in November, 2024. Due to high angler use in Quadrant 3, no electrofishing was conducted. (Photo Credit J. Buxton)

Table 1. Species composition comparison from Lower Blue Lake E-fishing surveys on November 12, 2015, and November 6, 2024. Mean Total Length (TL) was measured in millimeters (mm). Average Weight was in grams (g).

	Number		Percentage		Total Length		Weight	
Species	2024	2015	2024	2015	2024	2015	2024	2015
Largemouth Bass	50	45	57.5%	83.3%	270.6	240.2	489.9*	371.9*
Sacramento Sucker	9	2	10.3%	3.7%	451.9	375.5	959.4	575.5
Bluegill	26	3	29.9%	5.6%	133.7	164.3	43.5	85.3
White Crappie	1	2	1.1%	3.7%	201	193	114	74.5
Black Crappie	NA	1	NA	1.9%	NA	205	NA	109
Green Sunfish	1	1	1.1%	1.9%	162	171	84	88
Total	**87**	**54**						
Water Temperature	57	56						
Catch per unit effort (Fish/minute)	1.10	0.68						

*Weights were only taken on LMB ≥ 150 mm TL

Figure 3. Largemouth Bass collected at Lower Blue Lake in November, 2024. (Photo Credit A. Balletto)

Average total length and weight for LMB collected in 2024 was 270.6 mm (10.7 in.) and 489.9 g (1.1 lbs.) compared to 240.2 mm (9.5 in.) and 371.9 g (0.8 lbs.) in 2015 (**Figure 3**).

Average total length and weight for BG collected in 2024 was 133.7 mm (5.3 in.) and 43.5 g (0.1 lbs.) compared to 164.3 mm (6.5 in.) and 85.3 g (0.2 lbs.) in 2015 (**Figure 4**).

Figure 4. Bluegill collected at Lower Blue Lake in November 2024. (Photo Credit A. Balletto)

Average total length and weight for SS collected in 2024 was 451.9 mm (17.8 in.) and 959.4 g (2.1 lbs.) compared to 375.5 mm (14.8 in.) and 575.5 g (1.3 lbs.) in 2015 (**Figure 5**).

Figure 5. Sacramento Sucker collected at Lower Blue Lake in November 2024. (Photo Credit A. Balletto)

One WCR collected in 2024 was 201 mm (7.9 in.) and weighed 114 g (0.25 lbs.) compared to the 2015 average of 193 mm (7.6 in.) and 74.5 g (0.2 lbs.) (**Figure 6 left**).

One GSF collected in 2024 was 162 mm (6.4 in.) and weighed 84 g (0.2 lbs.) compared to the one GSF collected in 2015 which was 171 mm (6.7 in.) and 88 g (0.2 lbs.) (**Figure 6 right**).

Figure 6. Left -White Crappie collected at Lower Blue Lake in November, 2024. (Photo Credit T. Woodruff)
Right -Green Sunfish collected at Lower Blue Lake in November 2024. (Photo credit A. Balletto)

Catch per unit effort for the entire 2024 survey was 1.10 fish/minute of electrofishing, compared to 0.68 in 2015. Based on the results of the 2024 and 2015 surveys, a self-sustaining, recreational, non-native warmwater fish population exists as well as a small, native fish population.

Clear Lake Hitch (*Lavinia exilicauda chi*) (CLH) have not been collected in either of the Department electrofishing surveys; however, CLH were documented in an October 2024

United States Geological Survey (USGS) (F. Feyrer, Personal Communication). The absence of CLH may have been due to our sampling method, which was not able to target CLH in greater depths. Conversely, using gillnets, USGS was able to sample in open water at greater depths. The USGS results are a positive sign that past CLH translocations by Robinson Rancheria to Upper Blue Lake during fish rescue efforts are likely making their way downstream to Lower Blue Lake.

Common Carp (*Cyprinus carpio*) (CC), Goldfish (*Carassius auratus*) (GF), and Threadfin Shad (*Dorosoma petenense*) (TSH) were not collected in either of the CDFW surveys; however, the USGS collected CC and TSH in their fall gill net survey. The number of CC (n=2) and TSH (n=74) collected by the USGS may have a negative impact on the CLH population, more significantly by the CC. To assist in CLH survival, the Department will look into the most effective methods for future removal of CC in Lower Blue Lake which may include seines, box-net traps, and/or electrofishing at warmer periods of the year. With continued translocations of rescued CLH into Lower Blue Lake and CC monitoring and removal, the Department hopes that Lower Blue Lake will become the home to a significant population of CLH.

Literature Cited

Ewing, B. 2015. Lower Blue Lake (Lake County) Electrofishing survey. California Department of Fish and Wildlife Region 2 Fish Files. Available from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=112306