

State of California
Department of Fish and Wildlife

Memorandum

Date: 05/16/2014

To: Kevin Thomas
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High Elevation Fisheries
Department of Fish and Wildlife

From: Jay Rowan
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Lake and Reservoir Program

Subject: **SCUBA survey Clear Lake, Lake Co. CA**

April 23rd, 2014 six Department of Fish and Wildlife (CDFW) Environmental Scientist from the inland Dive Team performed direct observation surveys for invasive species at four locations in Clear Lake using SCUBA. Sites surveyed include the Red Bud launch ramps and docks in the City of Clear Lake, the 5th street launch ramp and docks in the City of Lakeport, a section of shoreline near the city of Lucerne and a section along Holiday Island.

Depths at the two launch ramps and the site along the city of Lucerne reached a maximum depth of 12 feet with an average depth of 6 feet. Maximum depth surveyed at the Holiday Island site was 42 feet with an average depth of 28 feet. Horizontal visibility was limited to approximately 5 feet at all sites. Light penetration was sufficient to approximately 12 feet however lights were needed to see effectively in crevices and shaded sites of structure even in shallow water. Below 20 feet there was very little if any light penetration and lights were necessary to see.

All locations were surveyed according to the invasive species direct observation protocols developed by CDFW. The launch ramps and the undersides of all docks were inspected thoroughly. At the Lucerne site, a 200 meter transect situated in 6-8 feet of water parallel to shore was surveyed by 3 divers swimming side by side surveying all habitat directly in front of them and 1 meter to their right. Habitat surveyed at Lucerne consisted mainly of small cobble, submergent aquatic vegetation, and some large woody debris. The Holiday Island site was surveyed in a similar manor to the Lucerne site however depths started at approximately 15 feet and dropped rapidly to 38-42 feet. At approximately 100 meters from the starting location the divers turned 90 degrees and surveyed for 15 meters then again turned 90 degrees and surveyed for another 100 meters. Habitat surveyed at Holiday Island consisted of bedrock and small cobble which transitioned to small pea gravel, sand and silt below 25 feet in depth.

Species observed at all sites include Largemouth Bass (*micropterus salmonides*), Prickly Sculpin (*cottus asper*) Asian Clam (*corbicula fluminea*), and California Floater (*Anodonta californiensis*). While quantitative data was not collected, qualitative observations indicated that by far the most abundant species of mollusk was the Asian clam and the most abundant fish species observed was prickly sculpin. All sites contained very high densities of Asian clams throughout, and the Lucerne site also had a fairly high density California Floater. Sculpin to approximately 40 cm were observed to be in densities of approximately 5-10 per meter at the Lucerne site and as high as 30-50 per meter in the deep sections of Holiday Island. The Lucerne site may have had higher densities of sculpin however aquatic vegetation made spotting them extremely difficult. Sculpin were also present on the launch ramps and dock pilings at the 5th street and Redbud but in lower densities than in the more natural habitats. LMB were spotted at all sites with the majority of sightings, 5 fish, at Lucerne where they were up shallow creating spawning beds.

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