



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
1701 Nimbus Road, Suite A
(916) 358-2900
Rancho Cordova, CA 95667
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



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To: Sarah Mussulman
Sierra Fisheries Supervisor

From: Ben Ewing
District Fisheries Biologist
Alpine, Amador, Calaveras, and Lake Counties

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Silver Lake Fish and Amphibian Survey

On June 26, 2018, California Department of Fish and Wildlife (Department) completed a fish and amphibian survey at Silver Lake. The purpose of the survey was to determine if there were any lake trout (*Salvelinus namaycush*, LT) inhabiting the lake from prior stockings, determine if any special status amphibian taxa were present, and to use these data to determine if stocking Silver Lake would result in impacts to special status species, specifically Sierra Nevada yellow-legged frog (*Rana sierra*, SNYLF).

Silver Lake is a 385 acre lake in Amador County located at 38.661625, 120.118286 W, situated at 7,275 feet above mean sea level. The shoreline is a mix of bedrock, sand, and conifer forest. The lake bottom appears mostly mud and various sized rock substrate. When Silver Lake spills, water drains into the Silver Fork American River. The lake receives water from rain and snowmelt runoff from the immediate area and multiple small tributaries. The lake historically has received stockings of brook trout (*Salvelinus fontinalis*), rainbow trout (*Oncorhynchus mykiss*), Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*), brown trout (*Salmo trutta*), and LT, with the last recorded stocking of rainbow trout in 2018.

From 08:00 – 15:00 Department staff and one volunteer conducted a hook and line survey to determine if there were any LT still inhabiting Silver Lake. Two LT (4.5 and 6.7 pounds) and one RT (stock-size) were caught (Figure 1). In addition to voluntary data collected from the angler survey boxes at Silver Lake (Ewing 2016, Ewing 2017), these data indicate that LT are self-sustaining at Silver Lake.



Figure 1. 6.7 pound lake trout caught by Phil Clark on June 26, 2018 at Silver Lake.

Two Department scientific aides conducted a visual encounter survey (VES) at Silver Lake. The surveyors slowly circumambulated the lake looking for diurnal amphibians and reptiles (Fellers and Freel 1995). The VES began at 08:46 and ended at 13:11 with a total survey duration of 261 minutes. The air temperature was 58°F (14.6°C) at 08:30 under clear skies. Water conditions were relatively clear, with visibility to about 10 feet. There was little to no breeze on the water, producing relatively flat water conditions and unimpeded views into the water. Water temperature was 60°F (15.9°C) at 08:30. Due to the large size of Silver Lake, surveyors focused on the eastern shoreline in order to maximize the likelihood of observing SNYLF, with the transect surveyed in red in the attached map (Figure 2). This portion of Silver Lake's shoreline is the closest to known populations of SNYLF. The western and northern shoreline is either adjacent to a major highway, next to a campground, or not safe to survey due to steep bedrock. No amphibians were observed.

Due to the absence of special status amphibian species and the presence of a persistent LT population, Silver Lake is suitable to stock. The Department will stock catchable-size rainbow and brown trout to create a put and take fishery for recreational anglers along the heavily-used Highway 88 corridor.



Figure 2. Silver Lake Visual Encounter Survey Transect (6/26/2018).

Literature Cited:

1. Ewing, B. 2016. Silver Lake, Amador County 2015 Angler Survey Box Analysis. Region 2 California Fish and Wildlife Fish Files. Unpublished. <http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=118940>
2. Ewing, B. 2017. Silver Lake, Amador County 2016 Angler Survey Box Analysis. Region 2 California Fish and Wildlife Fish Files. Unpublished.

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3. Fellers, G. M. and K. L. Freel. 1995. A standardized protocol for surveying aquatic amphibians. National Biological Service Cooperative Park Studies Unit, University of California Division of Environmental Studies, Davis, CA. Technical Report No. NPS/WRUC/NRTR95-01 (UC CPSU TR # 58).

