



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Director's Office
P.O. Box 944209
Sacramento, CA 94244-2090
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director



November 27, 2019

To: Sarah Mussulman
Sierra Fisheries Supervisor

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

Cc: Region 2 Fish Files
Ec: Document Library

Lower Blue Lake (14726) Amphibian Survey

On August 22, 2019, California Department of Fish and Wildlife (Department) completed an amphibian survey at Lower Blue Lake (Lower Blue), Alpine County. The purpose of the survey was to determine if any special status amphibian taxa were present, and to use these data to determine if stocking Lower Blue would result in impacts to special status species, specifically Sierra Nevada Yellow-Legged Frog (*Rana sierrae*, SNYLF).

Lower Blue is a 145-acre lake located at 38.613865 N, 119.930835 W, situated at 8,063 feet above mean sea level. The shoreline is a mix of bedrock, sand, and conifer forest (Figure 1). The lake bottom appears mostly mud and various sized rock substrate. Water exiting Lower Blue enters Blue Creek (Figure 2). Lower Blue receives water from rain and snowmelt runoff from the immediate area as well as Middle Creek. Lower Blue historically has received stockings of Rainbow Trout (*Oncorhynchus mykiss*, RT), Brown Trout (*Salmo trutta*, BN), Brook Trout (*Salvelinus fontinalis*, BK) and Lahontan Cutthroat Trout (*Oncorhynchus clarki henshawi*, LCT), with the last recorded stocking of RT in 2019.

Three Department staff conducted a visual encounter survey (VES) at Lower Blue. Staff divided into two separate teams, slowly circumambulated the lake, outlet, and inlet, looking for diurnal amphibians and reptiles (Fellers and Freel 1995). The VES began at 09:06 and ended at 10:02 with a total survey duration of 110 minutes. The air temperature was 58.1°F (14.5°C) at 09:00 under clear skies with no breeze during the survey. Water conditions were relatively clear, with visibility to about 10 feet. Water temperature was 62.6°F (17.0°C) at 10:06 in Lower Blue. Water temperature in Middle Creek was 55.4°F (13.0°C) at 09:05 and 64.7°F (18.2°C) in Blue Creek at 09:15.

The majority of Lower Blue's shoreline was surveyed as well as the inlet and outlet. The eastern shoreline was not surveyed due to large amount of recreational usage such as camping, roads, anglers, kayakers, and off-road vehicles. Lower Blue, and its inlet and outlet transects are highlighted in red in the attached map (Figure 3). Salmonid fry and Signal Crayfish (*Pacifcastacus leniusculus*) were observed in Middle Creek. A dead Sucker (*Catostomus* sp.) was observed in Lower Blue.

Since 2001, the Department has surveyed multiple small ponds (14712, 14717, 14721, 14722, 14725, and 50100) near Lower Blue (Figure 4). No SNYLF have been observed recently at ponds 14712 and 14717 (HML Database). However, there are museum records from 1939 for SNYLF at pond 14717 (MVZ 2019) and U.S. Forest Service biologists detected SNYLF at pond 14712 in 2003 (USFS 2017). Department field staff have observed small SNYLF populations at ponds 14721, 14722, 14725, and 50100 (Mussulman 2015), including observations on 8/21/2019 (HML unpubl. data). The cluster of ponds 14721, 14722, and 14725 are approximately one-half mile from Lower Blue, with an ephemeral hydrologic connection to Upper Blue Lake. Water exiting Upper Blue Lake enters Middle Creek, a tributary to Lower Blue.

Due to the absence of SNYLF, fluctuating reservoir levels, and the presence of a persistent BK population at Lower Blue via Middle Creek, Lower Blue is suitable to stock (Ewing 2019). The Department will stock catchable-size RT and fingerling-size LCT to create a put and take/put and grow fishery for recreational anglers along the heavily used Highway 88 corridor.

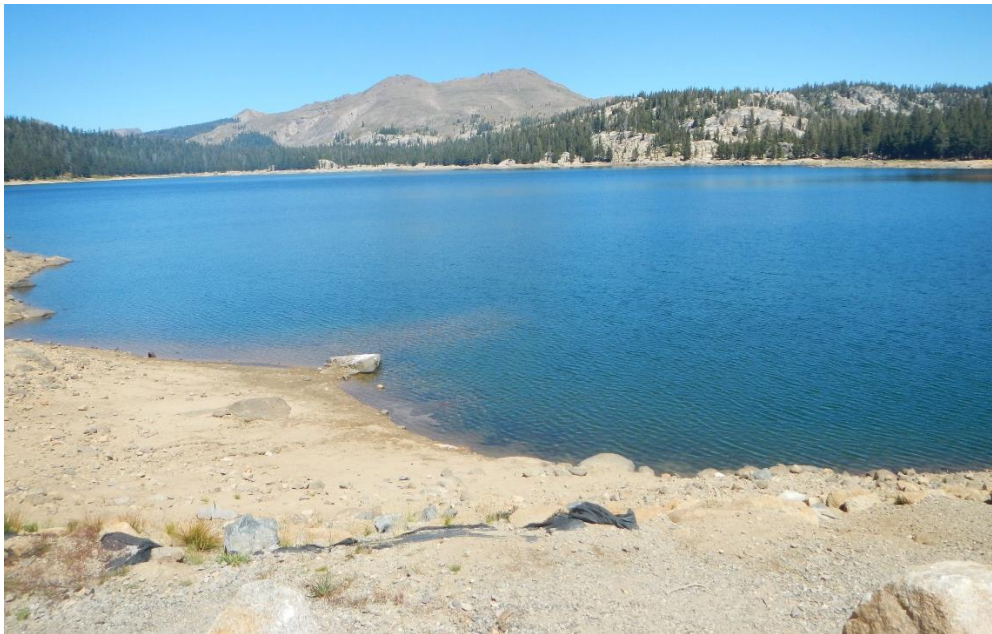


Figure 1. Lower Blue Lake on 8/27/2014 (Photo by B. Ewing).



Figure 2. Blue Creek on 8/22/2019
(Photo by B. Ewing).

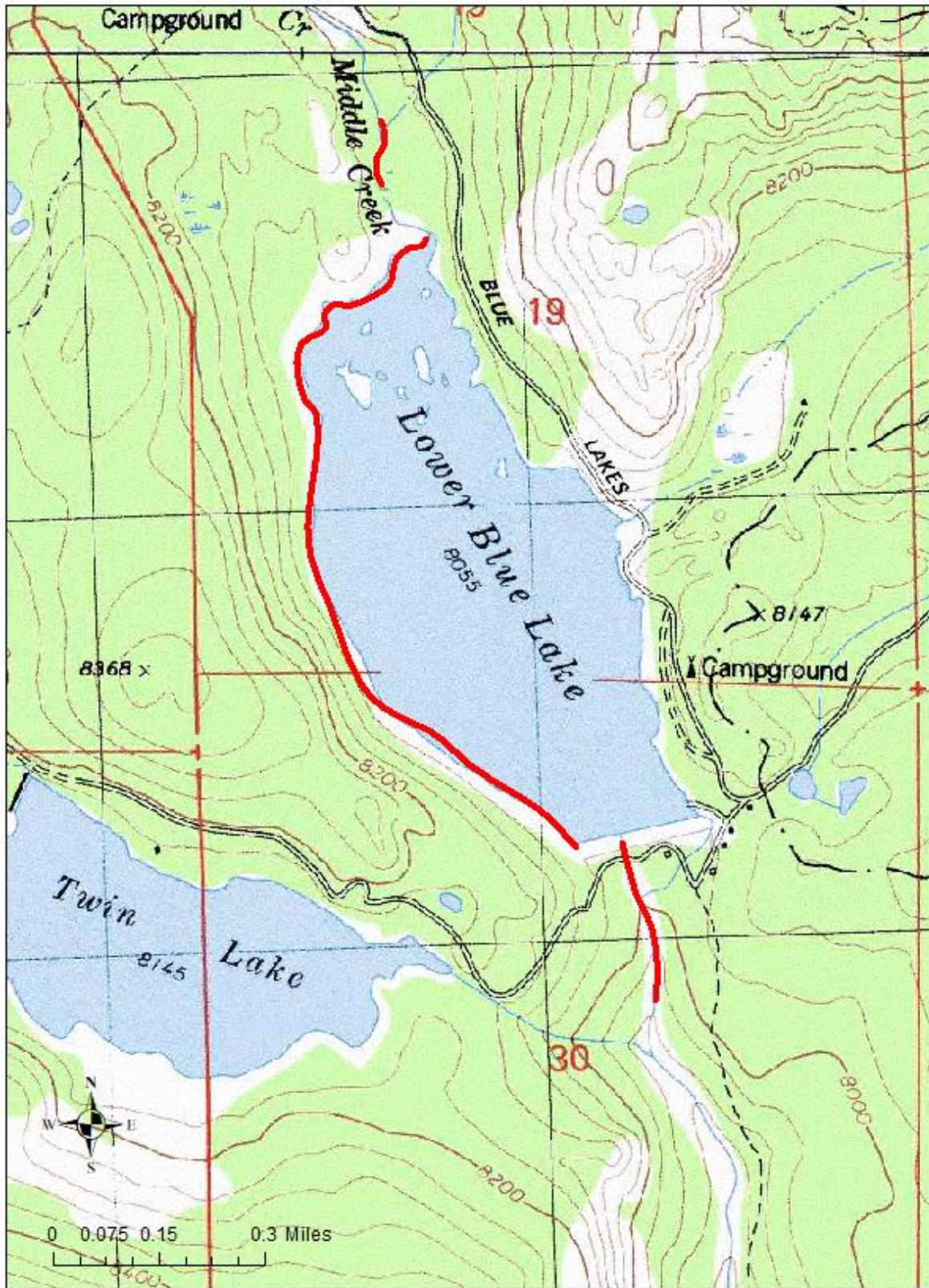


Figure 3. Lower Blue Lake and its inlet and outlet Visual Encounter Survey Transects (8/22/2019).

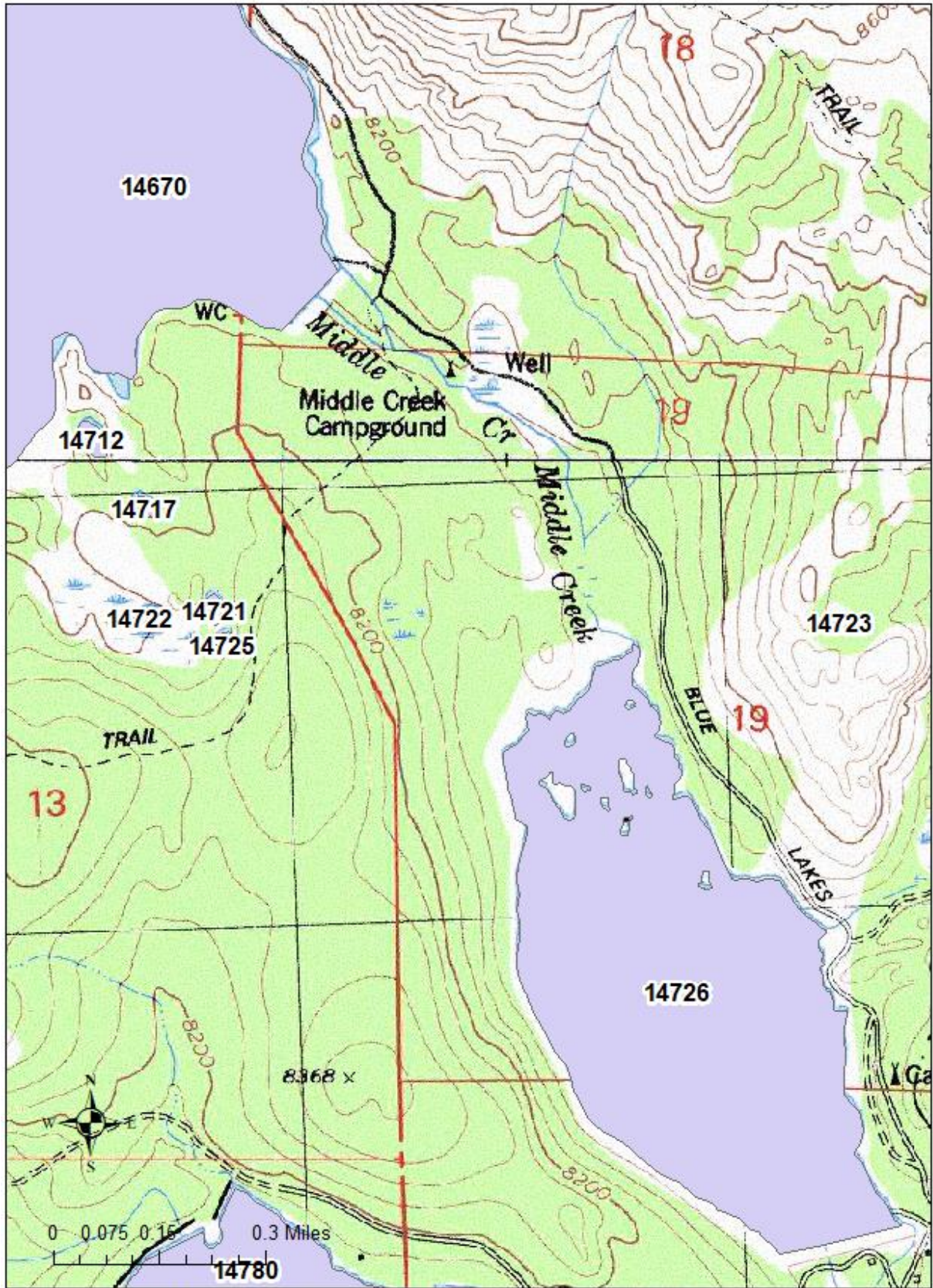


Figure 4. High Mountain Lakes with California identification numbers.

Literature Cited:

1. Ewing, B. Upper Blue Lake Amphibian Survey. California Department of Fish and Game; 11/15/2019. Available from:
<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=175115>
2. 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).
3. California Department of Fish and Wildlife, High Mountain Lakes Database, October 7, 2019 Accessed by B. Ewing, CDFW.
4. Mussulman, S. Sierra Nevada yellow-legged frog monitoring in Alpine County - Updated 2015. CDFW; 12/15/2015. Available from:
<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=113807>
5. University of California Berkeley Museum of Vertebrate Zoology (MVZ). 2019. *Rana sierrae* record 32618. Accessed on 21 October 2019.
<http://arctos.database.museum/guid/MVZ:Herp:32618>
6. U.S. Forest Service (USFS). 2017. Wildlife Observations NRIS data in BIOS (ds1059). Biogeographic Information and Observation System (BIOS). Sensitive species locality data not publicly available was provided by BIOS staff via email on 14 December 2017.

