

Memorandum

Date: 11/21/2014

To: Kevin Thomas
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Department of Fish and Wildlife

From: Ben Ewing
District Fishery Biologist (Alpine, Amador, Calaveras, and Lake Counties)

Subject: Upper Echo Lake Gillnet Survey June 4 and 5, 2014

Upper Echo Lake, located in El Dorado County, is a 100 surface acre lake located 7600 feet above mean sea level in the Eldorado National Forest north of Interstate 50 and south of Lake Tahoe (Figure 1). Upper Echo Lake's main source of water is Tamarack Creek which is part of the Truckee River drainage. This tributary does not provide spawning habitat for salmonid species in the lake.

From 1932 to 2014, The California Department of Fish and Wildlife (Department) has stocked Upper Echo Lake with rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), kokanee salmon (*Oncorhynchus nerka*), and Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) to provide recreational angling opportunities and supplement natural production. Currently, the Department employs a put-and-grow rainbow trout and Lahontan cutthroat trout fishery.

On June 4 and 5, scientific aides Nick Hood and Kassie Hickey conducted a first phase general fish survey via gillnet. The purpose of this first phase sampling effort is to gather basic fisheries information at low cost, an effort which will guide fisheries managers in making management decisions or guide further research and assessment efforts if necessary. One variable mesh gillnet was set in the northwest end of the lake in order to conduct a general fish survey (Figure 2). The net set was perpendicular to the shoreline for a distance of approximately 100 feet. Set time for the gillnet was 16:45 on June 4, 2014 and pull time was 10:00 on June 5, 2014. Fish captured were identified to species and measured to the nearest millimeter total length.

Six species of fish, brook trout (*Salvelinus fontinalis*)(BK), rainbow trout (*Oncorhynchus mykiss*)(RT), Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*)(CT-L), tui chub (*Siphateles bicolor*)(TC), sucker (*Catostomus*) (SKR) genus and Lahontan redbside (*Richardsonius egregious*)(LRS) were collected during the survey.

Lahontan redbside made up the greatest number collected (56%), followed by TC (20%), SKR (19%), CT-L and BK (2%) and RT (1%) (Figure 3).

Lahontan redbside collected and measured ranged from 88 mm (3.5 in.) to 130 mm (5.1 in.) with the 100 mm length class having the greatest number of individuals (Figure 4). These fish are likely four years of age and/or greater (Moyle 2002). Average size of LRS was 105.7 mm (4.2 in.).

Tui chub collected and measured ranged from 100 mm (3.9 in.) to 197 mm (7.8 in.) with the 110 mm length class having the greatest number of individuals (Figure 5). These fish are likely two years of age (Moyle 2002). Average size of TC was 134.1mm (5.3 in.).

Suckers collected and measured ranged from 110 mm (4.3 in.) to 253 mm (10.0 in.) with the

150 mm length class having the greatest number of individuals (Figure 6). Average size of suckers was 178.1 mm (7.0 in.).

The three BK collected measured 365 mm (14.4 in.), 211 mm (8.3 in.), and 200 mm (7.9 in.) with an average size of 258.7 mm (10.2 in.).

The three CT-L collected measured 450 mm (17.7 in.), 255 mm (10.0 in.), and 190 mm (7.5 in.) with an average size of 298.3 mm (11.7 in.).

One RT was collected, measuring 280 mm (11.0 in.). The low number of salmonids captured prevents robust statistical analysis.

Overall, the results of this general fish survey do not give the Department a lot of information on the salmonid fisheries. Conducting this survey in the early spring with more gillnets and/or fall when salmonids of all species tend to be up in shallower water could help collect more fish if this survey is repeated.



Figure 3. Number and percentage of each species collected by gillnet at Upper Echo Lake, June 4 and 5, 2014

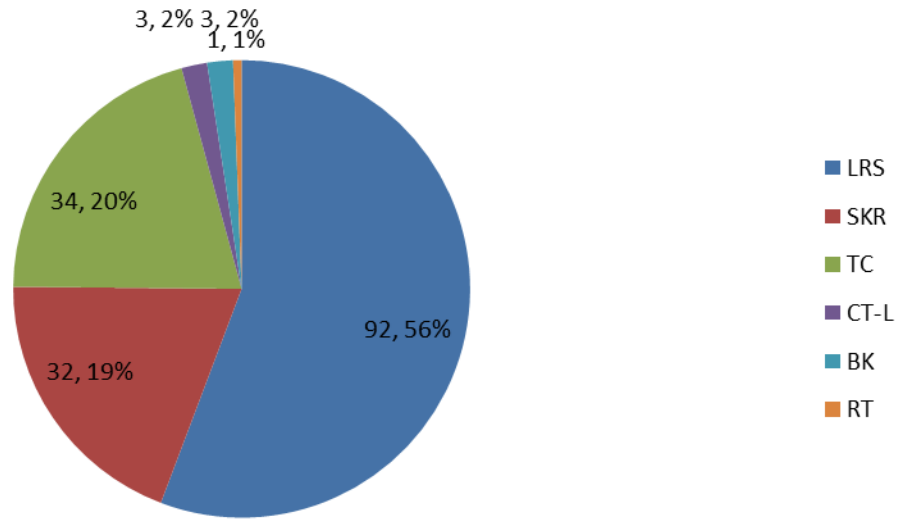


Figure 4. Length-frequency distribution for Lahontan redbreast captured by gillnet at Upper Lake, June 4 and 5, 2014.

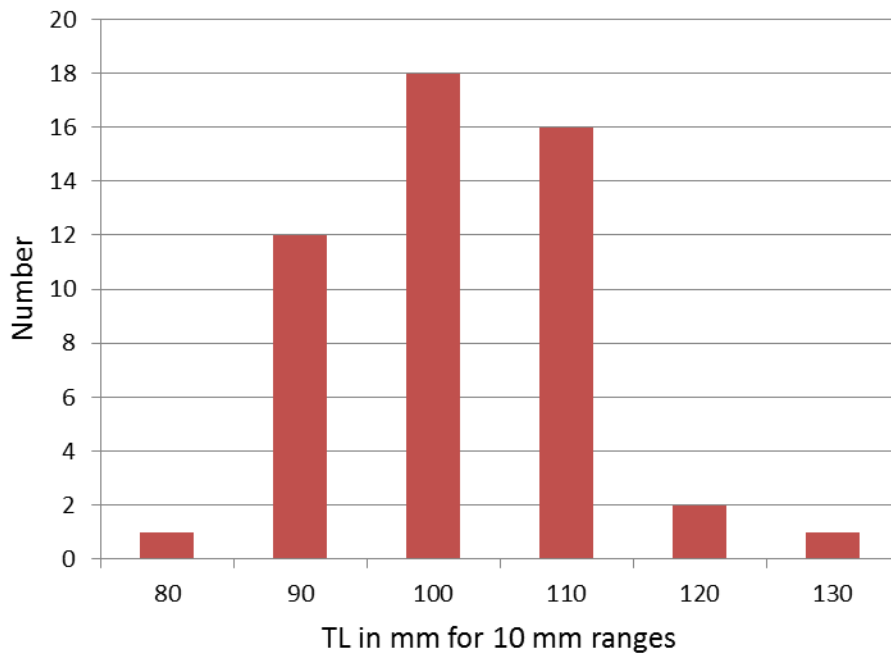


Figure 5. Length-frequency distribution for Tui chub captured by gillnet at Upper Echo Lake, June 4 and 5, 2014.

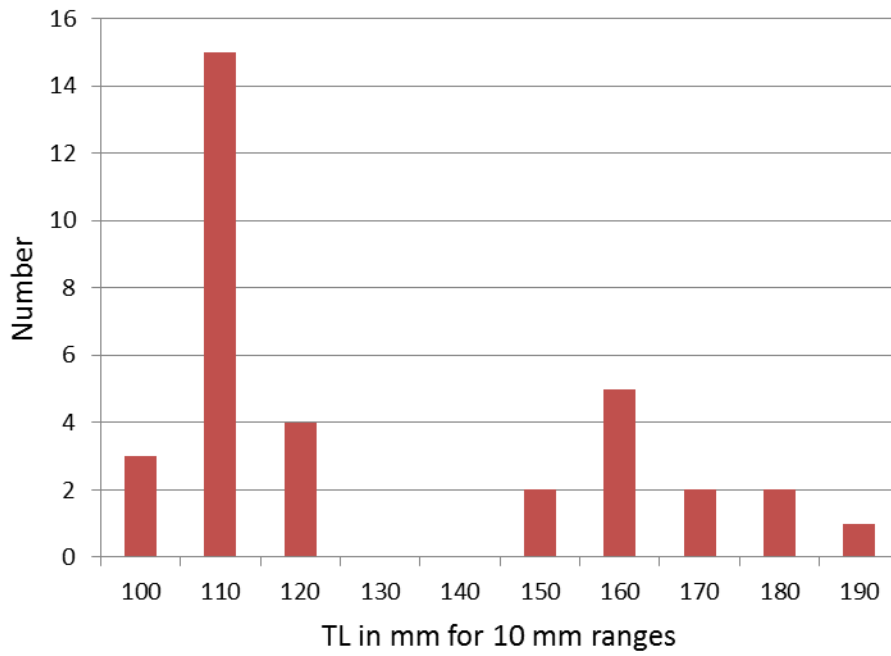
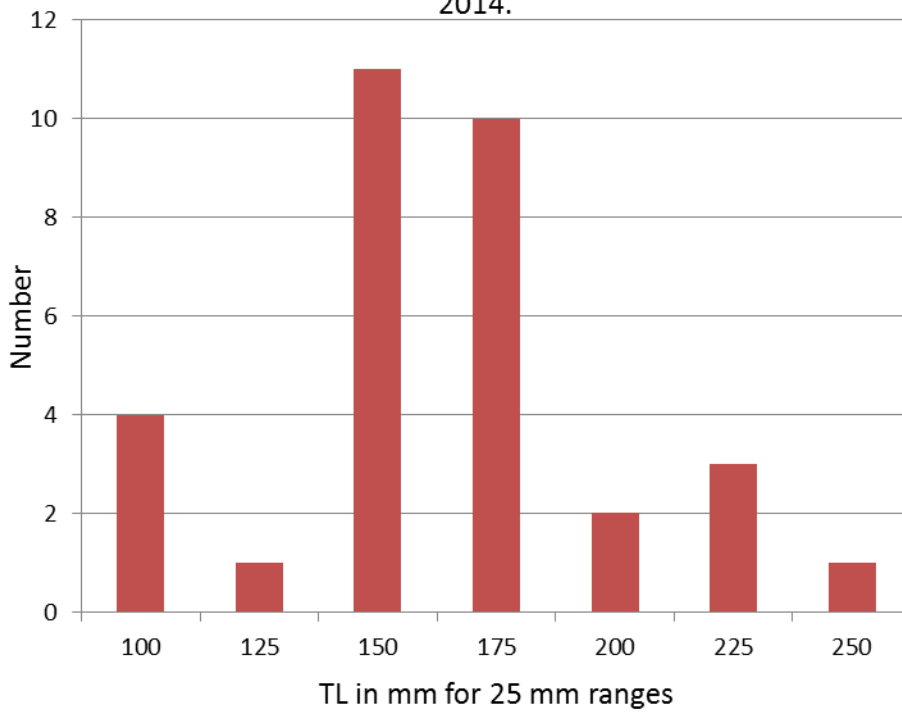


Figure 6. Length-frequency distribution for sucker captured by gillnet at Upper Echo Lake, June 4 and 5, 2014.



References

Moyle, P. 2002. Inland Fishes of California. University of California Press, Berkeley and Los Angeles, California. Pgs. 125, 135.