State of California
Department of Fish and Wildlife

Memorandum

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Cc: CDFW North Central Region Fish Files

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Subject: Pre-Stocking Assessment at Tollhouse Lake, Nevada County.

Tollhouse Lake (Lake ID 12556), Nevada County, is a popular drive-to destination accessible by vehicles with high clearance (**Figures 1** & **2**) via Jackson Meadows Road and Meadow Lake Road.

Tollhouse Lake flows into Jackson Meadows Reservoir as part of Nevada Irrigation District's (NID) Yuba-Bear Hydroelectric Project (FERC# 2266). Leaving north from Meadow Lake, Tollhouse Lake is a twenty-minute drive on unpaved 4WD road.

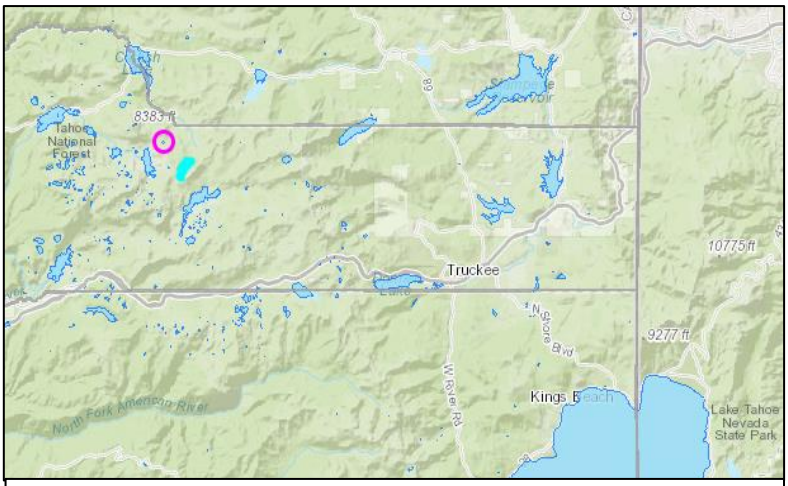

Figure 1. Overview map of Tollhouse Lake, Nevada County, (pink) in relation to Lake Tahoe (CDFW BIOS Viewer, retrieved August 27, 2020).

The California Department of Fish and Wildlife (CDFW) has been planting Rainbow Trout (*Oncorhynchus mykiss*; RT) in Tollhouse Lake since at least 1950 up until the most recent plant in 2018.

Figure 2. Google Earth overview image of Tollhouse Lake, Nevada County. Retrieved August 27, 2020.

To assess the current status of the fishery at Tollhouse Lake and determine if continued fish plants are warranted, two CDFW Scientific Aides surveyed Tollhouse Lake on July 28, 2020.

A monofilament gillnet was set during the daytime for 4 hours on July 28, 2020. Two Brown Bullhead (*Ameiurus nebulosus*; BB) were present in the gillnet. More BB were seen swimming in the shallows during the VES than were captured in the gillnet.

Scientific Aides conducted a visual encounter survey (VES) of Tollhouse Lake on July 28, 2020, searching for diurnal herpetofauna such as the Federally Endangered Sierra Nevada Yellow-legged Frog (*Rana sierrae*, SNYLF). During the survey, the air temperature was 21 degrees Celsius under clear skies. No herpetofauna were seen during the 23-minute survey, however, dense aggregates of BB were observed along the vegetated margins of the lake (**Figure 3**).

Gillnet data collected in 2020 show Tollhouse Lake is not a recreational trout fishery, but supports a large, self-sustaining population of BB, despite BB having never been planted by CDFW.

CDFW recently planted Tollhouse Lake in 2018 and 2017 with 2,000 triploid, fingerling RT each (**Table 1**). The two- to three- year timespan since the last plant has given time for fingerling fish to grow and recruit to adult size. Yet, despite regular plants of fingerling RT, no RT were seen or captured in the field. This could be a result of sampling bias from a single gillnet set or evidence that RT are not surviving to adult-size

Figure 3. Panoramic photograph of Tollhouse Lake, Nevada County, looking north-east. Visible in the photograph is vegetated, shallow habitat that dominates the littoral margins (CDFW, July 28, 2020).

Table 1. CDFW Tollhouse Lake Fish Stocking History, 2009-2018

Year	*Species*	*Number of Fish Planted*	*Size*
2009	RT	1,600	Fingerling
2011	RT	2,000	Fingerling
2012	RT	2,000	Fingerling
2013	RT	2,000	Fingerling
2017	RT	2,000	Fingerling
2018	RT	2,000	Fingerling

and contributing to the fishery. CDFW last sampled Tollhouse Lake in 2002 with similar findings which suggests sampling bias is not an issue.

Most likely, CDFW findings from 2002 and 2020 surveys are a result of poor trout survival due to winterkill. Tollhouse Lake has a recorded maximum depth of 1-meter. RT may need 4-meter, or greater, of water depth to reliably survive an icy winter. Moreover, CDFW planted other species of fish that were also unable to persist. CDFW planted Arctic Grayling (*Thymallus arcticus*; AG) and Brook Trout (*Salvelinus fontinalis*; BK) neither of which persist to the current day.

Considering these findings, Tollhouse Lake is not suitable for a put-and-grow management strategy. Aerial plants of fingerling trout should be halted, and those resources directed towards other productive sports fisheries. If in the future, CDFW can deliver catchable-sized fish to remote locations that require 4WD vehicles, Tollhouse Lake should be considered for a put-and-take catchable-sized RT plant coinciding with the summer recreation season.