

**State of California
Department of Fish and Wildlife**

M e m o r a n d u m

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Subject: Fisheries Monitoring in Sierra County – Gold Lake and Little Gold Lake

INTRODUCTION

This memorandum encompasses fisheries monitoring surveys from 2016 through 2018 conducted in northern Sierra County, in the southern portion of the Lakes Basin Recreation Area (**Figure 1**). Both lakes surveyed in this memorandum are a part of the Feather River drainage. As directed by the Hatchery Operations EIS/EIR (Jones and Stokes 2010), California Department of Fish and Wildlife (CDFW) is currently evaluating the location and status of stocked and formerly stocked backcountry fisheries. All data gathered as part of this study is incorporated into the High Mountain Lakes database and made available to both federal and state agencies. Data from this memorandum will benefit the Department in future efforts for fish stocking and wild trout management in the North Central Region.

METHODS

CDFW personnel conducted fisheries monitoring surveys at Gold Lake (CA Lakes ID 12260) and Little Gold Lake (CA Lakes ID 12298). Fishery monitoring was completed by gill net survey and boat electrofishing. Standard, 36-meter-long x 1.8-meter-high, six panel variable mesh gill nets (gill net) were set perpendicular to the shoreline via float tube or boat. Gill nets were set overnight. One Smith-Root electrofishing boat (SR-18) was used during daytime hours to sample the shallow water at two locations on Gold Lake. Captured fish were measured by Total Length (TL) in millimeters (mm) and weighed in grams (g).

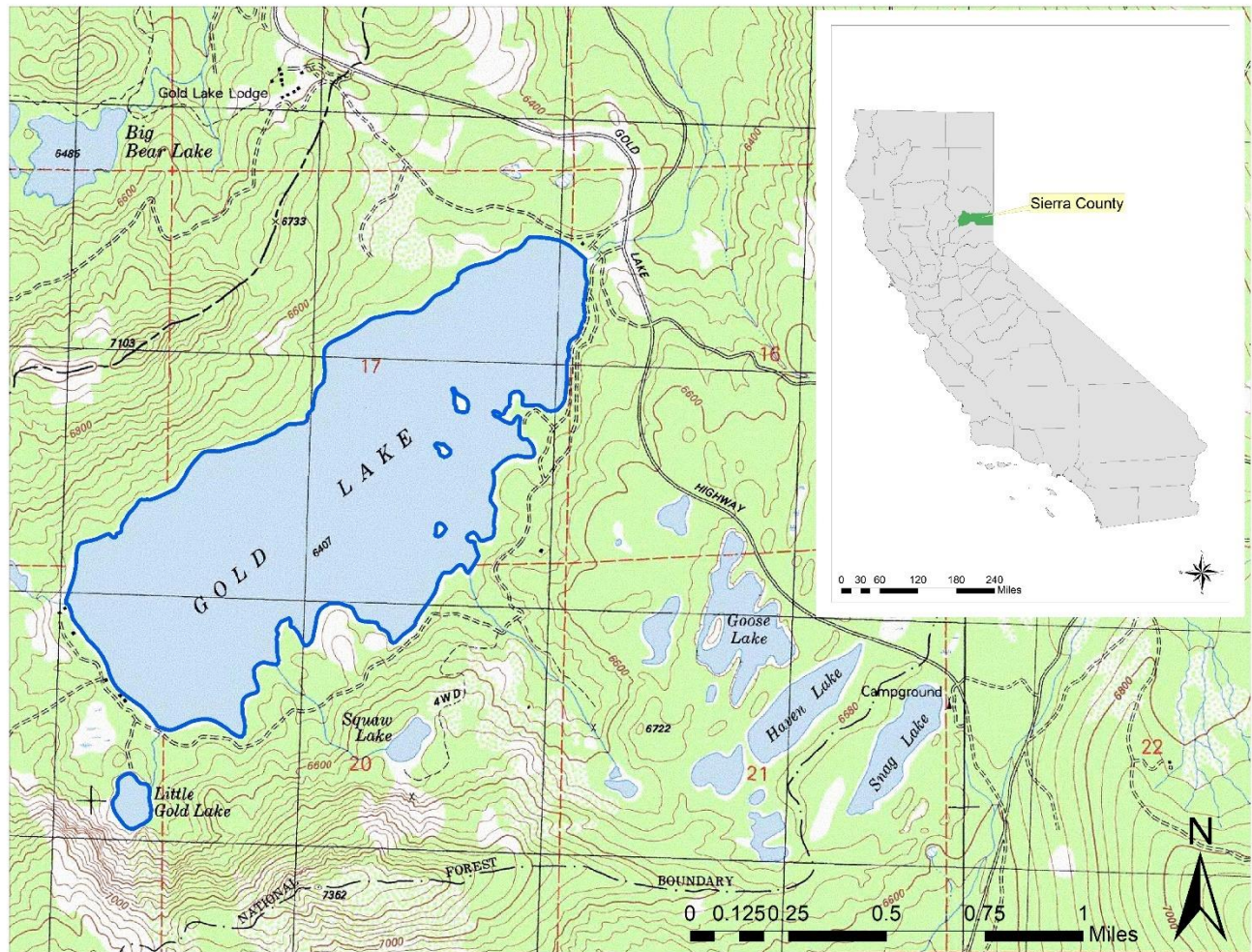


Figure 1. Map of Sierra County fisheries survey area (southern portion of the Lakes Basin Recreation Area). Both lakes surveyed in this memorandum are outlined in dark blue.

GOLD LAKE (12260)

ENVIRONMENTAL SETTING

Gold Lake sits at an elevation of 6,411 feet and has a surface area of 484 acres (**Figure 2**). It is an artificial lake that sits downstream of three associated lakes, including Little Gold Lake and Squaw Lake. The littoral zone habitat consists primarily of rock and cobble with no observed aquatic plant growth. A stream channel comes out of a dammed outlet on the northeast side of the lake and drains to Frazier Creek, which drains to the Middle Fork Feather River. The terrestrial habitat primarily consists of mixed conifer forest. Gold Lake is located in the Plumas National Forest, approximately 5.6 air miles southeast of Graeagle, California. The lake can be accessed by a short drive down Forest Road 21N61, off the Gold Lake Highway (USDA Forest Service 2007).



Figure 2. Gold Lake looking northeast (CDFW 2019).

RESULTS

On July 6, 2017 and September 17, 2018, CDFW personnel briefly boat electrofished Gold Lake to augment other field work (Aquatic Invasive Species sampling in 2017 and gill net surveys in 2018) being conducted there, by capturing and identifying small fish that were observed congregating in the shallows. During 0.15 hours of combined 2017 and 2018 electrofishing events, personnel captured one Brook Trout (*Salvelinus fontinalis*) with a 205 mm total length (TL) and 352 Lahontan Redside (*Richardsonius egregius*) ranging from 30-115 mm (53 mm mean TL) (**Table 1** and **Figure 3**). On September 16, 2018, personnel set two gill nets overnight for a combined total of 30.83 hours. The lake depth was approximately 5.8 and 10.4 meters, respectively, at the deep end of the net sets (approximately 36 meters from shore). The gill nets returned one Lake Trout (*Salvelinus namaycush*) with a 366 mm TL and seven Brown Trout (*Salmo trutta*) ranging from 240-320 mm (268 mm mean TL) (**Table 1** and **Figure 4**). CDFW has consistently planted Gold Lake with Rainbow Trout (*Oncorhynchus mykiss*) from 1950 until the present, and Brown Trout from 1969 until the present. CDFW also resumed Brook Trout plants in 2018. Over the years, CDFW has also planted other species, including: Kokanee Salmon (*Oncorhynchus nerka*) from 1954 through 1962, Golden Trout (*Oncorhynchus mykiss aguabonita*) in 1972, Lahontan Cutthroat Trout (*Oncorhynchus clarki henshawi*) in 1971 and 1975, Lake Trout from 1966 through 2008, and Brook Trout from 1968 through 2002. Given the Lake Trout and Brook Trout observed during the 2017 and 2018 surveys, CDFW believes that both species are self-sustaining in Gold Lake (**Figure 5**).

Although rainbow trout were not captured during the gill net or electrofishing surveys, they were reported in the preliminary Angler Survey Box data (CDFW Unpublished Data). Based on these survey results, CDFW will continue to stock Rainbow Trout, Brook Trout, and Brown Trout in order to provide a diverse fishery. The Brown Trout allotment has been decreased due to the “leaner” appearance of fish captured during the 2018 survey. CDFW will collect data in subsequent years to determine future management direction.

Table 1. 2017-2018 summary of Lahontan Redside (LRS), Brook Trout (BK), Lake Trout (LT), and Brown Trout (BN) captured in Gold Lake using gill nets and boat electrofishing. Summary includes total length (TL) and catch per unit effort (CPUE).

Year	Species	Number Captured	TL Range (mm)	TL Mean (mm)	Percent of Capture	CPUE (Fish Per Hour)	Method
2017 2018	LRS	352	30-115	53	97.51%	2283.00	Eboat
2017	BK	1	205	205	0.28%	6.70	Eboat
2018	LT	1	366	366	0.03%	0.03	Gill Net
2018	BN	7	240-320	268	1.94%	0.23	Gill Net



Figure 3. Lahontan Redside captured in Gold Lake (CDFW 2018).



Figure 4. Brown Trout captured in Gold Lake (CDFW 2018).

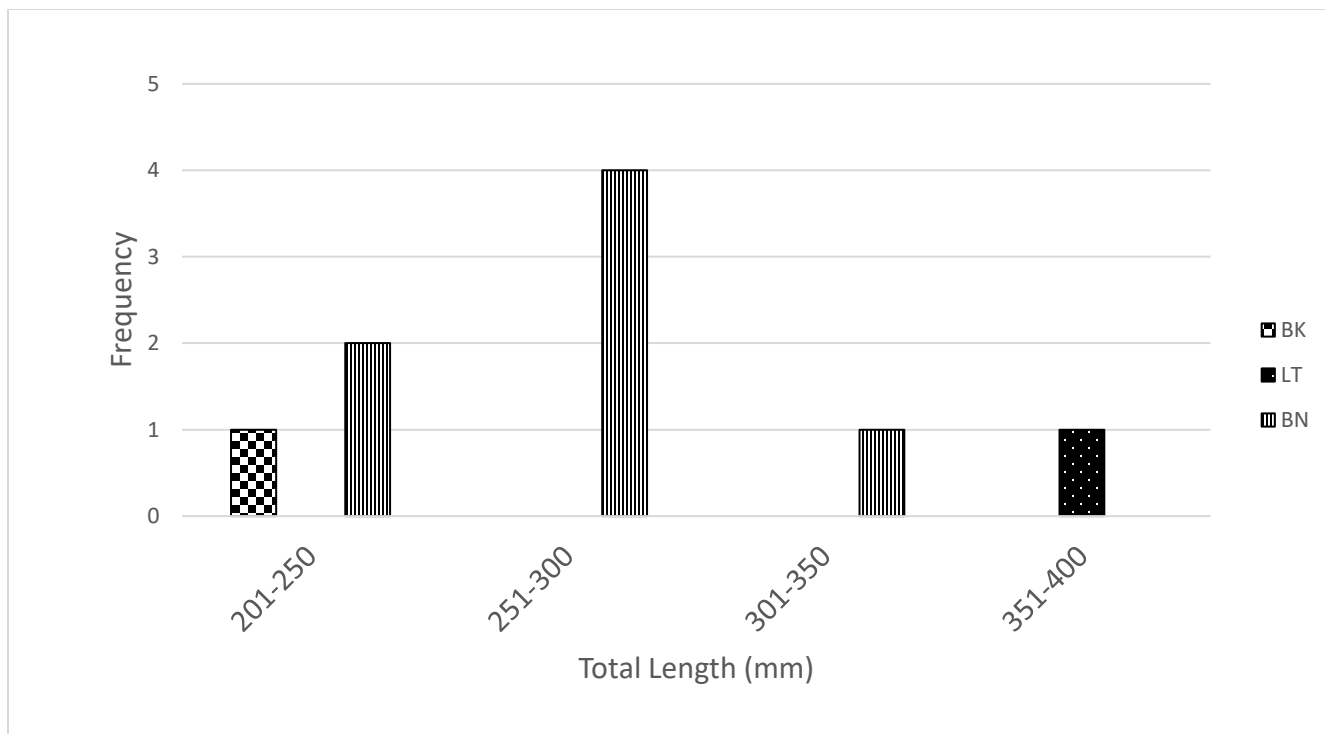


Figure 5. Length-frequency histogram for Brook Trout (BK), Lake Trout (LT), and Brown Trout (BN) captured in Gold Lake during 2017 and 2018 fish surveys.

LITTLE GOLD LAKE (12298)

ENVIRONMENTAL SETTING

Little Gold Lake sits at an elevation of 6,425 feet and has a surface area of 6.4 acres (**Figure 6**). It is a natural lake that sits upstream of Gold Lake. The littoral zone habitat consists primarily of rock, cobble, silt, and woody debris with no observed aquatic plant growth. A stream channel comes out of an outlet on the northeast side of the lake and drains to Gold Lake, which ultimately drains to the Middle Fork Feather River via Frazier Creek. The terrestrial habitat primarily consists of mixed conifer forest. Little Gold Lake is located in the Plumas National Forest, approximately 7.0 air miles southeast of Graeagle, California. The lake can be accessed by a four-wheel drive road (Forest Road 21N93), after a short drive down Forest Road 21N61, off the Gold Lake Highway (USDA Forest Service 2007).



Figure 6. Little Gold Lake looking south (CDFW 2016).

RESULTS

On June 8, 2016, CDFW personnel conducted a fishery monitoring survey at Little Gold Lake. Personnel set one gill net overnight for a total of 15.0 hours. The lake depth was approximately 1.8 meters at the deep end of the net set (36 meters from shore). The net returned 15 Brook Trout ranging from 121-441 mm (248 mm mean TL), 11 Golden Shiner (*Notemigonus crysoleucas*) ranging from 101-152 mm (139 mm mean TL), and 154 Lahontan Redside ranging from 86-153 mm (109 mm mean TL) (**Table 2** and **Figure 7**). CDFW consistently planted Little Gold Lake with Brook Trout from 1950 until discontinuing plants in 1985. Due to the numbers and size classes of Brook Trout present during the 2016 survey, CDFW believes Brook Trout are self-sustaining in Little Gold Lake (**Figure 8**). Based on these survey results, CDFW will not renew stocking at Little Gold Lake and will manage the site as a self-sustaining Brook Trout fishery. CDFW will collect data in subsequent years to determine future management direction.

Table 2. 2016 summary of Brook Trout (BK), Golden Shiner (GSH), Lahontan Redside (LRS) captured in Little Gold Lake using a gill net. Summary includes total length (TL) and catch per unit effort (CPUE).

Year	Species	Number Captured	TL Range (mm)	TL Mean (mm)	Percent of Capture	CPUE (Fish Per Hour)	Method
2016	BK	15	121-441	248	8.00%	1.00	Gill Net
2016	GSH	11	101-152	139	6.00%	0.73	Gill Net
2016	LRS	154	86-153	109	86.00%	10.27	Gill Net



Figure 7. Checking a gill net at Little Gold Lake (CDFW 2016).

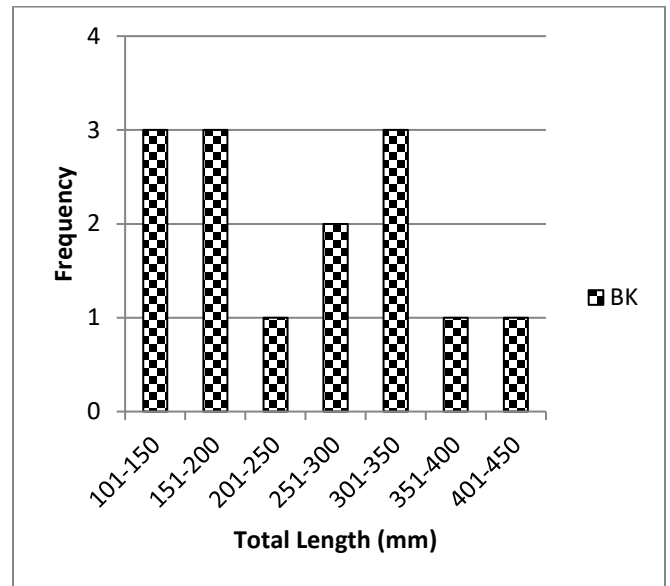


Figure 8. Length-frequency histogram of Brook Trout (BK) captured at Little Gold Lake on June 8, 2016.

SQUAW LAKE (12295)

CDFW last surveyed Squaw Lake (CA Lakes ID 12295), the other associated lake referenced in this memorandum, in 2015 and found no fish in an overnight gill net set. More detailed information can be found in a separate memorandum titled *Fisheries monitoring in Sierra County – Squaw Lake (12295)* (Mussulman 2015).

LITERATURE CITED:

CDFW Unpublished Data. Wild Trout Program Creel Database.
WT_StreamCreel_MASTER.accdb

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Mussulman, S. 2015. Fisheries monitoring in Sierra County – Squaw Lake (12295). California Department of Fish and Wildlife. Memorandum. Available from:
<http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=129450>

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