State of California
Department of Fish and Wildlife

M e m o r a n d u m

Date: 02/15/2017

To: Sarah Mussulman
Senior Environmental Scientist Supervisor
North Central Region (NCR)

From: Amber Mouser
Environmental Scientist
Plumas/Sierra County Fisheries- NCR

Cc: Region 2 Fish Files

Subject: Plumas County fisheries monitoring - Snake Lake (Lake ID: 12030)

On April 1, 2016, California Department of Fish and Wildlife (CDFW) personnel conducted a fisheries monitoring survey at Snake Lake (CA Lakes ID 12030, Fig. 1) near Quincy, in Plumas County. One gill net was set for a total of 17.37 hours. The net captured 160 golden shiner (*Notemigonus crysoleucas*), 32 brown bullhead (*Ameiurus nebulosus*), and two bullfrog tadpoles (*Lithobates catesbeiana*). Due to species and sizes of fish captured and the presence of non-native bullfrogs, CDFW would like to manage the lake as a stocked rainbow trout fishery.

Figure 1. Snake Lake looking Southeast on April 1, 2016 (CDFW).

INTRODUCTION

Snake Lake (Fig. 2) was formerly planted with largemouth bass and bluegill by the Elk Grove Hatchery in the 1950s in an attempt to augment the recreational fishery (Fisher, 1953). Snake Lake is a popular roadside recreation area and no fishery surveys have been conducted there in many years. All data gathered as part of this study are 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 trout management in the North Central Region.

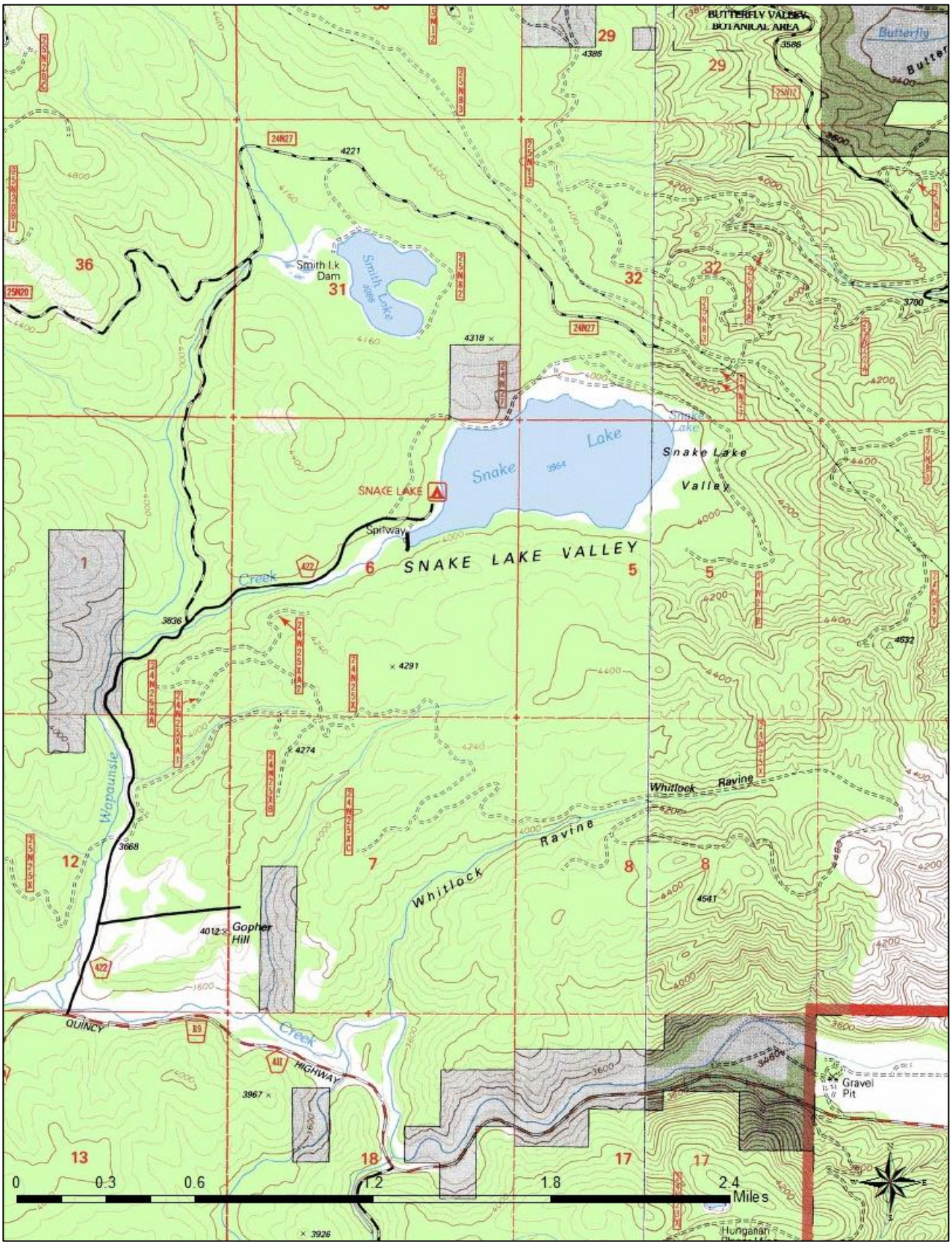

Figure 2. Location of the survey area in western Plumas County.

ENVIRONMENTAL SETTING

Snake Lake sits at an elevation of 3,954 feet above mean sea level and has a surface area of 168.6 acres. It is a natural lake that occupies the Snake Lake Valley. The lake ranged from zero to two feet deep until a check dam was added to the outlet to deepen the lake by approximately six feet in 1952. Although it is only eight feet deep, CDFW records indicate that there are springs at the bottom of the lake that maintain a consistent water level throughout the year (Chandler, 1950). The littoral zone habitat consists primarily of silt and aquatic vegetation. The lake drains to the southwest to form Wapaunsie Creek, which drains to Spanish Creek, and ultimately to the North Fork Feather River. The terrestrial habitat consists of mixed conifer forest dominated by Ponderosa Pine. The valley portions are covered with grasses, sedges, and willows. Snake Lake is situated on Plumas National Forest land approximately 2.5 miles northeast of Meadow Valley, CA. The lake offers tent camping, RV camping, and equestrian use free of charge. It has heavy recreation use and is one the closest recreational waters to the town of Quincy at approximately eight miles by paved road, by means of Bucks Lake Road to Snake Lake Road (Shaffer 2005).

HISTORY

Historic records for Snake Lake indicate that catfish were present in the lake and that largemouth bass and bluegill were planted in 1953 by the Elk Grove Fish Hatchery (Fisher, 1953). The outlet creek (Wapaunsie Creek) was planted with brook trout (*Salvelinus fontinalis*) in 1957 and with rainbow trout (*Onchorynchus mykiss*) in 1958 and 1959. Snake Lake has a history of chemical treatments throughout the 1960s in repeated attempts to control the Brasenia sp., an aquatic weed (North Central Region Fish Files).

RESULTS

On April 1, 2014, one standard 36 meter long x 1.8 meter high 6 panel variable mesh gill net was checked after an overnight set of 17.37 hours. The net captured 160 golden shiner, 130 of which were weighed and measured ranging from 77mm-195mm, and 32 brown bullhead, all of which were weighed and measured ranging from 76mm-219mm (Fig. 3 & 4). Additionally, two bullfrog tadpoles were captured in the net.

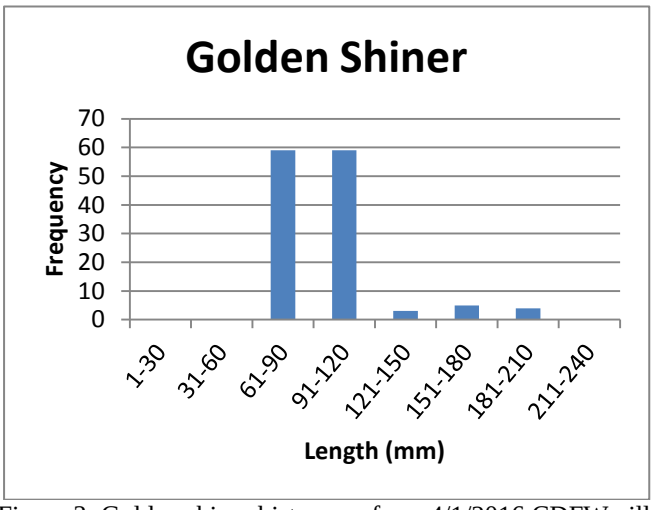

Figure 3: Golden shiner histogram from 4/1/2016 CDFW gill net survey at Snake Lake.

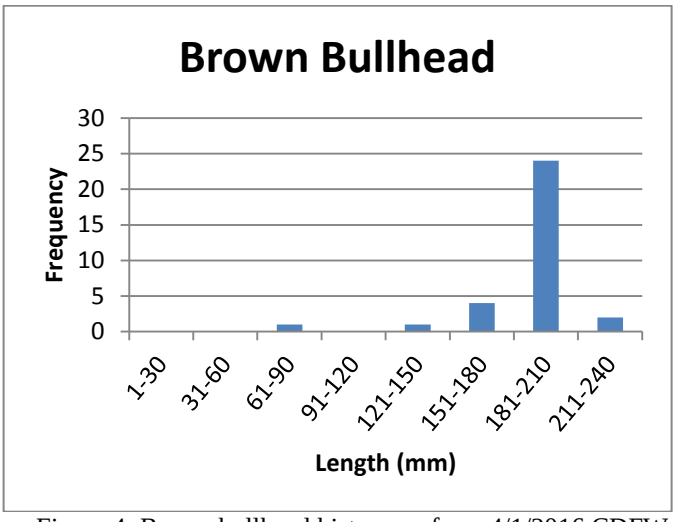

Figure 4: Brown bullhead histogram from 4/1/2016 CDFW gill net survey at Snake Lake.

Incidentally, 220 adult non-native bullfrogs were observed during a visual encounter survey conducted for amphibians in 2004 (HML Database).

CONCLUSION

Snake Lake has an abundance of forage fish (Fig. 5) and a stunted brown bullhead population. Based on the 2016 fisheries survey results, the lake should be managed as a stocked fishery. Stocking Snake Lake would provide the closest year round fishing opportunity for the angling public of Quincy. With the relatively easy access and free recreation facilities provided by the Forest Service, the lake is highly accessible to the public. During the Snake Lake Recreation Area dedication ceremony, after the dam was installed and the water level was raised, Snake Lake was deemed to be “one of the best fishing lakes in Superior California.” (Fisher, 1953). Unfortunately, the lake is no longer known for its fishing. Augmenting the recreational fishery with rainbow trout could significantly enhance the appeal of this waterbody.

Figure 5. Snake Lake golden shiner.

LITERATURE CITED

Chandler, H. P. Wildlife Conservation Board Project, Snake Lake Memo. CDFW; 6/28/1950. Available from: http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=138630

Fisher, C. K. Snake Lake Dam, Plumas County: Dedication Plans. CDFW; 4/14/1953. Available from: http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=138636

High Mountain Lakes Database, accessed by S. Mussulman on 1/23/2017, California Department of Fish and Wildlife

ICF Jones and Stokes. 2010. Hatchery and Stocking Program Environmental Impact Report/ Environmental Impact Statement. https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=Fisheries--FishProductionDistribution&sub=HatcheryAndStockingProgramEIR/EISfinal

North Central Region Fish Files. Snake Lake, Plumas County. California Department of Fish and Wildlife.

Richard, J. B. Spanish Creek Drainage Fish Stocking. CDFW; 7/27/1959. Available from: http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=138639

Shaffer, C. 2005. The Definitive Guide to Fishing Northern California. Asia: Shafdog Publications. p.440

Stebbins, Robert C. *A Field Guide to Western Reptiles and Amphibians*. 3rd Edition. Houghton Mifflin Company, 2003. p. 240-241