State of California
Department of Fish and Wildlife

M e m o r a n d u m

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Cc: Region 2 Fish Files

Subject: Fisheries Monitoring in Plumas County – Blue Lake (11548).

On July 22-23, 2014, California Department of Fish and Wildlife (CDFW) conducted fisheries and amphibian monitoring surveys at Blue Lake (CA Lakes ID 11548, Fig. 1) in northern Plumas County. Two overnight gill nets were set for a combined total of 26.5 hours and returned two large brown trout. Due to the low numbers of fish captured and no sign of reproduction CDFW will collect additional data at Blue Lake to determine a management direction.

Figure 1: Blue Lake looking northwest on July 22, 2014 (CDFW).

INTRODUCTION

Blue Lake is one of four associated lakes formerly planted with fingerling trout by CDFW in a small watershed in northern Plumas County (Fig. 2). Due to lack of recent fish surveys uncertainty existed about the status of fisheries at Duck, Blue, Elizabeth, and Ridge Lakes. As directed by the Hatchery Operations EIS/EIR (Jones and Stokes 2010) 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. Blue Lake is addressed in this memo: the other lakes in the watershed will be addressed in separate memos.

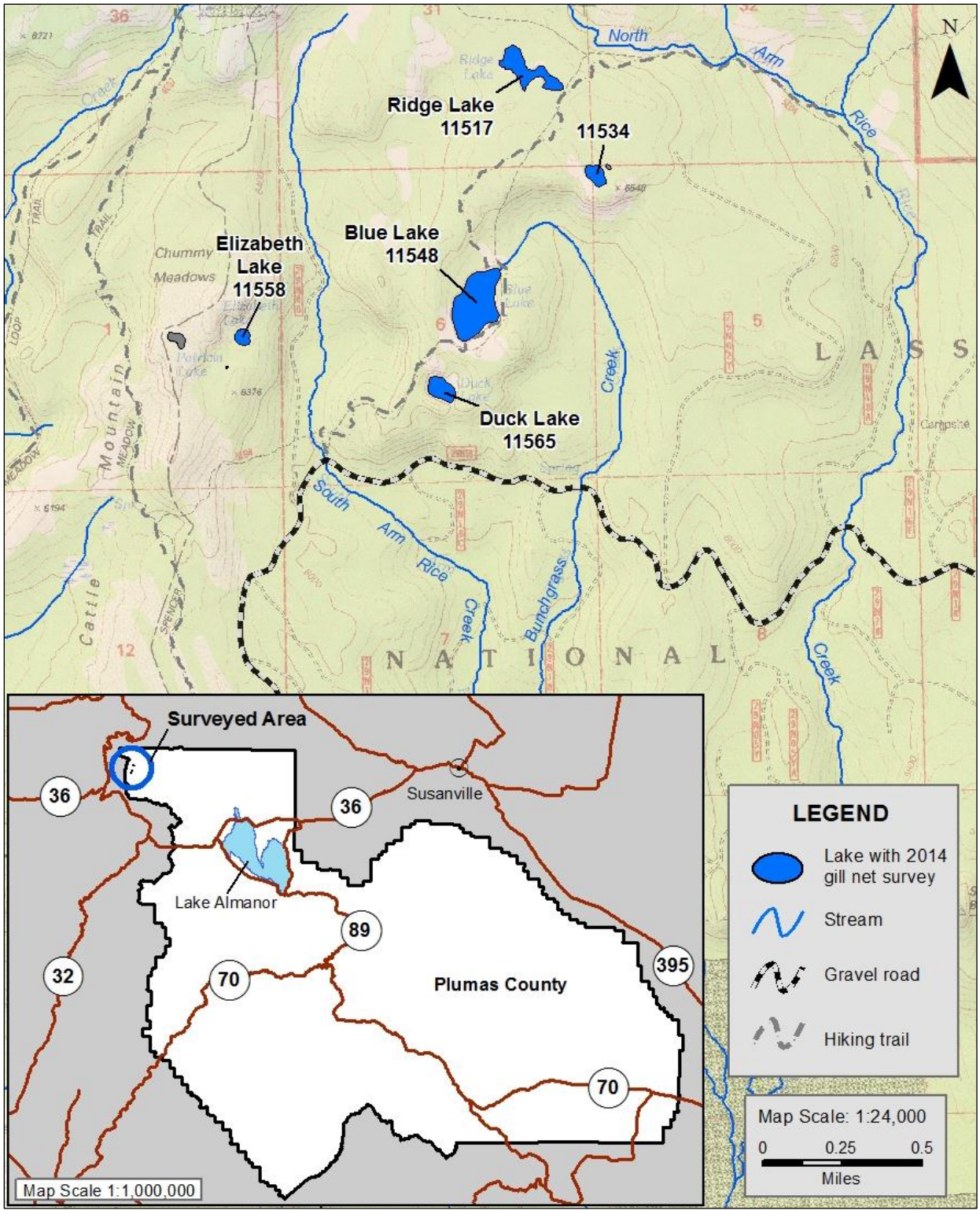

Figure 2: Location of the survey area in northwestern Plumas County. Dark blue lakes had gill net surveys in 2014.

ENVIRONMENTAL SETTING

Blue Lake has a surface area of 5.93 hectares and a maximum depth of 11 meters. Littoral zone habitat consists primarily of woody debris and silt with approximately 25% boulders and cobbles. Depths in the majority of the littoral zone ranged from 16-45 centimeters. Surveyors observed a dry outlet stream consisting of a small channel though meadows and no inlet streams. Terrestrial habitat consists of mixed conifer forest and meadows at an elevation of approximately 1990 meters above mean sea level. Access to Blue Lake is via well-maintained gravel roads and a short hike along a trail. Incidentally, crews noted extremely dense forest in this area with large amounts of dead wood on the ground. The watershed drains into Rice Creek and eventually into the Feather River. Lassen National Forest manages the land in the watershed.

HISTORY

CDFW conducted regular fishery surveys in this area between 1968 and 1987. Five reports summarize survey results and provide justifications for changes in fish planting (Johnson 1968; Flint 1974; Flint 1975; Flint 1986; Flint 1987). Comments in 1974 suggest much greater public use, noting that 10 people were camped at Blue Lake at the time of the surveys (Flint).

RESULTS

On July 22, 2014 two scientific aides set two standard 36 meter long x 1.8 meter high 6 panel variable mesh gill nets for a combined total of 26.5 hours and captured two large brown trout (*Salmo trutta*) in one of the nets (total lengths = 540 and 580 mm). Blue Lake is one of four lakes in the watershed formerly planted with trout by CDFW which have not had a fisheries survey since 2002, thus the status of its fishery was uncertain. Most recently, Blue Lake was planted with brook trout (*Salvelinus fontinalis*) between 1971 and 2000. Rainbow trout (*Onchorynchus mykiss*) plants occurred from 1958 through 1973. A 2002 CDFW gill net survey captured six medium-sized brook trout in good condition (Fig. 3) and two large brown trout (Fig. 4) but it was unclear if this fishery would persist in the absence of fish plants. CDFW has no records of brown trout plants in the area although brown trout are known to occur in the north fork of Rice Creek (John Hanson, personal com.). Due to the low number of brown trout captured during the survey uncertainty remains about the quality of the fishery at Blue Lake and the likelihood that brown trout will persist there. No evidence of reproduction was observed in either 2014 or 2002 and the outlet stream does not contain gravel suitable for spawning. CDFW will collect additional data at Blue Lake in order to determine a management direction.

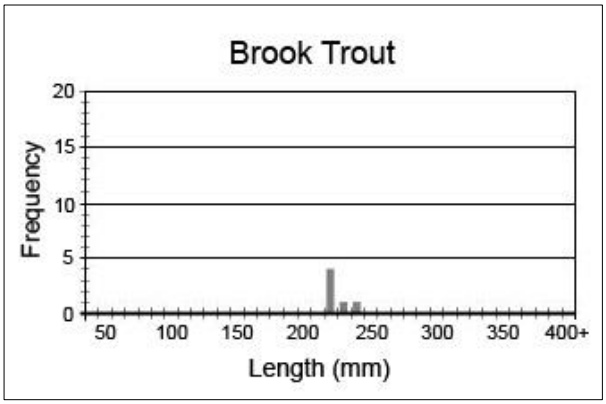

Figure 3: Brook trout histogram from 6/24/2002 CDFW gill net survey at Blue Lake.

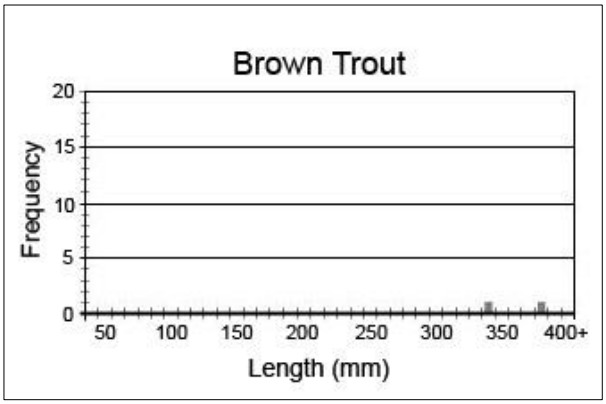

Figure 4: Brown trout histogram from 6/24/2002 CDFW gill net survey at Blue Lake.

Incidentally CDFW conducted amphibian monitoring surveys at Blue Lake on July 22, 2014 and observed no amphibians in the lake or its outlet.

LITERATURE CITED:

Flint, R. A. Ridge Lake Survey, 1974. California Department of Fish and Game; 3/26/1975. Available from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92710

Flint, R. A. Ridge Lake File 1975 Management Report. California Department of Fish and Game; 3/10/1976. Available from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92709

Flint, R. A. Ridge Lakes (Duck, Blue, Ridge) 1986 Management Report. California Department of Fish and Game; 3/24/1986. Available from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92712

Flint, R. A. Blue Lake, 1987 Survey (Plumas). California Department of Fish and Game; 2/5/1988. Available from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92714

Jones & Stokes. 2010. Hatchery and Stocking Program Environmental Impact Report/Environmental Impact Statement. State clearinghouse #2008082025.

Johnson, R. L. Lake field survey form Blue and Duck Lake 1968. California Department of Fish and Game; 9/19/1968. Available from: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92713