Caples Lake Fisheries Management Plan

Version 2.0

For Discussion at August 7, 2008 ERC Meeting

August 6, 2008
Purpose

The Caples Lake Fisheries Management Plan (Plan) outlines the stocking plan to re-establish a sport fishery in Caples Lake following completion of the Caples Lake Main Dam Emergency Repair Project.

Introduction

El Dorado Irrigation District (EID) conducted an underwater inspection of the Caples Lake Main Dam outlet works in June 2008. Both slide gates and appurtenances were found to be in severely deteriorated condition and were judged to be unsafe and unreliable for continued operation. At a special meeting on July 1, 2008, the EID Board of Directors declared an emergency and directed EID staff to proceed with necessary repairs.

To accomplish the emergency repairs, it is necessary to completely dewater the outlet system. This will require lowering the reservoir, installing a temporary cofferdam, installing a flow bypass system, and providing necessary health and safety protocols for contractors working in the outlet works including the vertical shaft and inlet and outlet conduits. Reservoir drawdown commenced on July 21, 2008. EID has prepared a drawdown schedule (Appendix A) which provides an estimate of releases required to bring the reservoir elevation down to complete the repairs in late September 2008.

The proposed temporary cofferdam will consist of double 5-6 foot high water filled bladder dams that will be installed in the lake bed approximately 1200 feet upstream of the dam. This location is just downstream of the original Twin Lakes. The approximate volume of water that can be impounded (including the estimated 600 acre-feet in Twin Lakes) is approximately 1,500 - 2,000 acre-feet. High resolution bathymetric data will be collected in mid August 2008 which will provide data to inform the best placement of the bladder dams and refine calculations of total volume that can be impounded. The amount of water stored by the bladder dam will serve to provide streamflows during the emergency repairs and throughout the winter.

When the emergency repairs are completed, inspected, and tested, the temporary cofferdam and flow bypass system will be removed and the outlet system re-watered. Depending upon the remaining water in the reservoir at the end of construction, the bottom gate will be used for releases during the winter season and operated as necessary as the reservoir refills in the spring of 2009.

The California Department of Fish and Game (DFG) was consulted on the potential effects to the reservoir fisheries as a result of the low lake levels. Given the constraints on the volume of water that can be impounded, DFG has determined that the fisheries in Caples Lake will be severely impacted by crowding of large numbers of fish causing increased biochemical oxygen demand and decreased dissolved oxygen levels. The crowding may also caused increased predation of catchable and smaller size fish. The minimal depth (10-15 feet) of the remaining pool will not likely be adequate to sustain.
the fish over the winter. The fishery will most likely not survive or at a minimum be severely impacted. DFG recommended that EID develop a fish restocking mitigation plan that is modeled after the DFG’s Lake Davis Fisheries Management Plan (DFG 2007). This plan has been developed to respond to DFG’s request.

**General Setting**

Caples Lake is part of the Federal Energy Regulatory Commission (FERC) Project 184-CA, which also includes Silver Lake, Lake Aloha, and Echo Lake. Caples Lake is formed by a Main Dam and an Auxiliary Dam, located about 0.8 miles apart. The Main Dam is on Caples Creek and the Auxiliary Dam is on a small, unnamed branch of Caples Creek to the left of the Main Dam. The reservoir serves the primary function of storing spring snowmelt runoff and releasing it throughout the year to serve power generation commitments downstream. The reservoir is capable of storing up to 21,600 acre-feet (AF) with a surface areas of 624 acres.

Caples Lake was constructed near a shallow lake basin called Twin Lakes. The volume of Twin lakes is estimated to be approximately 600 acre-feet with a maximum depth of approximately 15 feet. Based upon existing information the mean depth is estimated to be considerably less than 15 feet.

**Status of the Fishery**

Lake trout (mackinaw) fingerlings were first introduced into Caples Lake in 1965 and 1966. Based upon data collected it was determined that some of the fish did successfully reproduce in the reservoir. The most regularly captured lake trout are estimated to be between 7 and 12 years old. The lake trout that are greater than 24 inches (10+ lbs) are most likely 20+ years old. Large rainbow, brown and brook trout are also captured indicating that many fish do survive winter ice over conditions and carry over for several seasons.

Based on a review of records and creel survey data, DFG summarized the current fishery at Caples Lake as follows: The fishery is comprised of rainbow trout (mean size 10-14 inches), brown trout (mean size 12-14 inches with larger older fish (24+ inches), brook trout (mean size 12-14 inches, lake trout (mackinaw) (mean size 17-23 inches) with large fish >24+ inches, >10lbs. showing up in the creel), tui chubs, and Sacramento suckers. The DFG stocks ~11,000 lbs. of catchable sized rainbow trout, 3,500 lbs. of catchable size brook trout, and 2,300 lbs. of catchable size brown trout. Approximately 30,000 lake trout fingerlings are also stocked into the reservoir each year (DFG 2008).

**Management Program**

EID’s Plan is modeled after DFG’s Lake Davis Fisheries Management Plan. The Plan consists of both short and long term components over a ten year timeframe. To restore fishing opportunities at Caples Lake in the short term, EID proposes to stock catchable sized rainbow trout as well as large trophy sized rainbow and brown trout (~2.5 lbs). The
planting of catchables will be supplemented by sub-catchables and fingerlings to support development of multiple age class structure in the fishery population. These younger fish are anticipated to develop into catchable size trout within 1-2 years depending on environmental conditions. The trophy sized rainbow and brown trout are proposed to replace the existing mackinaw fishery until the population of this species recovers following construction.

To support restoration of the existing fishery in the long term, EID proposes to stock lake trout fingerlings\(^1\). Although lake trout are typically known for their slow growth rates, based upon consultations with DFG it is anticipated that these fish will utilize the niche created by replacement of the population and experience increased growth rates during the first several years.

**Short term Management Objective:**
Re-establish a multi-species catchable and trophy sport fishery as soon as Caples Lake fills to a level at which hatchery trucks can access the lake via a boat ramp or when environmental conditions allow the stocking of fingerling, sub-catchable, catchable, and trophy sized rainbow trout and trophy sized brown trout.

**Long term Management Objective:**
Work in cooperation with DFG to augment the existing lake trout fingerling program to help re-establish a lake trout trophy fishery. If sufficient hatchery space is available in the state hatchery system, add an additional 50,000 lake trout fingerlings to the existing 30,000 fingerling stocking program (80,000 total minus hatchery losses).

In addition, EID proposes to augment an existing trophy stocking programs with additional trophy sized rainbow and brown trout for an additional 9 years. This timeframe will allow the trophy lake trout fishery to re-establish and begin to show up in the creel.

**Species Composition and Stocking Rates**
The proposed stocking plan is focused on three sport fish species: rainbow trout, brown trout, and lake trout. Based upon consultation with DFG, it is anticipated that non-game species (Sacramento sucker and Tui chub) will recover following refill of the reservoir.

Table 1 summarizes the proposed species composition, size class, and stocking rates for Year 1 of the Caples Lake Fisheries Management Plan. The stocking rate for trophy sized rainbow and brown trout is 10 fish per acre. The Lake Davis Fisheries Management Plan recommended 5 fish per acre due to the short term reduced forage base in the reservoir following the chemical treatment (DFG 2007). Because the forage base

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\(^1\) Under current regulations only mackinaw fingerlings can be imported in California. These fish must be quarantined by DFG prior to release for stocking in reservoirs. Due to the regulations surrounding this species, it is proposed that this stocking will be conducted by DFG and funded by EID.
in Caples Lake will not be affected by chemical treatment, the stocking rate of 10 fish per acre is proposed for trophy rainbow and brown trout. Stocking rates for smaller size classes of trout include: fingerlings, 230 per acre; sub-catchable, 50 per acre; and catchable, 30 per acre.

In the first year, trophy rainbow trout, trophy brown trout, and catchable sized rainbow trout (included in Table 1) will be stocked immediately after the reservoir fills to an adequate level. This infusion of large numbers of catchable and trophy sized fish is intended to immediately re-establish a sport fishery at Caples Lake. Stocking for sub-catchable and fingerling rainbow trout (included in Table 1) will occur later in the season, but will be based on input from the DFG and availability of each size class. The DFG will continue its stocking program (~11,000 lbs. of catchable sized rainbow trout, 3,500 lbs. of catchable size brook trout, and 2,300 lbs. of catchable size brown trout) throughout the rest of the season. In addition, during year one, EID will add an additional 50,000 lake trout fingerlings to the existing 30,000 fingerling DFG stocking program (~80,000 total).

Table 1: Recommended stocking rates for year 1 of the Plan based upon Lake Davis Fisheries Management Plan.

<table>
<thead>
<tr>
<th>Caples Lake</th>
<th>Surface acres</th>
<th>Volume (acre-feet)</th>
<th>Species and size class</th>
<th>Stocking rate (fish/acre)</th>
<th>Total fish</th>
<th>Fish/lb</th>
<th>Average size (lb)</th>
<th>Total lbs</th>
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<td></td>
<td>Trophy</td>
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<td>6240</td>
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<td>15600</td>
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<tr>
<td>Brown Trout</td>
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<td>Trophy</td>
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<tr>
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</table>

In years two through ten, EID proposes to augment the existing trophy stocking program with additional trophy sized rainbow and brown trout. Ten years was selected because
this provides adequate time for the trophy lake trout fishery to re-establish and begin to be caught by anglers. The proposed stocking rate for trophy sized rainbows and brown trout in years 2-10 is approximately one fish per acre, representing ten times the stocking rate (0.1 fish per acre) recommended in the Lake Davis Fisheries Management Plan.

**Coordination with Other Stocking Programs**

EID proposes to integrate this fisheries management plan with existing stocking programs for Caples Lake to enhance the fisheries in Caples Lake after the completion of the emergency repairs:

**DFG:** The American River Hatchery annually stocks approximately 30,000 lake trout fingerlings and approximately 11,000 lbs catchable size (8-12 inches; ½ lb) rainbow trout, 3,500 lbs. of catchable size brook trout, and 2,300 lbs. of catchable size brown trout per year into Caples Lake.

**Fish Enhancement Fund Committee:** The Kirkwood Meadows Public Utility District currently manages a $150,000 10-year Fish Enhancement Fund funded by EID through the League to Save Sierra Lake Settlement Agreement. Current size class distribution and percentages for implementing the plan are outlined in the memorandum contained in Appendix B.

**Alpine County:** Need to confirm details of Alpine County’s stocking program – I believe it is approximately 1000-2000 lbs of catchable rainbow trout per year.

**Schedule**

The 2009 fish planting schedule will coordinate the Plan with the schedules of the existing stocking programs. It is anticipated that stocking of the catchable and trophy portion of the Plan will occur during spring when environmental and reservoir conditions are suitable. The sub-catchable and fingerlings stocking will be integrated to occur between existing stocking efforts to match appropriate environmental conditions and minimize time between plantings.

**Permits**

Fish and Game Code Section 6400 requires a permit from the DFG for stocking of live aquatic animals in any public water. Following consensus of stakeholders and approval of the EID Board of Directors, EID will apply for a stocking permit for implementation of the Caples Lake Fisheries Management Plan.

**References**

DFG 2007. Lake Davis Fisheries Management Plan

DFG 2008. Email from Stafford Lehr, DFG to Phil Scordelis, FERC, August 4, 2008.
Appendix A
August 6, 2008 Proposed Drawdown Schedule
Appendix B
Fish Enhancement Fund Committee