## State of California Department of Fish and Wildlife

## Memorandum

**Date:** 8/30/2018

To: Sarah Mussulman

Sierra Fisheries Supervisor Department of Fish and Wildlife

North Central Region

From: Mitch Lockhart

**Environmental Scientist** 

Department of Fish and Wildlife

North Central Region

## Subject: Visual Encounter Survey at Lower Angora Lake, El Dorado County

Lower Angora Lake, El Dorado County, is a popular day use destination in the Lake Tahoe basin near South Lake Tahoe. The lake is walk-in only, accessible via a short ½ mile trail. A private resort, Angora Lakes Resort, owns and operates private cabins along the lakeshore that are available to rent (Figure 1).

On June 6, 2018, Mitch Lockhart, CDFW Environmental Scientist, and one Scientific Aide conducted a visual encounter survey of Dardanelles Lake. The purpose of the survey was to determine if special status herpetofauna species are present at Lower Angora Lake. The data are used to determine if planting Lower Angora Lake with fingerling Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*) would result in impacts to special status species; specifically Sierra Nevada yellow-legged frog (*Rana sierrae*).

The survey began at 13:39 and continued until 15:17 with a total survey duration of 196 minutes. The surveyors slowly circumambulated the lake shoreline looking for diurnal amphibians and reptiles (Fellers and Freel 1995). The air temperature was 19.3° Celsius at 13:30 under partly cloudy skies. Water conditions were clear with little to no surface disturbance. Water temperature was 16.7° Celsius at 13:32. No amphibians or reptiles were observed during the survey. Hundreds of Lahontan redside shiners (*Richardsonius egregious*) were observed near shore during the survey.

On August 10, 2018 one CDFW Scientific Aide conducted a visual encounter survey at an unnamed pond (LakeID 14209) immediately downstream of Lower Angora Lake. The survey began at 11:47 and ended at 12:51 for a total survey duration of 64 minutes. Twenty-six speckled dace (*Rhinichthys osculus*) and eight Lahontan redside shiners were observed in the inlet and over 40 speckled dace and 11 Lahontan redside shiners were observed in the outlet of the pond. No amphibians or reptiles were seen during the survey.

Due to the absence of special status species and the large density of minnow fish species, Lower Angora Lake is suitable to plant fingerling Lahontan cutthroat trout as a put-and-grow fishery for the use and enjoyment of day-use recreational anglers and clients of the Angora Lake Resort. The expectation is that individual Lahontan cutthroat trout that gain enough size will utilize the available minnow forage and develop into desirable sports fish.

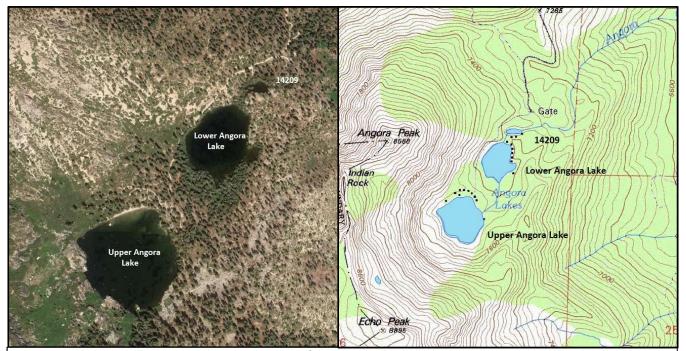


Figure 1: Overview satellite image and topographic map of the Angora Lakes basin in El Dorado County near South Lake Tahoe. Included in the overview are Upper Angora Lake, Lower Angora Lake, and an unnamed pond (LakelD 14209). The satellite image was retrieved from Google Earth on 8-30-18.

Site ID: Mostly Over- Rain Snow Smoke Partiy Clear WIND: Calm Light Moderate Strong Cloudy cast Elevation: Topo Name: County: If not surveyed, Not Private Frozen Property Found m ft (1:24,000)Dorado provide reason: Water Stream (Skip to Surveyors: Lake Unmapped Marsh/ Spring "STREAMS" below) pond Type: meadow seep North UTM Lower Andora UTM: UTM: (from map) Zone: 196 Color: Clear Stained Water (.5 m from shore, Air (1 m above 16 Site condition notes: Turbidity: Temp 10cm deep): Clear Cloudy Temp water): HERPS duration (min): FISH Survey Survey YES YEŚ START time: 13. . 75 **END time:** SEEN? NQ SEEN? NO FOR LAKES/PONDS/MEADOWS: ALSO SURVEY FIRST 200 m OF ALL INLETS AND OUTLETS. RECORD DATA SEPARATELY IN THE "STREAMS" SECTION BELOW, # adults # subadults # metamorphs # larvae #swabs Survey Method Species # egg m Visual") Trapped Aural Hand Collected Incidental Calling? Amo Net Visual Trapped Hand Collected Aural Calling? Y N Incidental Amp Net Visual Trapped Hand Collected Aural with the Incidental Calling? Y N Amo Net Visual Trapped Hand Collected Aural Calling? Y N Amp Net Incidental STREAM Inlet Outlet (circle one) # Stream Type: Perenniak Stream Currently Dry? N Intermittent? N Ephemera! Start End Clea Color Stained NA: N'ÜTM: N UTM E UTM: E UTM Turbidity: Clea Cloudy ΝA End'Time: Herps Present? YES. NO Start Time Duration (min): Water Temp? Inlet Outlet (circle one) # Stream Type: Stream Currently Dry? Ń Intermittent? Perennial **Ephemeral** N Start End Color: Clear Stained NΑ N UTM: E.UTM: Clear E UTM: N UTM: Turbidity: Cloudy NA Herps Present? YES NO End Time: Duration (min): Water Temp: Start Time: Air Temp: Inlet Outlet (circle one) # Stream Type: Perennial **Ephemeral** Stream Currently Dry? Intermittent? Y. N Start End Color: Clear Stained NA E UTM: N UTM: E UTM: N UTM: Turbidity: Clear Cloudy NA Herps Present? YES Start Time: End Time: Duration (min): Water Temp: Air Temp: Inlet Outlet (circle one) # Stream Currently Dry? Intermittent? Stream Type: Perennial **Ephemeral** Ν Start Color: End Clear Stained NA E UTM: N UTM: E UTM: N UTM: Turbidity: Clear Cloudy NA Herps Present? End Time: Duration (min): Start Time: Water Temp: Air Temp: Species Survey Method In/Outlet# # adults #subadults #swabs #metamorphs larvae Visuali Trapped Aural Hand Collected DUT. Incidental Calling? Y N Amp Net Trapped (circle one) # Visual IN Hand Collected Aural YN OUT incidental Calling? Amp Net Visual Trapped (circle one) IN Aural Hand Collected YN Calling? OUT Amp Net Incidental (circle one) Visual, Trapped Calling? Y N Amp Net Incidental Amphibians: S. Long-toed Salamander (AMMA); Yosemite Toad (ANCA, frmly BUCA); Sierran Treefrog (HYSI, frmly PSRE or HYRE); Sierra Nevada Yellow-legged Frog (RASI) Amph. less common in HML: CA Toad (ANBO, frmly BUBO); Bullfrog (RACT); Cascades Frog (RACA); CA Red-legged Frog (RADR); Sierra Newt (TASI, frmly TATO) Reptiles: Sierra Gartersnake (THCO); Mountain Gartersnake (THEL); Valley Gartersnake (THSI); Western Pond Turtle (EMMA, frmly CLMA) PLEASE Return to: Isaac Chellman, California Department of Fish and Wildlife, (916) 358-4038; 1701 Nimbus Rd., Rancho Cordova, CA 95670

AMPHIBIAN AND REPTILE SURVEY DATA SHEET - 2017

Field review Copied Entered Proofed Herp Data Sheet, pg. 1 of 2

PHOTOS | Photo Number | Camera | Time | Date (yyyy-mmm-dd) | UTM E | UTM N | Comments

AMPHIBIAN AND REPTILE SURVEY DATA SHEET - 2017 Clear Partly Mostly Over- Rain Snow Smoke SKY: WIND: Caim) Light Moderate Strong Cloudy Cloudy cast County: Elevation: If not surveyed, Topo Name: Private Not Frozen Property Found (1:24,000)m ft provide reason: Access Water Stream (Skip to Surveyors: Ľake Unmapped Marsh/ Spring "STREAMS" below) Type: pond meadow seep East North Lake Name: UTM (from map) Lower An UTM: UTM: Zone: Color: (Clear Stained Water (.5 m from shore. Air (1 m above Site condition notes: @ Clear Turbidity: Cloudy Temp 10cm deep): Temp water): Survey Total survey **HERPS** YES FISH YES Survey duration (min): START time: END time: SEEN? NÒ-SEEN? FOR LAKES/PONDS/MEADOWS: ALSO SURVEY FIRST 200 m OF ALL INLETS AND OUTLETS. RECORD DATA SEPARATELY IN THE "STREAMS" SECTION BELOW. # adults # subadults # metamorphs # larvae # egg m. #swabs Survey Method Species Trapped Hand Collected Aural Calling? Y N Incidental Amp Net Visual Trapped Aural Hand Collected Y N Calling? Incidental Amp Net Visual Trapped Hand Collected Aural Calling? YN Amp Net Incidental Visuai Trapped Aural Hand Collected Calling? Y N Incidental Amp Net STREAM inlet Outlet (circle one)# Stream Type: Perennal > **Ephemeral** Stream Currently Dry? (Ñ Intermittent? Ñ Start End (Clear) Color: Stained NA E UTM N UTM: E UTM: N UTM: Turbidity: CClear > Cloudy NΑ (NO) 115 Start Time: End Time: Duration (min): Water Temp: Air Temp: Herps Present? YES Recential... Outlet (circle one) # Inlet Stream Type: **Ephemeral** Stream Currently Dry? (N) Intermittent? ''n) Clear Stained Start End Color: NA E UTM N UTM: N UTM: Clear Cloudy NA Duration (min): Herps Present? ₹ÑÕ Start Time: End Time: Water Temp: Air Temp: YES Inlet Outlet (circle one)# Stream Type: Perennial **Ephemeral** Stream Currently Dry? Intermittent? Ν Start End Color: Stained NA Clear N UTM: E UTM: E UTM N UTM: Turbidity: Cloudy NA Herps Present? Start Time: End Time: Duration (min): Water Temp: Air Temp: YES NO Inlet Outlet (circle one) # Stream Type: Perennial Ephemeral Stream Currently Dry? Intermittent? Υ Ν End Start Color: Clear NA Stained E UTM: N UTM; N UTM: Turbidity: Cloudy NA Clear End Time Water Temp: Herps Present? YES NO Start Time: Duration (mln): Air Temp: In/Outlet# # adults #subaduits larvae #swabs Survey Method Species Visual Trapped ÍN Hand Collected Aural Ουτ Calling? Amp Net Incidental pedside Visual Trapped: IN. MIMOUN Aural Hand Collected Calling? Y N άũτ Amp Net Incidental (circle one) Visual Trapped Spechled Aural Hand Collected MACE OUT~ Calling? Y 🔇 Amp Net Incidental Visual Trapped nedside IM Aural Hand Collected ANI MADL Όὐτ Calling? Y 🖏 Amp Net Incidental Amphibians: S. Long-toed Salamander (AMMA); Yosemite Toad (ANCA, frmly BUCA); Sierran Treefrog (HYSI, frmly PSRE or HYRE); Sierra Nevada Yellow-legged Frog (RASI) Amph. less common in HML: CA Toad (ANBO, frmly BUBO); Bullfrog (RACT); Cascades Frog (RACA); CA Red-legged Frog (RADR); Sierra Newt (TASI, frmly TATO) Reptiles: Sierra Gartersnake (THCO); Mountain Gartersnake (THEL); Valley Gartersnake (THSI); Western Pond Turtle (EMMA, trmly CLMA)

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