State of California Department of Fish and Wildlife

## Memorandum

Date: November 9, 2020

- To: Sarah Mussulman Senior Environmental Scientist; Supervisor Department of Fish and Wildlife North Central Region 1701 Nimbus Road, Suite A Rancho Cordova, CA 95670
- Cc: CDFW North Central Region Fish Files
- From: Mitch Lockhart; Environmental Scientist, & Clyde "Cian" Hettrick; Scientific Aid Department of Fish and Wildlife 1701 Nimbus Road, Suite A Rancho Cordova, CA 95670

## Subject: Pre-Stocking Evaluation at Feeley Lake, Nevada County.



**Figure 1:** Map showing Feeley Lake, Nevada Co., (red pin) in relation to Lake Tahoe (Google Maps, retrieved on 9/11/20).

Feeley Lake (Lake ID 12780), Nevada County, is a car camping destination located north of Lake Spaulding at an elevation of 6,724 feet above sea level (Figure 1). The lake level is enhanced and controlled by an earthen dam owned and operated by Pacific Gas & Electric Company (PG&E) for hydropower generation as part of the Drum-Spaulding Hydroelectric Project (FERC# 2310). Feeley Lake was originally planted in 1931 with Brook Trout (Salvelinus fontinalis; BK) by the California Department of Fish and Wildlife (CDFW). CDFW continued to



**Figure 2:** Aerial photograph of Feeley Lake, Nevada Co., showing the location of "Gillnet A" (red star) and "Gillnet B" (yellow star) (Google Maps, retrieved 9/11/20).

plant BK until 1983, and only planted RT from that point forward. CDFW last planted Feeley Lake in 2018 with 5,000 RT fingerlings (**Table 1**).

<b>Table 1:</b> CDFW stocking history for
Feeley Lake, Nevada Co., from 2009
to 2020.

Year	Species	Size	Number
2009	RT	Fingerling	4,000
2010	RT	Fingerling	5,032
2011	RT	Fingerling	5,000
2012	RT	Fingerling	5,000
2013	RT	Fingerling	5,000
2017	RT	Fingerling	4,500
2018	RT	Fingerling	5,000

To assess whether continued plants of RT are appropriate at Feeley Lake, three CDFW Scientific Aides surveyed the lake on June 16, 2020 to determine the current status of fish and herpetofauna populations. The assessment included two gillnet surveys and a visual encounter survey (VES). Prior to 2020, Feeley Lake had not been surveyed by CDFW since 2001.

The first monofilament gillnet, "Gillnet A", was set on June 15, 2020 at 8:17 p.m. at the location depicted in **Figure** 

**2**. The gillnet was pulled on June 16, 2020 at 8:44 am for a total survey effort of 11.5 hours. Twenty-one BK were captured (**Table 2**), 20 of which were weighed, measured, and sexed. One large BK escaped the net during retrieval. Multiple large Signal Crawfish (*Pacifastacus leniusculus; SC*) were entangled in the net attempting to eat dead fish. SC were found within the stomach contents of multiple BK (**Figure 3**).

The second monofilament gillnet, "Gillnet B", was set on June 16, 2020 at 8:20 p.m. at the location depicted in **Figure 2**. The gillnet was pulled on June 17, 2020 at 6:47 am for a total survey effort of 10.5 hours. Twenty-one BK were captured, weighed, measured, and sexed (**Table 3**). There were many SC caught in the net and two small BK were partially scavenged by SC.

Species	Length (mm)	Wgt (g)	Sex	Egg Stage
BK	127	18		
BK	169	38	М	
BK	177	49	М	
BK	216	96	М	
BK	165	50	F	Early
BK	320	300	F	Early
BK	312	262	F	Early
BK	305	259		
BK	302	242	F	Early
BK	318	270	М	
BK	335	330	F	Early

**Table 2:** Catch data from "Gillnet A" set at Feeley Lake, Nevada Co., June 16, 2020.

Species	Length (mm)	Wgt (g)	Sex	Egg Stage
BK	285	250	F	Early & Late
BK	330	320	F	Early
BK	340	340	F	Early
BK	345	325	F	Early & Late
BK	324	256	F	Early & Late
BK	282	242	F	Early & Late
BK	388	448	М	
BK	345	440	М	
BK	392	578	М	
BK	La	rge (12	2"-18") e	escaped.



**Figure 3:** Stomach contents of a BK captured in "Gillnet A" at Feeley Lake, Nevada Co., June 16, 2020. Orange arrow points to a piece of a Signal Crawfish telson.

The VES was conducted on June 16, 2020 to document the presence of any diurnal herpetofauna species that live in or around the lake, specifically the Federally endangered Sierra Nevada Yellow-Legged Frog (Rana sierrae; SNYLF). The VES began at 11:12 a.m. and concluded at 1:24 p.m. for a total survey effort of 39 minutes. The sky was partly cloudy with moderate wind. The color and turbidity of the water was clear. One adult Sierra Chorus Frog (Pseudacris sierra; PSRE) was encountered during the survey.

CDFW last planted Feeley Lake in 2018 and 2017 with RT fingerlings (**Table 1**). There has been sufficient time for those fish to grow

to adult-size and contribute to the fishery. However, no RT were captured during the June 16, 2020 gillnet survey. These results suggest that RT are not surviving to adult-size and contributing to the fishery. However, the survey effort was minor compared to the size of the lake. Moreover, sampling via a single method can lead to bias, especially in a two-species fishery.

	Length	Wgt		Egg		Length	Wgt		
Species	(mm)	(g)	Sex	Stage	Species	(mm)	(g)	Sex	Egg Stage
BK	140	56	F	Early	BK	301	255	М	
BK	162	44			BK	305	260	М	
BK	131	22			BK	290	325	М	
BK	135	24	F	Early	BK	330	350	F	Early & Late
BK	152	38			BK	325	300	F	Early & Late
BK	195	62	F	Early	BK	335	390	F	Early & Late
BK	194	66			BK	355	460	М	
BK	184	68			BK	337	350	F	Early
BK	196	88			BK	370	440	М	
BK	280	222	F	Early	BK	380	600	F	Early
-									

ΒK

298

230 F

Early

Table 2: Catch data from "Gillnet B" set at Feeley Lake, Nevada Co., June 16, 2020.



length size classes. The y-axis displays the number of fish captured in each size class.

The gillnet sample at Feeley Lake captured 41 BK of a range of sizes up to 400 mm (15 1/2 in.) and a mix of male and female adult fish. The sample is representative of a healthy, self-sustaining fishery (Figure 4). Most BK were of good body condition. Some females showed evidence of reabsorbing eggs, suggesting that spawning habitat may

be limited. The size class distribution of BK displayed in **Figure 4** shows two peaks which may also be an indication of variable spawning success or recruitment.

The fishery at Feeley Lake, should be monitored more rigorously during periods of cool water surface temperatures. Multiple survey methods should also be employed. Hookand-line sampling should use a variety of terminal gear and cover a broad array of habitats. Much of the shoreline is accessible by foot and is suitable for angling. Kayaks and float tubes should be employed to access deep water. If gillnets are employed during monitoring surveys, they should be set in deep water, either from a steep shoreline or in open water.

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rout: rair	nbow trout (RT),	golden trout (GT), ci	utthroat trout (CT)	, brown tr	out (BN)	brook trout (B	K), hybrids	GT x RT, C	CT x RT)	DATE: 6	18/2020		
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