State of California Department of Fish and Wildlife

Memorandum

Date: January 28, 2020

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: Resource Assessment at Rockbound Lake, El Dorado County

Rockbound Lake (ID 13780), El Dorado County, is located within the Desolation Wilderness on Eldorado National Forest (ENF) land approximately five miles west of Lake Tahoe (**Figure 1**). The reservoir is managed by Sacramento Municipal Utility District (SMUD) for power generation as part of the Upper American River Project (UARP; FERC Project 2101). It is most easily accessed from Loon Lake via the Rubicon Trail. California Department of Fish and Wildlife (CDFW) aerially planted fingerling brook trout (*Salvelinus fontinalis*; BK) between 1950 to 1965. Fingerling rainbow trout (*Oncorhynchus mykiss*; RT) were aerially planted from 1952 to 2013. Golden trout (*Oncorhynchus aguabonita*; GT) were planted once in 2006.

On July 30, 2019 four CDFW Scientific Aides conducted a visual encounter survey (VES) of the reservoir. The purpose of the survey was to determine if special status herpetofauna species are present at Rockbound Lake. The data are used to determine if planting Rockbound Lake with fingerling RT would result in impacts to special status species; specifically, Sierra Nevada yellow-legged frog (*Rana sierrae*; SNYLF). Rockbound Lake is within US Fish and Wildlife Service (USFWS) Designated Critical Habitat for the SNYLF.

The survey began at 14:28 under clear skies and an air temperature of 24.0° Celsius and continued until 15:39 with a total survey duration of 206 minutes. The surveyors slowly circumambulated the lake shoreline and walked 200 meters of each tributary looking for diurnal amphibians and reptiles. No herpetofauna were observed during the



Figure 1. Map of the location of Rockbound Lake, El Dorado Co. (Red Pin) in relation to Loon Lake and Lake Tahoe (Google Maps, retrieved 11.20.19).

survey. A survey conducted in 2003 by CDFW detected Sierra garter snake (*Thamnophis couchii*) at Rockbound Lake, which are presumed extant despite not being observed in 2019.

On July 31, 2019, CDFW Scientific Aides set three gill nets at Rockbound Lake to sample the fishery. The nets were set between 19:15 and 19:50 hours and pulled the following morning on August 1, 2019 between 6:50 and 7:45 for a total survey effort of 35.5 hours. Sixty RT and nine brown trout ($Salmo\ trutta$; BN) were captured (**Figure 2**). A broad range of size classes in good body condition (Avg K = 0.94) were captured. Considering the lake has not been planted by CDFW with RT since 2013 and has not been planted by CDFW with BN since at least 1950 (**Table 1**), the range of size classes captured suggests natural reproduction will sustain populations of both trout species.

Another consideration is the Sierra Nevada yellow-legged frog (*Rana sierrae*; SNYLF) population located at Highland Lake (ID 13904) upstream of Rockbound Lake via an unnamed tributary (**Figure 3**). Since 2011, CDFW and ENF have conducted fish removal activities to benefit SNYLF and the population has rebounded (Chellman 2018). CDFW has conducted VES for SNYLF along the unnamed tributary from Highland Lake downstream for approximately 1 mile with positive detections of frogs the entire distance. It is an expected outcome that SNYLF will seasonally migrate to Rockbound Lake along the unnamed tributary at some point in the future if they have not done so already.

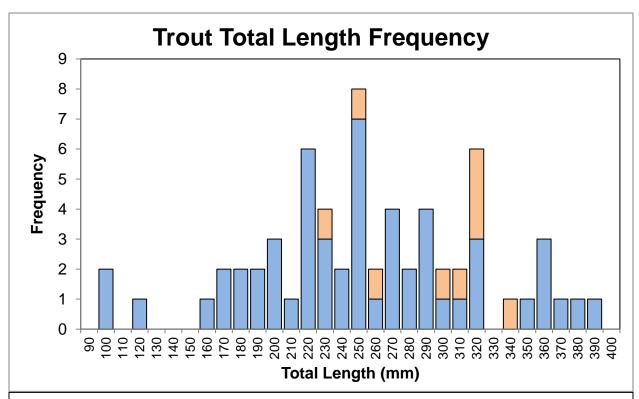


Figure 2. Length frequency histogram of RT (blue) and BN (orange) captured during a gill net survey at Rockbound Lake, El Dorado Co., on July 31, 2019. The x-axis displays 10mm (1 cm) bins of total length size classes. The y-axis displays the number of fish captured in each size class.

Due to the robust, self-sustaining populations of RT and BN in Rockbound Lake and the current or future presence of SNYLF migrations from Highland Lake source populations, CDFW will no longer aerially plant Rockbound Lake. The reservoir will be managed as a self-sustaining fishery. Monitoring the fishery every five to ten years will be necessary to detect dramatic shifts in trout abundance and the need for additional trout plants.

Literature Cited

Chellman, I. Highland Lake (Desolation Wilderness) fish removal and Rana sierrae monitoring. CDFW; 4/18/2018. [Cited 2020 January 28]. Available from: http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=156672

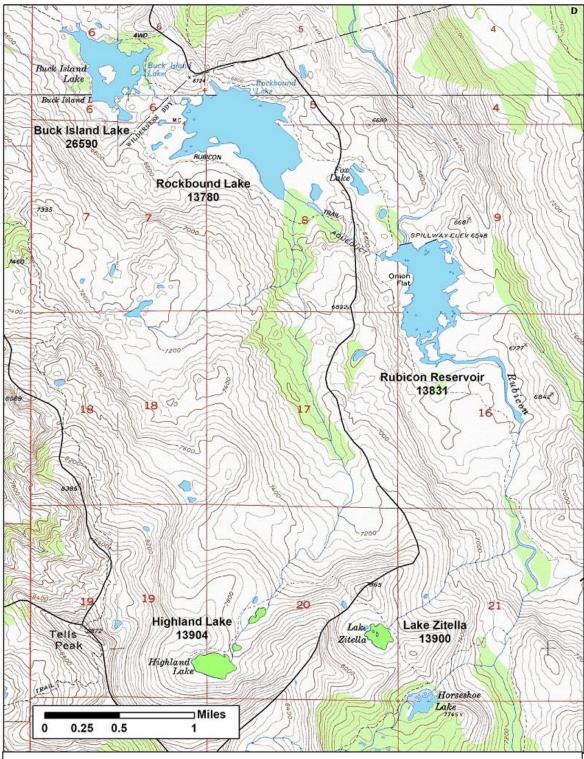


Figure 3: Detail map of Rockbound Lake and vicinity, El Dorado County. SNYLF populations are denoted in green at Highland Lake (ID 13904) and Lake Zitella (ID 13900). Highland Lake flows into Rockbound Lake via an unnamed tributary.

Table 1. CDFW Fingerling Stocking History of Rockbound Lake, El Dorado County.

		•	_	-				-
Year	Species	Number	Year	Species	Number	Year	Species	Number
	Rainbow			Rainbow			Rainbow	
2013	Trout	10,000	1985	Trout	8,000	1963	Trout	7,650
	Rainbow			Rainbow			Rainbow	·
2011	Trout	10,000	1984	Trout	8,000	1962	Trout	8,160
	Rainbow			Rainbow			Brook	
2009	Trout	8,000	1983	Trout	8,000	1962	Trout	10,080
	Rainbow	·		Rainbow			Rainbow	
2007	Trout	8,000	1982	Trout	7,975	1961	Trout	9,900
	Rainbow	,		Rainbow	•		Brook	•
2006	Trout	8,000	1981	Trout	8,000	1961	Trout	15,510
	Golden	,		Rainbow	•		Rainbow	,
2006	Trout	2,000	1980	Trout	8,064	1960	Trout	7,920
	Rainbow	,		Rainbow	•		Brook	•
2004	Trout	8,008	1979	Trout	8,000	1959	Trout	7,920
	Rainbow	,		Rainbow	•		Rainbow	,
2003	Trout	8,000	1978	Trout	8,002	1959	Trout	7,920
	Rainbow	·		Rainbow	·		Rainbow	· ·
2002	Trout	8,000	1977	Trout	10,127	1958	Trout	8,040
	Rainbow	,		Rainbow	,		Brook	,
2001	Trout	8,100	1976	Trout	8,040	1958	Trout	7,440
	Rainbow	,		Rainbow	•		Brook	,
2000	Trout	8,000	1975	Trout	7,560	1957	Trout	8,000
	Rainbow	,		Rainbow	,		Rainbow	
1999	Trout	8,050	1974	Trout	7,400	1957	Trout	8,100
	Rainbow	,		Rainbow	•		Brook	,
1998	Trout	8,000	1973	Trout	5,280	1956	Trout	8,058
	Rainbow	-,		Rainbow	-,		Rainbow	-,
1997	Trout	10,000	1972	Trout	7,500	1956	Trout	7,992
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1996	Trout	8,050	1971	Trout	8,000	1955	Trout	8,000
	Rainbow	,		Rainbow	,		Brook	
1995	Trout	8,000	1970	Trout	8,192	1955	Trout	8,040
	Rainbow	,		Rainbow	•		Brook	,
1994	Trout	8,000	1969	Trout	2,808	1954	Trout	8,000
	Rainbow	·		Rainbow	·		Rainbow	· ·
1993	Trout	8,000	1968	Trout	6,300	1954	Trout	7,952
	Rainbow	,		Rainbow	,		Brook	,
1992	Trout	8,000	1967	Trout	7,800	1953	Trout	6,006
	Rainbow	,		Rainbow	•		Rainbow	•
1991	Trout	8,000	1966	Trout	7,820	1953	Trout	8,000
	Rainbow	·		Rainbow	•		Brook	•
1990	Trout	8,100	1965	Trout	8,000	1952	Trout	7,920
	Rainbow	·		Brook	·		Rainbow	· ·
1989	Trout	8,000	1965	Trout	6,750	1952	Trout	7,548
	Rainbow	,		Brook	•		Brook	•
1988	Trout	8,000	1964	Trout	7,840	1951	Trout	20,025
	Rainbow	,		Rainbow	,		Brook	<u>, </u>
1987	Trout	8,000	1964	Trout	8,000	1950	Trout	20,000
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Figure 4: VES data sheet from a survey conducted at Rockbound Lake (ID 13780) on July 30, 2019.

		RT), golden trout (GT),	cutthroat trout (CT)	, brown tr	out (BN),	brook trout (E	BK), hybrids	(GT x RT, C	T x RT)	DATE: 7/31/19
SITE ID:	13780	Fish Survey M	ethod: (circle one) k and line e-fis	h	Fish NO	T captured? (N (insert data	circle one) below)	Comments	`A	(Rockborn Lake)
	on of net lo	cation (circle):	Net Set 7/3	Net set time (hhmm): 1945			Net Pull (11/19	8 PFO :(mmhh) emit	
idai iiliet	10000	ocation:	Start coord. (dow	End coord. (upstream)			Start (hhmr	n):	End (hhmm): On Time (sec):	
Electrofishing (inlet or outlet #)										
Fish#	Species	Tot. Lgth (mm)	Weight (g)	Sex	Early	g Stage (F on Ripe	ly) Late	Otoliths?		Comments
1	RT	350	445	F?					Releas	and Alive
2	1	382	430	F?						sed Alive
3		315	300	M						
4		292	230	M						
5		285	243	F	Χ					
6		283	204	M	75.					*
7		280	202	14						
8		261	188	F	X					
9		22.2	108	F	X	•				
10		218	93	M		1			1 12	
11		212	88	F	χ	1			1	
12		ŽII	FB	M.						
13		201	83	M		3.0				
14		187	63	F	χ			-		-
15		174	55	M						
16		160	47	F	X				g"	
17		- 167	42	M						
18	BN	340	375	M		-				
19	1	F 1 E	287	1-	Х					
20		300	250	F	Х		Ε.			
21		260	150	M						
22		- 242	124	F	X					
23										
24				-						
25		_		-						
26										
27										
28										
29		-	-	-						
30		_		-						
31		_								
32				-						
33										
34		- *		-						
35										

Figure 4, Con't: Gill net data sheet (Net A) from a survey conducted at Rockbound Lake (ID 13780) on July 31, 2019.

			golden trout (GT), c	utthroat trout (CT),	brown tr		500	(BK), hybrids			DATE:	7/3//19	
qill net hook and line e-fish						Y (N (jhsert da	ata below)	Net B, central				
Description of net location (circle):			Net Set 7/31/ Date:	Net set time (hhmm): 1914			Net Pull 8/1/2019 Net pull time (hhmm): 0650						
Location: to\$ 739165 43 1965 (inlet or outlet #)		165 43 19852	9. In de	End coord. (upstream)			1	On Time (sec);					
Fish#	Speci	ies	Tot. Lgth (mm)	Weight (g)	Sex	E _q Early	g Stage (F Ripe	only) Late	Otoliths?	- 33			
1	RT		376	470	M	Cally	Nipe	Late	Otolitas		Comme	nts	
2	_ 		354	430	F	×	-						_
3	7		362	420	E	×		21					
4			359	380	M	-		15 15					- 100
5			351	406	F	X	1 E						
6			305	7.60	M			E 34			-		-
7			789	205	M			40.00	1	9550			1
8		isiit	275	210	F	×	4 8 9 9		1 -			7.7	-
9			762	158	F	×	- 2						÷
10			744	142	F	W.	-!	10 8		9.	VIII.		135
11			750	148	F	X	1/2.32	10.1				1	-
12			230	178	F	W.	1-	- 8					
13			248	134	17	-		-1 1.			The second secon	1,044	
14			241	124	F	×	V.	100					
15			212	92	n	22							di =
16	a		215	92	M					170			1
17			197	TE	M			de l'e	6		2.0	1.	10
18			179	69	F	×							
19		18	170	50	F	X					GENERAL KAN		(1)
20			112	13	U								4
21			97	7	U				1			KS 50 100	- 1
22	7		96	8	U		1 1			5 34 500			
23		8	595950V/II										Ť,
24								10 10					
25							4 4	1	1	-			200
26							1 14		55		20		
27								1					
28		-					3						- 38
29		s			and a		-						
30					77							- NO 100 10	
31			-										Die in
32							1						- 160
33					-								9554
34						_							
35		100			100						110-150000		

Figure 4, Con't: Gill net data sheet (Net B) from a survey conducted at Rockbound Lake (ID 13780) on July 31, 2019.

ut: rain	bow trout (RT),	golden trout (GT), cu	tthroat trout (CT),	brown tr	out (BN),	brook trout (E	BK), hybrids	(GT x RT, C	T x RT)	DATE: 7/3/	//9 .
EID:	13780	Fish Survey Met	hod: (circle one) and line e-fish	1		Captured?		Comments:	et C.	eastern	
escription of net location (circle): ear inlet near outlet other			Net Set Date: 7/3///	Net set	nm): 195	0	Net Pull C	3/1/19	Net pull time (hhmm):	740	
	Locati	on: 105	Start coord. (down			rd. (upstreem)		Start (hhmn		(hhmm): On Tim	140 le (sec):
ctrofisi	(inlet o	264 4319724 or outlet #)	6.3m de	PTAN			E	=			
ish#	Species	Tot. Lgth (mm)	Weight (g)	Sex	Eg: Early	g Stage (F on Ripe	-	Otoliths?		Comments	
1	BN	314	305	M		1.1100	20,0	Clonia is:		Comments	
2	BN	310	330	M		7.4					
3	BN	317	285	F	X		×		- 8.0		
4	BN	236	162	F	X	-					
5	RT	320	265	n	12.	1	e (V				9
6		320	290	M	8					100 miles 100 mi	
7		288	132	F	X	1 8		300	78 886 8	- 81	15 9
8		765	KI	M	A 8		into 18	# m en			(4)
9		257	154	F	X.						88 95
10		262	176	M		!	8 9				4
11		249	182	-	X				D E		
12		256	K8_	1		l v				**	32-0110
13		250	146	F	X		-				18
14		231	131	M			9.6		3.200	and the sum of	- 10-10-1
15		230	121	M							
16	WC13	235	116	1	×				3000	- X	- 10.5
17		220	102	F	X						21.0
18		190	56	M	X	2 (5				202 - Verille	
19		1		F	1			-	-		
20		194	70	10.					-	***	
21			-	1000	-	Tree at the	-		 		
23				+	+				-		- 7
24					-						-
25				1							
26				1							
27				- 2							
28	25						1				
29											
30				1210							
31		Address								- MONEY	
32			10	9.87	192				54		
33	Wes										
34											
35	8.5	2000									

Figure 4, Con't: Gill net data sheet (Net C) from a survey conducted at Rockbound Lake (ID 13780) on July 31, 2019.