



State of California
Department of Fish and Wildlife

M e m o r a n d u m

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To: Sarah Mussulman
Senior Environmental Scientist Supervisor
Department of Fish and Wildlife

From: Sierra Harris
Scientific Aide
Department of Fish and Wildlife

Cc: Region 2 Fish Files

Re: 2018 Kirkwood Creek Backpack Electrofishing Survey

On October 26, 2018, California Department of Fish and Wildlife (Department) staff conducted a backpack electrofishing survey on Kirkwood Creek (El Dorado, Amador, and Alpine Counties). The purpose of the survey was to gather a population estimate of the brook trout (*Salvelinus fontinalis*) fishery due to an earlier petroleum-based pollution incident that occurred in 2016. Information collected will be available for uses such as Department habitat conservation planning, evaluation of potential resource impacts from pollution, recommendations for Kirkwood Resort's future creek restoration work, and environmental stewardship efforts. A three-pass electrofishing depletion effort was made on an approximately 1,506 foot stretch of water beginning at 38.703787 N 120.07111 W and ending at 38.70185 N 120.07386 W (Figure 1). The survey initiated at 9:38 and concluded at approximately 14:15. The location of the survey was at 7,695 feet above mean sea level.

The shoreline of Kirkwood Creek in the survey area consists of a mix of willows, rocks, and montane hardwood-conifers in a meadow setting. The creek bottom was mostly cobble, gravel, and sand (Figure 2). The estimated depth of the majority of the creek where the survey was conducted ranged from approximately two to eight inches with a few deeper holes. The creek receives water from snowmelt and rain runoff from the local area where it then flows into Caples Creek. Brook trout and brown trout (*Salmo trutta*) have been documented in Kirkwood Creek in the same area where this survey took place (Haussler 1974), although brown trout are likely no longer present.



Figure 1. Kirkwood Creek Backpack Electrofishing Transect (10/26/2018).



Figure 2. Kirkwood Creek (J. Hanson, 11/18/2016).

The survey yielded a total of 301 brook trout on the first pass, 84 on the second, and 70 on the third pass, for a total of 455 brook trout with no other fish species collected. This is a decrease from the 540 brook trout caught in 2017 (Ewing 2017). Two mortalities were observed. Using MicroFish 3.0, the population of the brook trout in the section surveyed was 492 ± 21 (95% confidence intervals). Average total length of the 455 brook trout measured was 92.5 mm (3.6 in.). Lengths of brook trout measured ranged from 53 – 240 mm (2.1 – 9.4 in.). The average total length for brook trout collected in 2017 was 125.4 mm (4.9 in.), ranging from 58 mm – 209 mm (2.3 in. – 8.2 in.) (Ewing 2017). The greatest number of brook trout measured in 2018 were in the 75 mm – 99 mm (3.0 in. – 3.9 in.) length class. In 2017, the greatest number of brook trout measured were in the 125 mm – 149 mm (4.9 in. – 5.8 in.) length class (Figure 3).

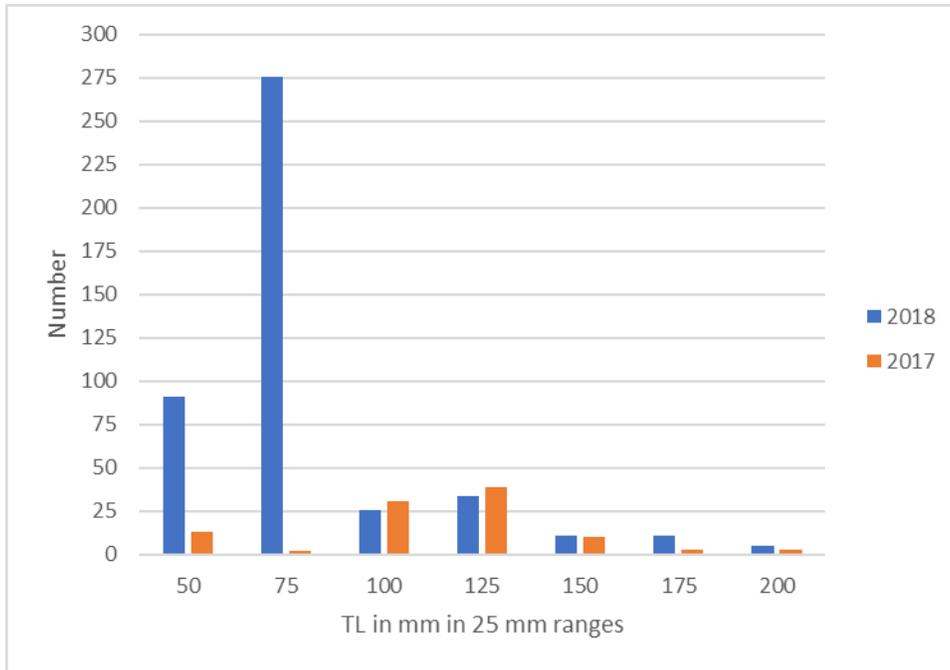


Figure 3. Comparison of length frequencies of brook trout in Kirkwood Creek for 2018 (n=455) and 2017 (n=283) (Ewing 2017).

The average weight of the brook trout surveyed in 2018 was 10.9 g. The average relative weight (W_r) was 99, indicating that the fish inhabiting Kirkwood Creek were in good condition. With a R^2 of 0.90, a linear regression model was created and reliable enough to predict the length of a brook trout with a given weight. Conversely, a reliable weight can be estimated from a given length.

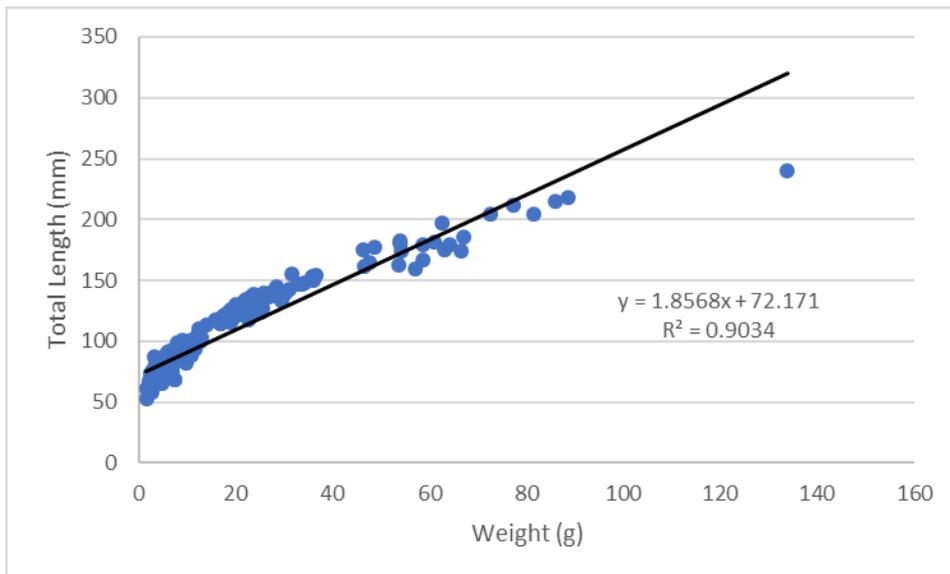


Figure 4. Total length-weight scatter plot with linear regression line for brook trout captured at Kirkwood Creek in 2018.

Literature Cited:

Ewing, B. 2017 Kirkwood Creek Backpack Electrofishing Survey. California Department of Fish and Game; 1/2/2018. [Cited 2018 November 27]. Available from: <http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153020>

Hausler, R. B. Kirkwood Creek Electrofishing. 1974. Unpublished. California Fish and Wildlife Fish Files. <http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=49984>