

State of California  
Department of Fish and Wildlife

Memorandum

March 2020

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From: Christian McKibbin  
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Subject: Mud Creek Fish Rescue

Results

On February 26, 2020, Department staff rescued fish from lower Mud Creek in Butte County. Total fish count was 351, including 70 adipose-intact, juvenile Sacramento River winter-run Chinook salmon (*Oncorhynchus tshawytscha*), 221 adipose-intact Central Valley yearling steelhead (*Oncorhynchus mykiss*), 51 adipose-clipped Central Valley yearling steelhead, two Sacramento pikeminnow (*Ptychocheilus grandis*), two Prickly sculpin (*Cottus asper*), two golden shiner (*Notemigonus crysoleucas*), two bluegill sunfish (*Lepomis macrochirus*) and one spotted bass (*Micropterus punctulatus*) (Table 1).

Table 1. Fish species and numbers rescued from Mud Creek. Fish size recoded in millimeters.

Date	Species/ESU/DPS	Number Rescued	Size: min/max/average
2/26/2020	Sacramento River winter-run Chinook salmon <sup>1</sup>	70	85 / 124 / 102
	Central Valley steelhead	221	143 / 228 / 192
	Central Valley steelhead (hatchery origin)	51	165 / 196 / 172
	Sacramento pikeminnow	2	64 / 81
	Prickly sculpin	2	84 / 92
	Golden shiner	2	98 / 143
	Bluegill sunfish	2	135 / 177
Spotted bass	1	254	

<sup>1</sup>Identified using length-at-date race designations (Greene 1992).

Summary

Mud Creek is tributary to Big Chico Creek and the Sacramento River, and provides non-natal rearing habitat for juvenile salmonids in winter and spring months (Maslin 1988, Maslin 1999). In February of 2020, the creek became hydrologically disconnected from Big Chico Creek in an area located west of the town of Chico. On 25 February, Department staff made initial observations of numbers of stranded salmonids in two isolated pools in Mud Creek near West Sacramento Road (Figure 1). The pools appeared to be drying and water temperature was 21 Celsius and close to salmonid thermal tolerance. On 26 February, the Department conducted a fish rescue. Equipment used to conduct this fish rescue was a 50 ft x 3.5 ft 1/8-inch mesh beach seine, long-handled dip-nets with 1/8-inch mesh, and 4-inch aquarium nets. After capture,

relevant information such as species, quantity and individual length were recorded for all fish. Lengths of juvenile chinook salmon were referenced with length-at-date criteria to identify race (Green 1992) and were evaluated for presence of an adipose fin to determine whether they were of hatchery or natural origin. All steelhead were observed to be yearlings. Captured fish were placed in transport tanks supplied with aerators and containing water gathered from Mud Creek. The fish were then transported to the closest Sacramento River access and then released to the river. (Figure 1).



*Figure 1. Satellite image of the fish rescue location in Mud Creek near West Sacramento Road and the release location in the Sacramento River. The city of Chico is labeled for reference.*

## **Discussion**

Peak flow events in Mud Creek and Sacramento River coincided in late January 2020 (Figures 1 and 2), creating conditions that allowed Sacramento River origin juvenile salmonids to rear in lower Mud Creek. This was evident by the hatchery-marked (adipose fin-clipped) steelhead that were captured during the fish rescue. No releases of hatchery steelhead occurred in Mud Creek, however Coleman National Fish Hatchery released approximately 270,000 yearling steelhead to the Sacramento shortly prior to the fish rescue, on December 20, 2019. The unmarked steelhead and winter-run sized juvenile Chinook salmon captured during the rescue may have also come from the Sacramento River. Unmarked steelhead may have originated from the semi-resident steelhead populations occurring at higher elevations in Big Chico and Mud creeks. The frequency and severity of fish stranding events in lower Mud Creek is unknown, however data gathered from this fish rescue along with flow data from Mud Creek and the Sacramento River can allow the Department to better monitor and respond to fish stranding in this area in the future.

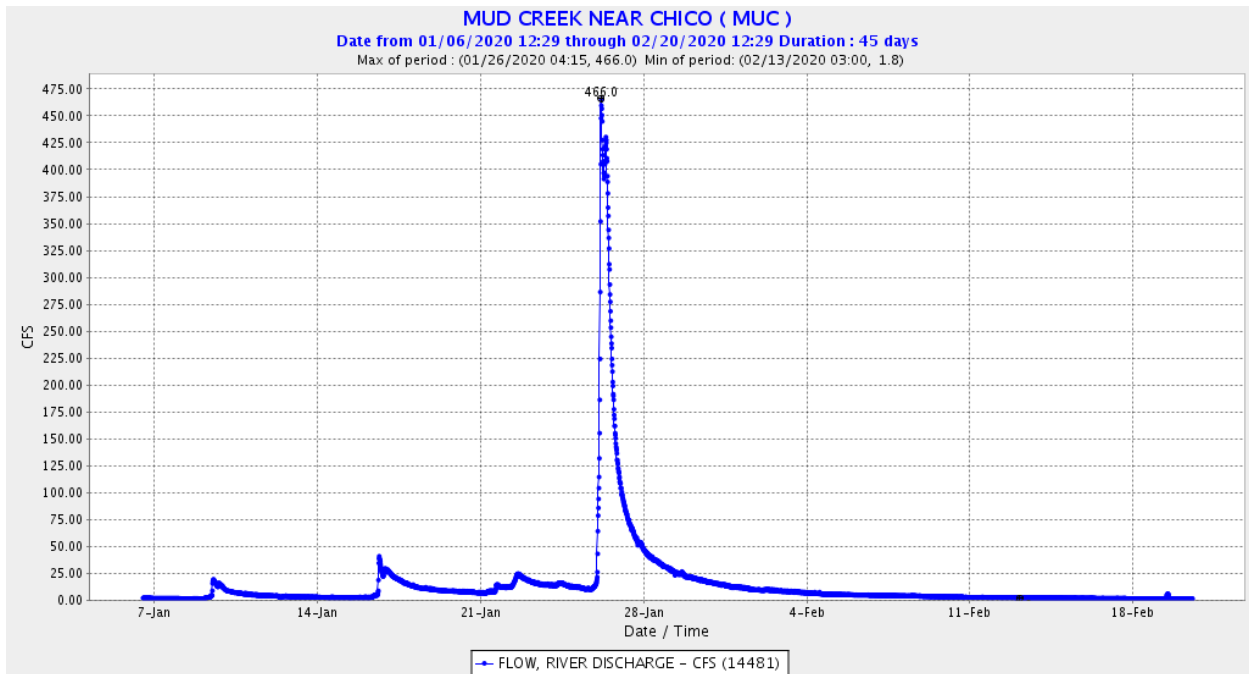


Figure 2. Hydrograph for Mud Creek, January, and February 2020.

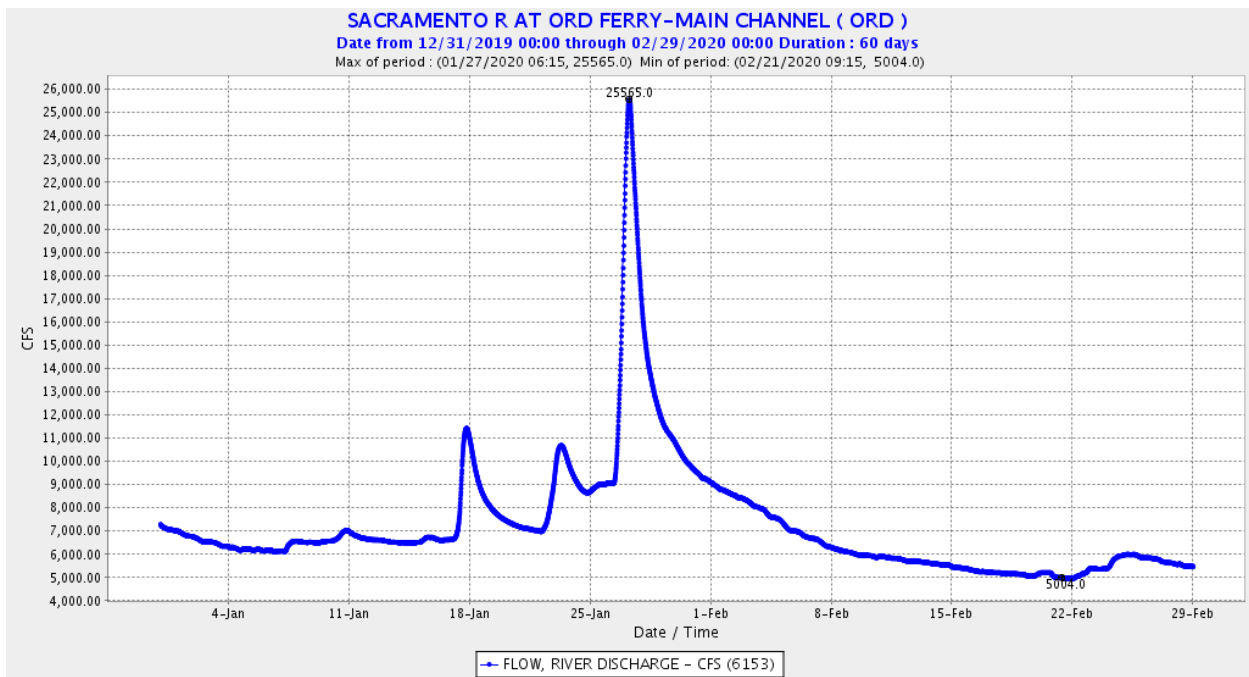


Figure 3. Hydrograph for Sacramento River at Ord Bend, January, and February 2020.

**References**

Greene, S. 1992. Daily fork length table from data by Fran Fisher, California Department of Fish and Game. Sacramento (CA). California Department of Water Resources, Environmental Services Department.

Maslin, P. E. 1988. Chico Creek Fishery. Spring, 1988 Preliminary Report. California Department of Fish and Wildlife, North Central Region, Fish Files, Butte County

Maslin, P. E. 1999. Juvenile Chinook Captured in Small Sacramento River Tributaries. Unpublished Data. California Department of Fish and Wildlife, North Central Region, Fish Files, Butte County