

Memorandum

Date: 9/17/2020

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

From: Ben Ewing
District Fishery Biologist (Alpine, Amador, Calaveras, and Lake Counties)

Subject: **Manning Creek Fish Ladder Project**

On June 16, 2020, California Department of Fish and Wildlife (Department) staff completed a fish ladder project on Manning Creek (Lake County) (**Figure 1**). The purpose of the project was to improve upstream fish passage at a private road creek crossing for the Clear Lake Hitch (*Lavinia exilicauda chi*) (hitch). The hitch is currently listed as threatened under the California Endangered Species Act (CESA). According to Lake County residents as well as from prior Department surveys, hitch have been blocked from upstream migration during their spawning season due to the road crossing apron. The Department is hoping that by installing a fish ladder, that hitch will be able to use it to reach more of their spawning grounds.

Figures 2 – 5 are pictures documenting the construction of the fish ladder. The fish ladder installation included removing some loose vegetation from the channel of Manning Creek. Department staff then moved a few of the large boulders next to the existing concrete creek crossing and cleaned the concrete for ladder installation. Department staff used ½" X 4 ½" wedge anchors and installed a fabricated plate to the side of the creek crossing and brought the ladder in and installed it with some ½" pipe so that, if needed, the ladder could be raised or lowered. Angle iron on either side of the ladder was used to help funnel any available water towards the ladder in lower flow conditions. The ladder is 4' 4" at the top and narrows to 2' at the bottom and is 12' long. Eleven gauge mild steel was used for the ladder and was reinforced from below with 1.5" X 1.5" mild steel angle. Removable baffles were installed in the ladder to help funnel water down the center and give hitch a resting spot on the way up if needed. In the spring of 2021 and future spring seasons, Department staff will monitor how well the ladder improvements have aided in the migration of hitch.

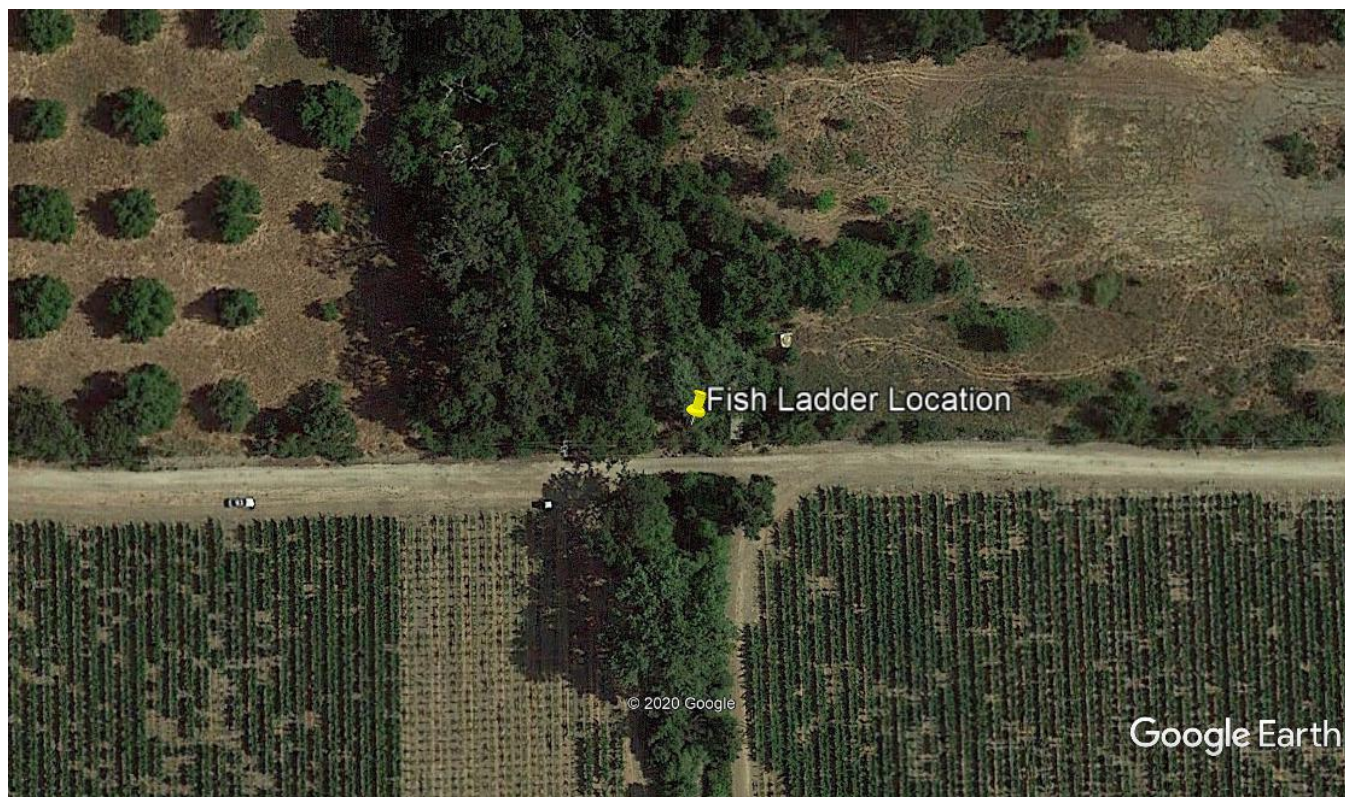


Figure 1. Fish Ladder location on Manning Creek (39.007617 N, 122.897232 W).



Figure 2. Manning Creek looking upstream towards road crossing/barrier on June 16, 2020. (Photo by P. Clark)



Figure 3. Manning Creek looking upstream towards road crossing/barrier on June 16, 2020. (Photo by P. Clark)



Figure 4. Manning Creek Fish Ladder looking downstream from road crossing/barrier on June 16, 2020 (Photo by P. Clark).



Figure 5. Manning Creek Fish Ladder looking downstream from road crossing/barrier on June 16, 2020 (Photo by P. Clark).

