



**State of California**  
**Department of Fish and Wildlife**

## **M e m o r a n d u m**

**Date:** September 25, 2017

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

**From:** Ben Ewing  
District Fisheries Biologist  
Alpine, Amador, Calaveras, and Lake Counties  
CA. Fish and Wildlife

**Cc:** Fish Files

**Re:** 2017 Kelsey Creek Fish Ladder Enhancement

Beginning on September 20, 2017 and ending on September 21, 2017, California Department of Fish and Wildlife (Department) employees completed a fish ladder enhancement project on Kelsey Creek (Lake County) (Figure 1). The purpose of the project was to improve one of the two existing fish ladders at the Kelsey Creek Detention Structure 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 Water Resources staff, hitch only used the west ladder to migrate upstream during their spawning season. The Department is hoping that by improving the east fish ladder which is highlighted in red in Figure 2, that hitch will be able to use it in order to make it to their spawning grounds.

Figures 3 – 6 are pictures documenting the reconstruction of the east fish ladder. The ladder changes included putting in holding pools for hitch to rest in during the upstream migration as well as breaks to help slow the current down. In the spring of 2018 and future spring seasons, Department staff will monitor how well the ladder improvements impacted the migration of hitch.

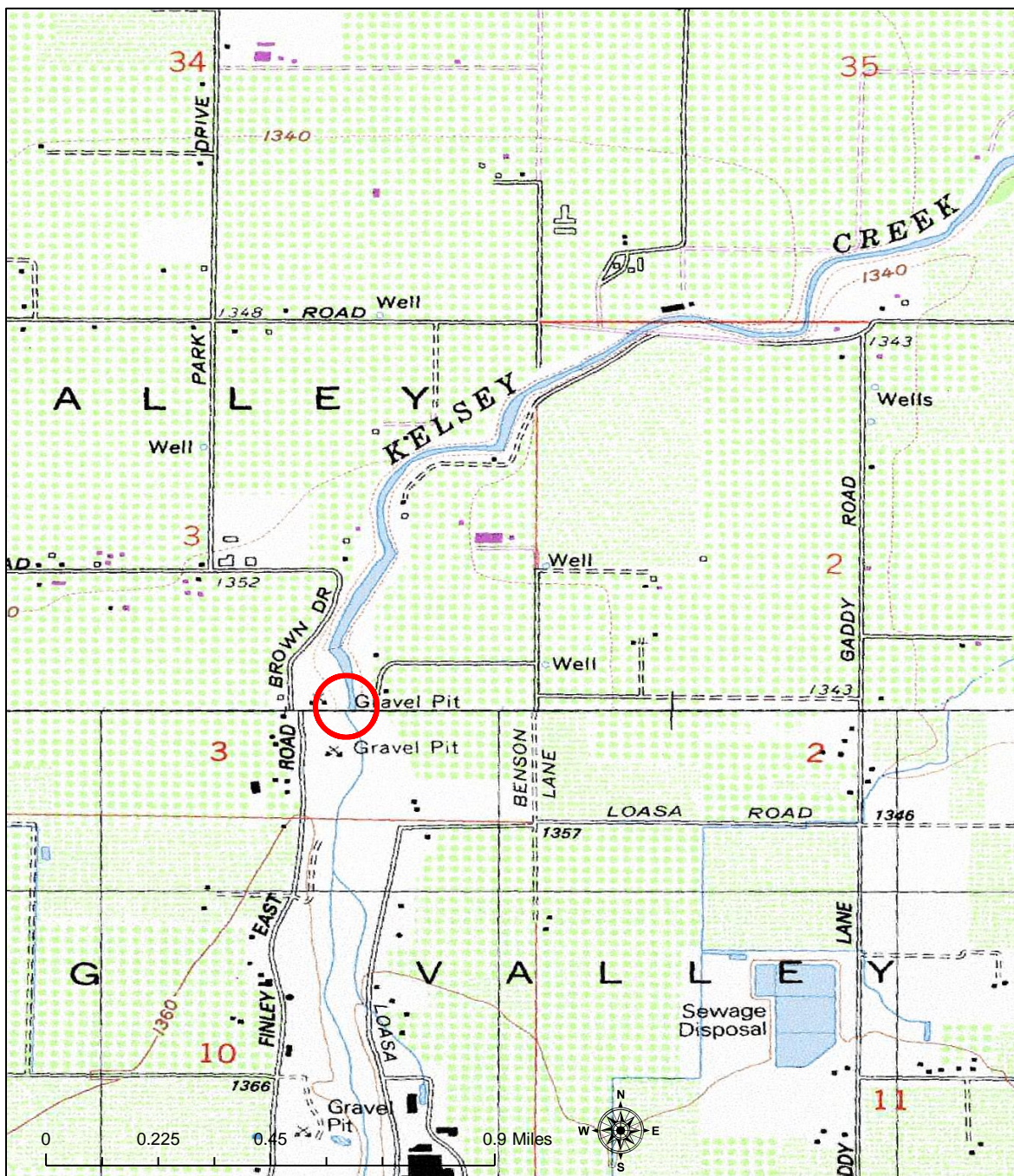


Figure 1. Kelsey Creek Fish Ladder Enhancement Site (Lake County, CA).



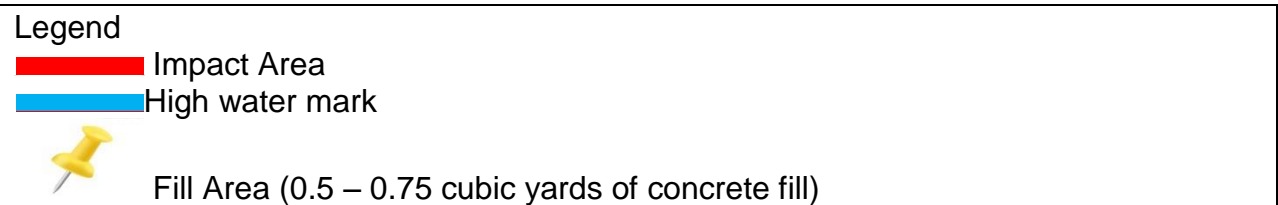


Figure 2. Area below detention structure on Kelsey Creek, Lake County.



Figure 3. Kelsey Creek Detention Structure East Fish Ladder looking upstream towards detention structure (September 20 and 21, 2017).



Figure 4. Kelsey Creek Detention Structure East Fish Ladder after concrete was added in order to slow down flows exiting detention structure (September 20 and 21, 2017).





Figure 5. California Fish and Wildlife staff building up a wall on the Kelsey Creek Detention Structure East Fish Ladder in order to form a resting pool for hitch (September 20 and 21, 2017).



Figure 6. Finished wall, forming a resting pool for hitch on Kelsey Creek Detention Structure East Fish Ladder looking upstream (September 20 and 21, 2017).

