



FISH PASSAGE AT ENGLEBRIGHT

A project to restore volitional fish passage to the Yuba River



Englebright Dam is the upstream limit of anadromous fish migration, inhibiting volitional fish passage to the upper reaches of the Yuba River for both spring and fall run Chinook Salmon and Steelhead trout. New sediment removal techniques for reservoirs and sellable byproducts make dam removal a real possibility for volitional fish passage. And pools are a critical component of fish habitat that were overlooked until now.

BACKGROUND

Englebright Dam was constructed in 1941 for the specific purpose of holding back debris generated by hydraulic mining. Englebright serves as the afterbay for New Bullards Reservoir hydropower facilities but does not provide any additional benefits, such as water delivery, power generation, or flood control. Since its construction, Englebright Dam has trapped ~23,000,000 cubic yards of mercury contaminated sediment, or roughly 25% of its original storage capacity.

PROJECT

Previous assessment activities concluded that dam alterations or removal for fish passage were cost prohibitive because of the sediment and that there was no habitat for fish in the Yuba. The Sierra Fund is investigating previously unexplored options of sediment removal techniques with multiple benefits, including sellable aggregates. Additionally, TSF is conducting a fish habitat study of pools in the upper reaches of the Yuba River to evaluate the thermal refugia available for salmonids. Data collected from these studies will inform the best ways to restore habitat in the Yuba for threatened and endangered species.

IMPACTS

Removal or modification of Englebright Dam to allow volitional upstream passage to previously unreachable habitat for anadromous fish would open up a minimum of 60 additional miles of habitat. In addition, the natural flow regime, natural sediment and nutrient regimes and reduced mercury exposure risks through fish consumption and reduced mercury methylation potential in the reservoir are all benefits of restoring longitudinal connectivity.



NEXT STEPS

The Sierra Fund has been collecting temperature data from “optimal” pools previously identified by the Department of Water Resources (DWR) but never monitored. The Sierra Fund has also worked with partners to develop a preliminary feasibility study for sediment removal at Englebright which employs the Army Corps of Engineers Environmental Dredging techniques and has off sets from sellable byproducts. Additional efforts will be to look at low flow barriers in tributaries that can be passable under different runoff regimes to open up even more habitat.

BY THE NUMBERS

10 POOLS monitored so far in 2017 and 2018.
\$700 MILLION to remove **23 MILLION CUBIC YARDS OF ACCUMULATED SEDIMENT.** **\$150 MILLION** offset by sellable aggregates.
\$40 MILLION offset in Gold recovery.

Spring-run Chinook	Fall-run Chinook
 Enter the river as sexually immature in March-June.	 Enter the river sexually developed in September-November.
 Adults spend the summer months in freshwater; holding in deep pools.	 Returning adults spend very little time in freshwater.
 Spawning begins in early September, when water temperature begins to drop, fish move from holding pattern to spawning. Spring-run Chinook migrate far upstream to spawn.	 Spawning occurs almost immediately as fish enter the river, upon returning from the ocean. Fall-run Chinook spawn lower in the watershed than spring-run Chinook.
 Juveniles may spend over a year in freshwater before migrating to the ocean.	 Juvenile migrate to the ocean within one year of hatching.

Fall versus Spring-run Chinook Lifestages.

Source: Adapted from the Salmon River Restoration Council.

PROJECT FUNDERS

Past and present project funders include: Patagonia, Angel Investor.

