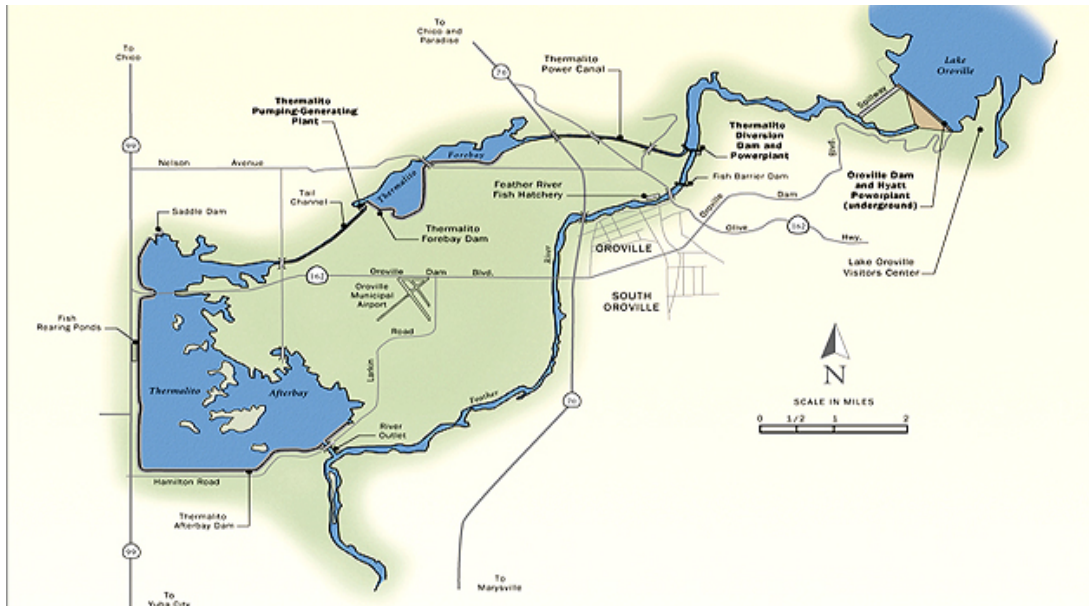


Retrofitting Thermalito Afterbay on the Feather River
A Key to Restoring California’s Salmon Fishery



Thermalito Afterbay Background: The afterbay is a reservoir built in the 1960s as a part of the State Water Project’s Oroville Dam project on the Feather River. The Department of Water Resources releases water from Oroville Dam to maximize power generation and uses the afterbay to “re-regulate” flows released into the Feather River to maintain steady downstream flows for water users and the ecosystem. A “low flow channel” extends from Lake Oroville to the outlet of Thermalito afterbay. However, most of the water released into the Feather comes from the afterbay. The afterbay outlet marks the start of the Feather River “high flow channel”.

The afterbay is large and shallow. As a result of this design and the high temperatures in the Valley for much of the year, water released from the afterbay is dramatically warmer than water from Oroville Dam. That warm water benefits the rice industry, which pumps water from the afterbay. However, warm water can be lethal for salmon and other species.

Temperature and Salmon: Spawning salmon require cold water. Temperatures of 50 degrees or lower are ideal. At higher temperatures, salmon experience stress. At 56 degrees or higher, incubating salmon eggs begin to die. Unfortunately, approximately two thirds of the spawning habitat on the Feather River is in the temperature-impaired high flow channel below the afterbay outlet. Fisheries agencies have concluded that current temperatures effectively eliminate the high flow channel as viable fall run Chinook salmon spawning habitat. High temperatures also harm listed salmon runs and the green sturgeon.

Salmon Restoration Needed: The recent drought was devastating for salmon. For example, 95-98% of juvenile wild Sacramento River winter and fall run salmon were killed by high river temperatures. 2015 and 2016 salmon landings were poor, as drought-affected salmon returned to spawn. In 2017, salmon population estimates continue to be depressed. Some commercial fishermen face a total closure of fishing this year. Others have lost 2/3 of a normal season. Fishermen are deeply concerned about a possible repeat of the 2008-2009 closure of the California salmon fishery. Action is needed now to restore a fishery that, prior to the last drought, provided California \$1.4 billion per year and 23,000 jobs in communities along the coast and rivers.

Retrofitting the Afterbay: Retrofitting the afterbay to provide cold water for salmon and warm water for the rice industry is relatively easy. DWR identified two promising options in 2006, at a cost as low as \$18 million. The retrofit would likely include a pipeline or channel to move water around, rather than through, the afterbay. The afterbay would still be used to assist with power generation and rice farming. Improved river temperature conditions would also increase the effectiveness of planned habitat restoration projects on the Feather River downstream of the afterbay. Those restoration projects would provide rearing habitat for young salmon, so that they are larger and stronger when they leave the Feather River – dramatically increasing their likelihood of survival. In short, retrofitting the afterbay is a key to restoring salmon on one of California's most important salmon rivers, at a modest cost, with no additional water and no impacts to others.

Broad Support: The need to retrofit the afterbay has been known for decades. In 2006, the retrofit was included in a settlement regarding the renewal of the Oroville FERC license. That agreement is strongly supported by Sacramento Valley farmers, environmental groups, fishing advocates, DWR and State Water Project contractors. The agreement also includes a commitment by DWR to provide funds for the retrofit, habitat restoration and other actions.

A Decade of Delays: Despite large benefits and broad support, this retrofit has languished for over a decade. FERC has not yet approved the settlement. GGSA is concerned that the needed response to the spillway failure at Oroville Dam could lead to more delay.

Next Steps: Next steps in the retrofit process include:

- FERC approval.
- Accelerated implementation of the retrofit project.
- Coordination with other related actions, such as downstream habitat restoration.

GGSA Background: GGSA represents a coalition that includes commercial and recreational salmon fishermen, businesses, restaurants, tribes, environmentalists, elected officials, families and communities that rely on salmon. Our mission is to ensure a healthy salmon fishing industry, providing tens of thousands of jobs, by protecting and restoring California's largest salmon producing habitat - Central Valley rivers. Salmon recovery is our passion.

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