



FREMONT WEIR ADULT FISH PASSAGE MODIFICATION PROJECT

Securing Fish Passage in the Yolo Bypass

Frequently Asked Questions (FAQs)

WHAT IS THE GOAL OF THE FREMONT WEIR ADULT FISH PASSAGE MODIFICATION PROJECT?

The Fremont Weir project seeks to remove barriers for adult fish traveling through the Yolo Bypass to their spawning grounds in the Upper Sacramento River and its tributaries. The project is one of 29 projects in the California Eco Restore Initiative that seeks to improve 30,000 acres of Delta habitat and ecosystems.

The Yolo Bypass is a prominent element of California's State Plan of Flood Control and is a critical fish migration corridor. Over time, floodplain habitats in the Delta and Central Valley river systems have been diminished, disconnecting anadromous adult fish from their spawning grounds. Structures within the Yolo Bypass, including the Fremont Weir, are a documented source of migratory delay and stranding for several special status species, including adult Chinook salmon, steelhead, and green sturgeon. These structures often prevent adult fish from completing their migration from the ocean to their spawning grounds upstream.

The primary purpose of the Fremont Weir is to allow overflow waters of the Sacramento River, Sutter Bypass, and Feather River into the Yolo Bypass. The current fish ladder is opened to provide fish passage immediately following overtopping events at the Fremont Weir, which occur on average once every two to three years, however, it provides insufficient passage for adult salmon and does not provide passage for adult sturgeon.

HOW DOES THE PROJECT WORK?

The Fremont Weir project enlarges the existing fish ladder, making it deeper and wider to allow additional Sacramento River water to flow through the structure and improve the connection to the Sacramento River. This improved connection will give fish more time to reach the northern Yolo Bypass after the Fremont Weir has overtopped. It also will make it easier for fish to locate the much larger fish passage structure and exit the Yolo Bypass to return to the Sacramento River.

The Fremont Weir project also removes or replaces earthen agricultural road crossings in the Yolo Bypass at the Tule Canal. These road crossings obstruct adult fish passage. Removing or replacing the earthen road crossings with open channel design provides unimpeded movement up- and downstream in the Tule Canal, allowing migrating fish to ultimately reach their spawning areas or return to the Delta.



WHAT IS THE HISTORY OF FREMONT WEIR?

The 1.8 mile-long concrete Fremont Weir was completed by the U.S. Army Corps of Engineers in 1924 and allows flow into the northern Yolo Bypass immediately following high-flow events in the Sacramento River. The Fremont Weir overtops and spills flow on average once every two to three years.

The Fremont Weir fish ladder was constructed by the California Department of Fish and Wildlife (DFW) in 1965. It is a 4-foot-wide and 6-foot-deep concrete fish ladder, known as a modified Denil type fish ladder because it includes a series of baffles to create variable velocities in the water to facilitate salmonid passage. The Fremont Weir’s fish ladder’s baffles were removed in 2015 to create conditions more favorable for adult sturgeon passage. Following an overtopping event, DFW manually opens the fish ladder when the Sacramento River stage recedes below the crest of Fremont Weir, allowing some adult fish near this area to pass through the ladder and follow an earthen channel to the Sacramento River.

WHY IS THE CURRENT FISH LADDER INEFFECTIVE AND HOW DOES THIS IMPACT FISH SURVIVAL?

The current fish ladder is considered ineffective because:

- ▶ The bottom elevation of the ladder is too high to maintain a deep enough connection for a sufficient duration.
- ▶ The Denil-type fish ladder was designed to provide passage specifically for salmonids and is too narrow to pass sturgeon.
- ▶ It is narrow, making it difficult for all migratory fish to find during and following larger overtopping events.
- ▶ It is only opened after the Fremont Weir stops overtopping, providing little time for fish to find the channel and Bypass.

Since its completion in 1924, the Fremont Weir has impeded fish migrating from the ocean to their spawning grounds upstream in the Sacramento River and its tributaries. The ineffectiveness of the fish ladder is best demonstrated by the number of salmonids and sturgeon that require rescue after overtopping events. DFW has documented a total of 28 fish rescue efforts at the Fremont Weir and within the Yolo Bypass from 1955 through 2016. Rescue efforts at this location include the capture and relocation of over 10,000 fish consisting of 19 species (at least four of these species are currently listed as threatened and endangered).

IS THIS PROJECT MANDATED?

The project meets requirements set in the 2009 National Marine Fisheries Service’s Biological Opinion (2009 NMFS BiOp), which requires mitigation for the impacts of operations of the State Water Project and Central Valley Project. The 2009 NMFS BiOp recognized the importance of floodplain rearing habitat in, and fish passage throughout, the Yolo Bypass, and requires the California Department of Water Resources (DWR) and U.S. Bureau of Reclamation (Reclamation) to complete several projects that accomplish these goals. Specifically, the project would facilitate partial compliance with one required action (known as RPA Action I.7) by providing connectivity to the Sacramento River during and immediately following an overtopping event.

WHAT AGENCIES ARE INVOLVED IN PLANNING AND IMPLEMENTING THE PROJECT?

DWR and Reclamation are the lead agencies for California Environmental Quality Act/National Environmental Policy Act (CEQA/NEPA) compliance and are implementing this effort in close coordination with DFW. They also are working closely with landowners to ensure the project’s goals are met and current land uses continue. The project team consists of biologists, engineers, archeologists, planning and permitting staff from several federal, state, and local agencies, and other decision-making bodies with jurisdiction over resources that may be affected by the project or that have permitting/regulatory authority over certain aspects of the project, including:

- ▶ U.S. Army Corps of Engineers
- ▶ National Marine Fisheries Service
- ▶ U.S. Fish and Wildlife Service
- ▶ Yocha Dehe Wintun Nation
- ▶ United Auburn Indian Community
- ▶ Central Valley Flood Protection Board



- ▶ California Department of Fish and Wildlife
- ▶ California Office of Historic Preservation
- ▶ Central Valley Regional Water Quality Control Board
- ▶ Yolo County
- ▶ American Rivers
- ▶ CalTrout

WHO IS FUNDING THE PROJECT?

DWR and Reclamation are funding the project through State Water Project and Central Valley Project water contractor funding as required by the 2009 NMFS BiOp. Private funding for public/private partnerships also is supplied by American Rivers.

WHEN WILL THE PROJECT BE COMPLETED?

Construction is expected to be completed in 2018, pending any weather delays.

WHO WILL OPERATE AND MAINTAIN THE PROJECT AFTER CONSTRUCTION?

DWR conducts annual maintenance activities at the Fremont Weir and surrounding areas, as authorized under an existing Routine Maintenance Agreement from a DFW Lake and Streambed Alteration (Section 1600-1603) permit. These activities will continue following project construction.

The fish passage structure will be operated in conjunction with any Fremont Weir overtopping events that occur between November 1 and May 31 of any given year. Following overtopping events, the gated structure will be opened to allow Sacramento River flow through the Fremont Weir and into the Yolo Bypass.

WHAT ARE THE NEXT STEPS FOR ADDRESSING FISH PASSAGE CONCERNS IN THE YOLO BYPASS?

The current project improves fish passage only when the Fremont Weir overtops. However, adult anadromous fish are attracted to the Yolo Bypass under many different hydrologic conditions, such as Fremont Weir overtopping events, inflows from local tributaries without Fremont Weir overtopping, and strong tidal exchanges in the southern Yolo Bypass. To further address fish passage issues, DWR and Reclamation have developed the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project to further improve fish passage and increase floodplain fisheries rearing habitat in Yolo Bypass and the lower Sacramento River basin. This project would create floodplain rearing habitat for juvenile salmonids from November 1 through March 7 or 15, and improve fish passage from November 1 through May 31.

The next project primarily consists of a new Fremont Weir headworks structure, a new outlet channel, and downstream channel improvements, which are very similar to the current project. However, the next project will be much larger in size and have more complex operations to increase inflows into the Yolo Bypass prior to Fremont Weir overtopping to improve adult fish passage and facilitate juvenile salmon access to floodplain rearing habitat during important times when they are passing the Weir on their downstream migration. Planning and design status of this larger effort is in the alternative selection phase. A public draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR) was released in December 2017 and a Final EIS/EIR is expected in late 2018. Construction is anticipated to begin in 2020 or 2021.