

## CM2 Yolo Bypass Fishery Enhancement (Cont'd)

### Key Elements of the Measure\*:

#### Moving Water into the Bypass

**1-1 Reduce Elevation of a Section of the Fremont Weir** – To increase the frequency and duration of seasonal inundation of floodplain habitat in the Yolo Bypass, construct a gated channel through the 1.8 mile-long Fremont Weir. The channel would be excavated to an elevation of 17.5 feet to connect with the existing low flow channel of the Bypass. The gates would control flows into the Bypass when the existing weir is not overtopping. Fremont Weir would continue to overtop when Sacramento River stage rises above its crest, and at flood flows water would enter the bypass at the same rate it currently would. The gates would be designed and operated to provide for upstream and downstream passage of salmon, steelhead, sturgeon, and lamprey between the Yolo Bypass and the Sacramento River.

**1-2 Westside Channels** – As part of the fishery enhancement planning process, evaluate the effectiveness of introducing and routing additional flows along the west side of the Bypass. Flow from the Colusa Basin Drain or the Sacramento could be introduced through Knights Landing Ridge Cut, or at western Fremont Weir. This concept has the potential to improve water distribution for agriculture and wetland management as well as the potential to provide fish benefits.

#### How and When Water Moves and Where it Goes

**2-1 Potential Yolo Bypass Modifications** – To optimize fishery benefits in the bypass and limit impacts to land uses, make additional localized modifications. Add or remove berms, levees, and water control structure and rework agricultural delivery channels and water control structures to improve distribution and hydrodynamic characteristics (e.g., residence times, flow ramping, and recession) of water moving through the Yolo Bypass. Modifications may also improve access to some lands or otherwise provide land users additional operating flexibility.

**2-2 Operational Criteria and Adaptive Limits** – Develop and operate criteria and adaptive limits to optimize benefits for covered fish while minimizing negative effects to existing uses. Criteria and adaptive limits would govern how water and fish passage facilities would be operated to manage the location, timing, frequency, and duration of inundation in the Yolo Bypass for 30 to 45 days during the period December 1 to March 31, and occasionally to May 15. Flows would be managed between 3,000 to 6,000 cfs. Once implemented, monitoring and evaluating the effectiveness of the range of operations would guide any recommended operational changes within the adaptive limits.

#### Fish Passage

**3-1 Deep Fish Passage Channel** – To enhance adult fish passage, a small section of the Fremont Weir would be removed and the soil excavated to a depth greater than the proposed notch to allow fish passage over a wider season. A gate would be operated to control flows.

**3-2 Fremont Weir Fish Ladder Replacement** – Replace the existing Denil design fish ladder with new experimental fish passage facilities designed for the effective passage of adult sturgeon, salmon, and steelhead from the Yolo Bypass past Fremont Weir and into the Sacramento River when the river is sufficiently high.

**3-3 Experimental Sturgeon Ramps** – Construct ramps at the Fremont Weir to encourage adult sturgeon and lamprey passage from the Yolo Bypass over the Fremont Weir and into the Sacramento River when there is enough depth of flow over the weir (approximately 3 feet).

**3-4 Stilling Basin Modification** – Modify the existing Fremont Weir stilling basin to ensure that the basin drains sufficiently toward the new facilities. Effective drainage of the stilling basing would prevent stranding of juvenile and adult fish as the floodplain drains.

**3-5 Sacramento Weir Improvements** – Make physical modifications to reduce juvenile fish standing and, if determined to be needed, improve upstream adult fish passage by constructing fish passage facilities at Sacramento Weir.

**3-6 Tule Canal/Toe Drain and Lisbon Weir Improvements** – Improve the hydrologic connectivity of the Tule Canal/Toe Drain by identifying and modifying passage impediments, including road crossings and agricultural impoundments, to reduce the delay, stranding, and loss of migrating salmon, steelhead, and sturgeon. Modify Lisbon Weir to improve fish passage while maintaining or improving water management for irrigation.

**3-7 Lower Putah Creek Improvements** – Realign Lower Putah Creek within the Yolo Bypass Wildlife Area to improve upstream and downstream passage of salmon and steelhead and to provide enhanced floodplain habitat.

*\*Further evaluation is required to select the final set of actions to be implemented. Together, the selected actions will meet or exceed the fish benefits attributed to this conservation measure. Further environmental review will be required.*

**The key concept of the Yolo Bypass Fishery Enhancement conservation measure is to move enough water in the Yolo Bypass to create better floodplain habitat and to improve the passage of fish into, through, and out of the Yolo Bypass.**

