



Stabilization of endangered species populations in the Sacramento-San Joaquin Delta is necessary to reduce conflicts between ecological needs and water supply. There are few sound opportunities for creating this balance in the near-term. Clear scientific evidence shows that creating inundated floodplain habitat on the Yolo Bypass would provide immediate benefits to endangered species in the Delta relieving pressure on alternate strategies and activities.

Inundation of the Yolo Bypass is controlled by the Fremont weir, a rudimentary structure approximately seven feet high and a mile long. The Yolo Bypass is a designated floodway that encompasses 60,000 acres in eastern Yolo County between the cities of Davis and Sacramento consisting of both public and private lands. All properties within the bypass are subject to a flood easement that allows the state to pass floodwaters over the entire bypass.

Although the Yolo bypass floods in more than half of all years, the timing and duration of inundation does not regularly create the benefits needed for covered fish species. Moreover, the lack of a functional fish ladder at the weir increases mortality of adult sturgeon and salmon who are attracted into the bypass by periodic flooding.

### **Solution**

Create a controlled notch in the Fremont weir. The notch would:

- 1) Improve upstream passage of Chinook salmon, steelhead, and sturgeon;
- 2) Optimize the timing and duration of inundation for covered fish species.
- 3) Provide rearing habitat for endangered juvenile salmon and other fish, as well as critical spawning habitat for the declining Sacramento splittail.
- 4) Increase the primary productivity of the Delta, which may be an essential step for restoring the endangered Delta smelt and other pelagic fish species.
- 5) Expand wetland habitat for wintering migratory birds.

The notch could be opened and closed with “drop logs” or a simple inflatable dam to control the magnitude, timing and duration of flow thorough the notch to limit impacts to private landowners. The project should be operated as a pilot studied for a minimum of five years to systematically document that the impacts and benefits of inundation under various operations. Changes to the notch (including filling it) could be made if needed after that period of study.

### **Why Notching Fremont Weir is a Good Idea**

- ✓ Notching the weir is low cost, low risk, and easily reversible
- ✓ Inundating the bypass is a high benefit, high certainty proposition
- ✓ It has already been extensively studied and reviewed by scientists and policy makers

Modification of the Fremont weir was recommended by the Delta Vision Blue Ribbon Panel (pg. 71) of the Delta Vision Strategic Plan, and also included in the National Marine Fisheries Service (NMFS) biological opinion for the Long-term Operations of the Central Valley and State Water Project (pp 607-611), the NMFS recovery plan for salmon (pg. 176), and preliminary drafts the Bay Delta Conservation Plan.

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## **Potential Complications and Resolutions**

- 1) Despite widespread recognition that increasing inundation of the Yolo Bypass is necessary for restoring endangered fish species, some residents of Yolo County are concerned about the potential negative impacts of increasing the frequency and duration of inundation. They are concerned that increasing the frequency of inundation would disrupt agriculture in the bypass or cultivation of forage habitat in Vic Fazio National Wildlife Area.

Resolution: Initially limit the inundation period from late November to early March when the area is not used for cultivation.

- 2) The Army Corps of Engineers could insist that modifying the weir would constitute a modification of the flood control facility and therefore require approval of the Secretary of the Army under section 408 of the Rivers and Harbors Act.

Resolution: Notching a few hundred feet of the mile-long weir would not substantially change routing of flow during a flood event and therefore would not change the flood control plan. Utilization of the notch to intentionally inundate the bypass would only occur during non flood periods. The temporary nature of the notch would not impact the structure's ability mollify the negative affects of flooding and therefore would not require review under section 408.

- 3) Inundation of the bypass results in mercury methylation.

Resolution: Mercury methylation is more likely during periods of frequent wetting and drying particularly during the warmer spring and summer months, which already occur under existing conditions. Opening the notch during winter months would limit the potential for methylation. Furthermore, the notch could be managed to limit the frequency of wetting and drying and thereby reduce methylation potential.

- 4) Changing the inundation regime in the bypass could discourage agriculture and thereby result in increased vegetation that could reduce flood conveyance.

Resolution: Initially limit the inundation period from late November to early March to limit or avoid any impacts to agriculture.