2018 North Delta Food Web Action



What is planned?

- In late Aug. and Sep. 2018 agricultural return flows from Colusa Basin Drain (during the peak rice-field drainage period) will be directed thru Ridge Cut Slough and Wallace Weir into Yolo Bypass for 2-4 weeks (See attached map).
- The action is designed to generate a modest seasonal positive flow pulse (e.g. 20-24 TAF) through the Yolo Bypass Toe Drain, but will be maintained at levels below those that would result in local flooding.
- The goal of the action is to benefit the Delta food web in downstream areas for fish.

What are the primary water operations changes during the action?

- Knights Landing Outfall Gate (KLOG) elevation will be set to 26' during the brief study.
- Wallace Weir will be adjusted to convey agricultural return water at a target flow of 300-700 cfs
- Swanston Ranch Road Crossing (Ag. Crossing #4) will modify culverts to allow additional flow to pass through the Toe Drain



How will water operations be monitored?

- Colusa Basin Drain flows will be primarily controlled and monitored by Glenn Colusa Irrigation District (GCID) at Davis Weir
- KLOG operations and elevation changes will be monitored by Dept. of Water Resources (DWR) Division of Flood Management and Reclamation District 108 (RD 108)
- Due to increased elevation changes at KLOG of 25.5' to 26, water levels within the adjacent lower Colusa Basin Drain will be closely monitored using a series of 3-4 additional stage monitors deployed by DWR from Charter property south to Rd 16 bridge.
- Knights Landing Ridge Cut will also be monitored using existing DWR stage data collected in Ridge Cut Slough at Hwy 113 Bridge (Site RCS: <u>https://cdec.water.ca.gov/</u>) and at new Wallace Weir.
- RD 108 will reduce outflows at Wallace Weir once flows drop below 250-300 cfs at Davis Weir to ensure water levels are maintained in lower Colusa Basin and Ridge Cut Slough for late fall and winter irrigation needs.

Who are the partners working on the project?

• Department of Water Resources is leading the effort as part of the *Delta Smelt Resilience Strategy*.

• The project is a major collaboration with action coordinators (Resources Agency, DWR), fisheries agencies (DFW, NMFS, FWS), diverters (GCID, RD108, Conaway Group), funding sources (DFW, USBR, SFCWA), and scientists (USGS, SFSU, UCD).

Why is there an interest in enhancing the food web?

- Loss of plankton is a major factor responsible for the decline of many fishes including the endangered Delta Smelt.
- The loss of these species impacts the ecosystem and affects water supply reliability in the state.

Why is Yolo Bypass a focus?

• Lower Yolo Bypass is known to be relatively richer in plankton than most other parts of the Delta.



- Much of this productivity may not reach the Delta in drier months because local water diversions tend to pull water away from the lower Sacramento River.
- Scientists observed that larger-than-normal fall 2011 and 2012 agricultural flow pulses were followed by downstream Delta plankton blooms. <u>These were the first fall blooms in over 20 years</u>.

What is the basic idea behind the action?

- By routing agricultural drain water through Yolo Bypass instead of the Sacramento River, DWR scientists predicted that a flush of plankton-rich water would provide a "seed" for the downstream Delta, enhancing food resources for Smelt.
- A similar managed flow pulse was generated in July 2016 with the help of Sacramento Valley water users and as predicted, the flow pulse coincided with a wave of increased phytoplankton through Yolo Bypass and in the Delta at Rio Vista.
- The action is designed to maximize the environmental benefits of water. Water isn't "consumed" by the action--it is directed down a different and more productive path to the Delta.

What will be measured and how will the study results be used?

- Water quality, contaminants, plankton, clams (consumers of plankton) will be monitored before, during and after experimental flows.
- The results are intended to guide future possible operations to benefit Smelt.
- The major findings will be presented in management and technical forums, and summarized for publication in scientific journals.

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Approach planned to Generate a Flow Pulse in 2018.

