

North Delta Flow Action

2019 FOOD WEB STUDY FACT SHEET

What is planned?



- In fall 2019 agricultural flows will be directed into Yolo Bypass for up to a month (see map below).
- The action is designed to generate a modest, seasonal positive flow pulse (e.g. 24 TAF) through the Yolo Bypass, but will be well below levels that would result in local flooding.
- The goal of the action is to support the Delta food web in downstream areas.

Who is working on the project?

- Department of Water Resources with funding support from US Bureau of Reclamation 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 (USBR, SFCWA), and scientists (USGS, SFSU, UCD).

Why is there an interest in enhancing the food web?

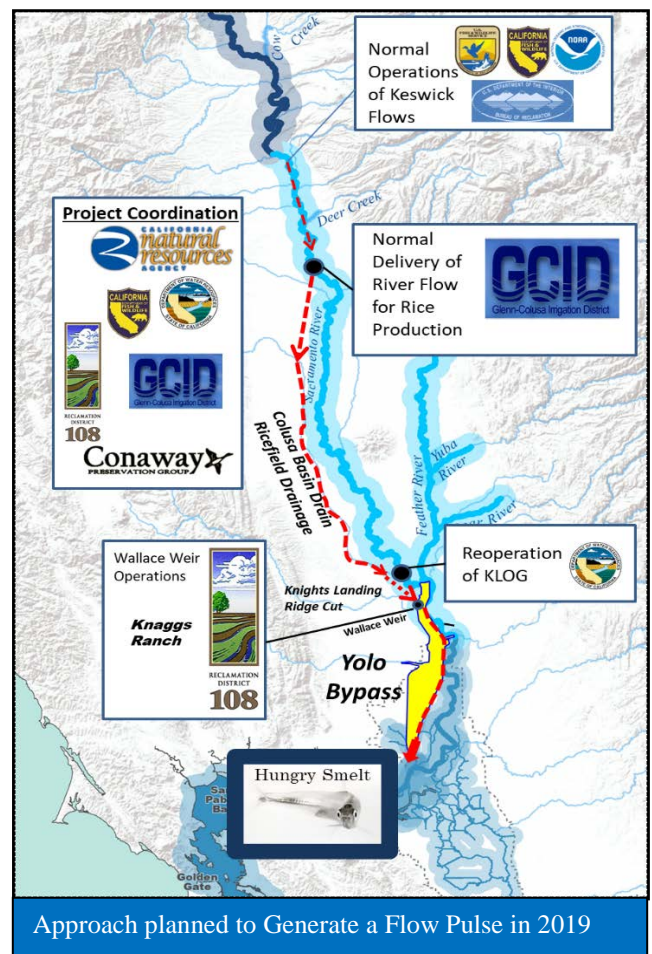
- Loss of plankton is a major factor responsible for the decline of many fishes including the endangered Delta Smelt.
- The loss of these species impacts the ecosystem and affects water supply reliability in the state.

Why is Yolo Bypass a focus?

- Yolo Bypass and Cache Slough Complex are 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. These were the first fall blooms in over 20 years.

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 Delta Smelt.



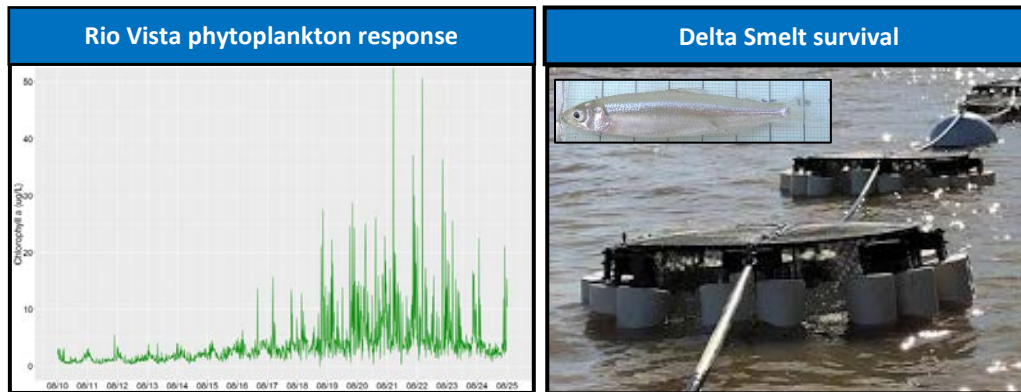
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- A similar managed flow pulse was generated in July 2016 and 2018 with the help of Sacramento Valley water users (see map).
- The action is designed to maximize the environmental benefits of water. Water is not “consumed” by the action--it is directed down a different and more productive path to the Delta.

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

- Water quality, contaminants, plankton, and clams (consumers of plankton) will be measured before, during, and after experimental flows at multiple locations.
- Cages of hatchery Delta Smelt deployed in the Yolo Bypass Toe Drain will be monitored for growth and survival for 4 weeks before and after the flow action.
- The results are intended to guide future possible operations to benefit Delta Smelt.
- The major findings will be presented in management and technical forums, and summarized for publication in scientific journals.



Did the 2016 and 2018 Actions Work?

2016

- The action generated a substantial flow pulse (12,700 AF) for over two weeks in July.
- As predicted, the flow pulse coincided with a wave of phytoplankton (as measured by chlorophyll *a*) through Yolo Bypass.
- The action was followed by a major increase in phytoplankton in the Delta at Rio Vista.
- The bloom was dominated by a “good” variety (*Aulacoseira granulata*), not a harmful species.

2018

- The action generated a near-targeted flow pulse (19,824 AF) over 4 weeks from Aug. to Sept.
- The flow pulse did not coincide with a wave of phytoplankton through Yolo Bypass, suggesting an initial “seed” of plankton-rich water may have been absent evident in low nutrients and food web productivity.
- The flow pulse did export higher densities of zooplankton into downstream habitats of lower Cache Slough and Sacramento River at Rio Vista.

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