



IEP Science Highlights

Director's Meeting Update

September 2015

Monitoring Highlights

- Delta Smelt: The 2015 Summer Townet survey **Delta Smelt** abundance index was 0, making it the lowest on record. The spring 20 mm Survey for larval Smelt was similarly poor, with a record low of 0.3.
- Chinook Salmon: Several factors are likely to contribute to weak Salmon production in late 2015-2016.
 - The Volume of cold water in Shasta is less this year than in Birth Year 2014 that led to record low production of Birth Year 2014 young **winter-run Chinook Salmon**. Cold water is being rationed to support eggs and young in the coming months.
 - Ocean conditions appear to be poor for both juvenile and adult salmon maturation:
 - A "blob" of warm water extends along much of the Pacific Coast.
 - Strong El Nino conditions may prevent coastal upwelling, which fuels the ocean food web and maintains cold water for maturing Chinook Salmon.
 - A large and persistent toxic algal bloom extends along the coast from California to Alaska.

Drought Activities

- Emergency Drought Barrier (EDB): In addition to monitoring required by the EDB permits, the Delta Science Program (DSP) organized a workshop to solicit ideas for additional studies to examine the effects of the project. Subsequent proposals received by DSP will be funded as "Directed Actions."
- Drought MAST: The Drought Management Analyses and Synthesis Team continue to work on a report examining how recent drought conditions have influenced Delta fishes and their habitat.
- Supplemental Sampling: Enhanced drought monitoring studies include:
 - *Microcystis*: Sampling will occur in Summer/Fall 2015 to monitor harmful algal blooms.
 - Early Warning Monitoring: IEP will likely support expected early warning sampling similar to the winter 2015 effort.
 - *SmeltCAM*: A test effort to detect ESA-listed fishes along the lower San Joaquin River corridor, including the channels around the EDB.
 - *Genetic Estimation of Smelt Populations*: Genetic tools will be used to estimate the effective population size ("N_e") of Delta Smelt, as compared to previous years.
- Wetter Conditions in 2016? Intensifying El Nino conditions could potentially improve flows in the Bay Delta. IEP staff are currently considering the following:
 - Drought sampling should continue so that the response of the ecosystem to enhanced flows can be evaluated. Note that some species may continue to experience a "functional drought" even after rains return.
 - Targeted high flow sampling. Initial planning is underway for 2016 floodplain salmon work, and perhaps other habitats during high flow.

Workshops and Work Teams (see <http://www.water.ca.gov/iep/activities/calendar.cfm>)

- The California Salmon and Climate Variability Symposium was held September 10 at UC Davis. The purpose of the meeting was to discuss how salmon may be affected by climate change.
- A Science Symposium on Invasive Aquatic Vegetation was held September 15 at UC Davis.