



## Interagency Ecological Program 2023 Work Plan Element Enhanced Delta Smelt Monitoring (EDSM)

### Project Manager and Affiliation

Lori Smith, U.S. Fish and Wildlife Service

### Principal Investigator and Affiliation

Denise Barnard, U.S. Fish and Wildlife Service

### Annual Costs (thousands) and Funding Sources

\$3,759 USBR



*EDSM Kodiak trawling on the Sacramento River by Rio Vista*

### Description

The Enhanced Delta Smelt Monitoring (EDSM) program is a year-round monitoring program comprised of multiple crews trawling concurrently at multiple sites in pre-defined strata within the San Francisco Estuary. Post-larval Delta Smelt are targeted approximately April through June using 20mm trawling gear, and Kodiak trawling gear is employed the remainder of the year to sample juveniles and adults. Gear efficiency experiments, shallow water sampling, and support of experimental Delta Smelt release elements are incorporated when possible.

## **Need**

The declining Delta Smelt population has highlighted the need to keep improving the array of information that supports our understanding of the factors affecting Delta Smelt population dynamics and management decisions to minimize adverse effects of water operations on the population. EDSM has biological significance and potential conservation benefit by providing data to resource managers on nearly all life stages of endangered Delta Smelt and near-real-time data on the juvenile and adult life stages. EDSM data is provided to the Smelt Monitoring Team and other managers in near real-time to help inform management decisions during the entrainment season.

## **Objectives**

- To estimate the total abundance of Delta Smelt, along with standard errors or confidence intervals, on a weekly to bi-weekly basis for various life stages (post-larvae, juveniles, sub-adults, adults) throughout the year;
- To estimate the spatial distribution of Delta Smelt at a management relevant temporal and spatial resolution; and
- To provide data that support management decisions and address scientific questions to further understanding of sampling efficiency, drivers of Delta Smelt population patterns, and other conservation and management-relevant topics.

## **Schedule of Milestones**

Phase 1 (December 2022–April 2023): focuses on estimating the spatial distribution and abundance of adult Delta Smelt and can potentially be used for entrainment risk estimation and estimating entrainment as a function of water operations.

Phase 2 (April–June 2023): focuses on estimating the spatial distribution and abundance of post-larval and small juvenile Delta Smelt and to provide data that can be used to independently evaluate predictions from Delta Smelt Life Cycle Models that were fit using data from other surveys.

Phase 3 (July–November 2023) : focuses on estimating the abundance and distribution of juvenile and sub-adult Delta Smelt and to support modeling of larval to juvenile and juvenile to sub-adult survival.

Daily catch summaries and weekly abundance reports are distributed to managers and stakeholders, including the Smelt and Salmon monitoring teams, and made available on the Lodi FWO website (<https://www.fws.gov/library/collections/lodi-fwo-monitoring-data>).

Fully QAQC-ed data file (December 2016–November 2021) is available on the [Environmental Data Initiative](https://portal.edirepository.org/nis/mapbrowse?scope=edi&identifier=415) website (<https://portal.edirepository.org/nis/mapbrowse?scope=edi&identifier=415>), data file will be updated after completion and data QAQC of each phase (expected summer and winter 2023).

As appropriate, results will be submitted for publication or presented at technical meetings such as the 2023 IEP Annual Workshop, AFS Cal-Neva annual meeting, and Bay Delta Conference.