



Interagency Ecological Program 2024 Work Plan Element Spatio-Temporal Community Patterns for Early Life Stages of Fishes and their Associations with Zooplankton in the Upper San Francisco Estuary

Project Manager and Affiliation

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Annual Cost (thousands) and Funding Sources

\$ 60 USBR

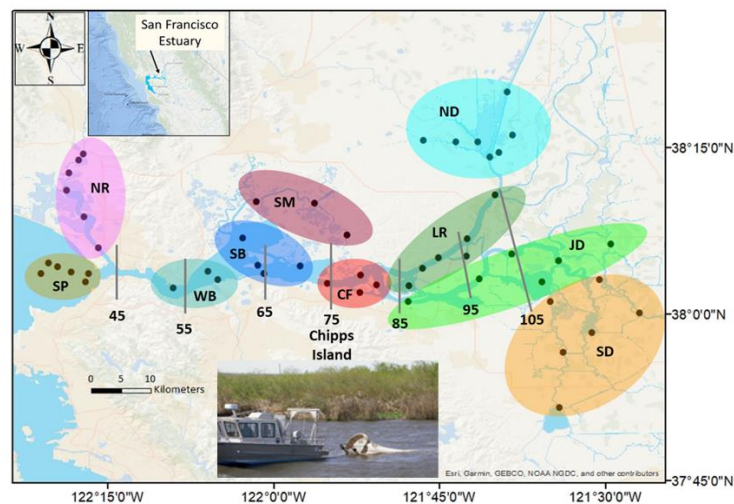


Figure: The Upper San Francisco Estuary showing 20-mm Survey stations (dots) across 10 areas from west to east: San Pablo Bay (SP), Napa River (NR), West Suisun Bay (WB), Grizzly-Honker-Suisun bays (SB), Suisun Marsh (SM), Confluence (CF), Lower San Joaquin River-Central Delta (JD), Lower Sacramento River (LR), North Delta (ND), and South Delta (SD)

Description

This study will contribute to evaluate the influence of hydrological conditions on the distribution and abundance of fishes and the trophic associations between fish and zooplankton. To accomplish this, the study will primarily make use of the long-term (1995-2017) CDFW 20-mm Survey data. Covariates derived from other IEP programs will also be considered to evaluate their influence on fish and zooplankton communities

Project Need

This study will improve utilization of existing data by taking advantage of the CDFW 20-mm Survey, the most extensive long-term monitoring designed for Delta Smelt. The study will involve collaboration with the CDFW staff, USBR and other collaborators. Results from this study will contribute to fill the knowledge gap between populations and ecosystems. Results are expected to inform habitat restoration, conservation and management of the Upper San Francisco Estuary.

Project Objectives

- Task 1- Evaluate how hydrodynamics influences the distribution, salinity habitat and abundance of eight pelagic fish species.
- Task 2- Examine whether survival of Delta Smelt and Longfin Smelt are potentially associated to zooplankton abundance.

Schedule of Milestones

May 2023: Begin Task 1

Aug 2023: Begin Task 2

Dec 2023: Manuscript Task 1

Mar 2024: Initial presentation Task 2 IEP Workshop

Mar 2025: Final presentation Task 2 IEP Workshop

Dec 2025: Manuscript Task 2

Project Reports and Publications

Published article on community patterns of early life stages of fishes. See Castillo, G.C., Tempel, T., Slater, S.B. *et al.* Community Patterns and Environmental Associations for the Early Life Stages of Fishes in a Highly Transformed Estuary. [Estuaries and Coasts](https://doi.org/10.1007/s12237-022-01139-w) **46, 562-579 (2023)**. <https://doi.org/10.1007/s12237-022-01139-w>