Interagency Ecological Program 2024 Work Plan Element
Zooplankton Monitoring

Project Manager and Affiliation

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Principal Investigator and Affiliation

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Annual Cost (thousands) and Funding Sources
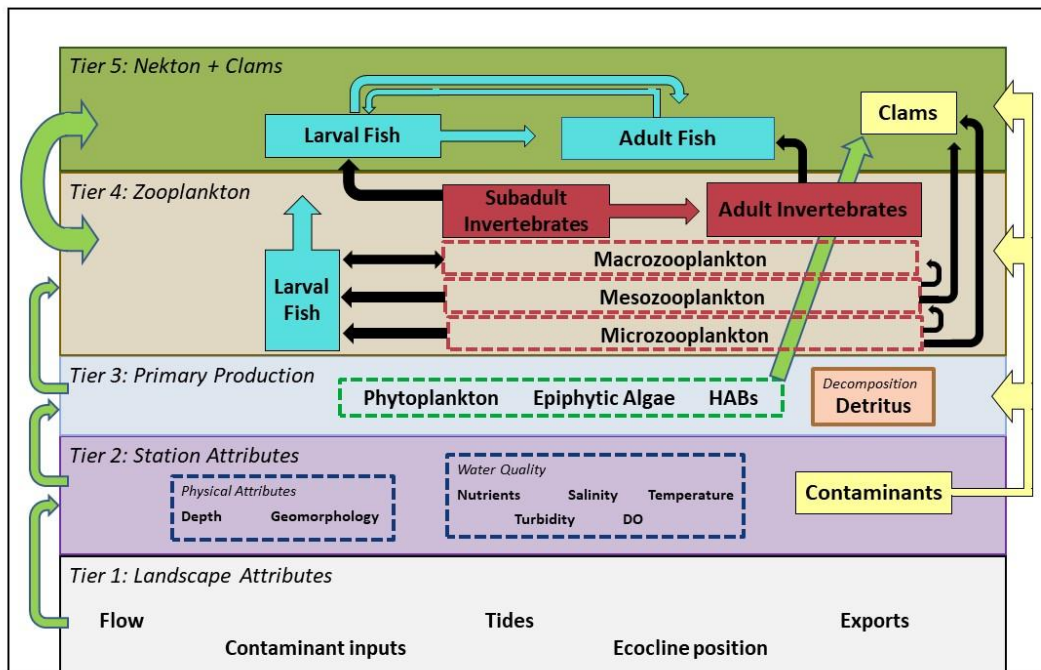
$0 DWR; $0 USBR [In-Kind Services]

Figure: *Conceptual Diagram for Project*

Description

Zooplankton are critical components of estuarine ecosystems because they link primary producers with upper levels of the food web. In order to conserve the San Francisco Estuary (SFE), its listed fish, and the flora and fauna it supports, we need to develop better models that integrate zooplankton into our understanding of the food web. SFE monitoring has been conducted over time to understand the effects of water project operations as well as the importance of zooplankton as prey for fishes. Since the Environmental Monitoring Program began monitoring zooplankton in the SFE in 1972, additional long-term zooplankton surveys have been added, typically to pre-existing or new fish surveys to monitor status and trends in and environmental drivers of fish prey

resources (Tempel et al. 2021). When synthesized, these datasets cover a broad area of the SFE but vary in spatial and temporal coverage through time (Figure 1). Synthesized data have been used to evaluate the impacts of management actions and environmental conditions; however, we do not know its limitations in answering important ecological and management questions. In this study, we seek to evaluate the spatial and temporal gaps, strengths, and redundancies of the zooplankton monitoring surveys, when used collectively to characterize the status and trends of populations and of the community assemblage. Ultimately, we anticipate our findings will help inform a broader consideration of contemporary SFE zooplankton monitoring and what monitoring design would be needed to allow scientists and managers to document and understand changes in community and population dynamics over time and space and in response to potential drivers such as flow, temperature, or salinity. This project will use existing datasets and modelling approaches to evaluate zooplankton monitoring design.

Project Need

This project identifies gaps and redundancies in existing sampling effort. This information is critical to any alterations to existing IEP survey sampling efforts. This project may also result in resource savings depending upon findings.

Project Objectives

Identify gaps, strengths, and redundancies in the collective IEP zooplankton monitoring to inform:
1. Interpretation of status and trends of representative zooplankton species abundance over time and space.
2. Linking zooplankton assemblages and populations to changes in environmental drivers (e.g., flow, temperature, salinity).

Schedule of Milestones

- Within three months of initiation of project, incorporate the Directed Outflow Project data into the principal tensor analysis.

Project Products and Publications

No products or publications published, yet.