



Interagency Ecological Program 2023 Work Plan Element IEP Gear Efficiency Evaluations in Support of Modeling Efforts for Delta Smelt

Project Manager and Affiliation

Lori Smith (USFWS)

Principal Investigator and Affiliation

Lara Mitchell (USFWS)

Annual Costs (thousands) and Funding Sources

USFWS and CDFW: In-kind time of collaborators



Figure: *RV Scrutiny & RV Beowulf in Sacramento Deep Water Shipping Channel*

Description

This Element consists of gear selectivity evaluations and a quantitative analysis to investigate potential bias resulting from the use of fixed sites in the San Francisco Estuary compared to randomly selected sites. Since the gear selectivity component has largely been completed, this Element will focus on developing and implementing methods of comparing catch data from fixed site surveys (e.g., Spring Kodiak Trawl, Fall Midwater Trawl, Summer Towner, etc.) with random site surveys (e.g., the Enhanced Delta Smelt Monitoring program) to investigate potential bias in the long-term population

trends of species with sufficiently large catches. This analysis will rely on past and current routine monitoring data and therefore does not have a field work component.

Need

Gear selectivity evaluations are needed to integrate catch data from multiple trawl surveys to estimate abundance and ultimately to model population dynamics for Delta Smelt and other species of management concern. Data from simultaneous, adjacent deployment of IEP survey gears has permitted the estimation of size selectivity curves for multiple fish species, including Delta Smelt. These selectivity curves are used to account for size-selectivity when calculating estimates of population size based on historic survey data. As an extension of this, we plan to investigate whether any bias can be detected in data from fixed site surveys such as the Spring Kodiak Trawl and Fall Midwater Trawl when compared with data from random site surveys such as the Enhanced Delta Smelt Monitoring program. This analysis will be relevant to the sample design development of current and future monitoring programs in the San Francisco Estuary. It may also provide insight on how to integrate CDFW and USFWS survey data to inform population trends.

Objectives

- Investigate and quantify bias, if any, associated with current fixed-site configuration of sampling stations relative to random site selection.

Schedule of Milestones

Spring 2023: Organize and analyze data, research similar work, and implement analysis.

Fall 2023: Summarize methods and results in a technical report. Convert technical report to a manuscript, if appropriate.