Interagency Ecological Program
2023 Work Plan Element PEN 322:
Estimating the abundance of run specific juvenile Chinook salmon entering and exiting the Delta from genetic monitoring data, estimates of trawl efficiency from coded wire tags, and acoustic telemetry releases

Project Manager and Affiliation

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Annual Costs (thousands) and Funding Sources

Costs are included in the DJFMP agreements with DWR ($604) and USBR ($342)

Description

This is a continuation of a five-year project funded by CDWR and CDFW and the Central Valley Project Improvement Act in 2017. The objective of the project is to improve estimates of population abundances for fall, winter and spring run juvenile Chinook Salmon at Sacramento and Chipps Island by improving trawl efficiency estimates using data from releases of coded wire tags (CWT), acoustic tags (AT), and by genetically sampling the trawl catch in 2022 and 2023. The project will (1) develop statistical models for estimating trawl efficiencies using 2016-2022 data for paired AT-CWT releases of winter run and fall-run Chinook Salmon; (2) use 2016-2022 genetic sampling of trawl catch in combination with efficiency estimates to estimate population abundances of fall, spring and winter run at Sacramento and Chipps Island for 2016-2022; (3) implement trawl efficiency studies for multiple salmon runs in 2022-2023 informed by the prior results and in coordination with hatcheries for inclusion of AT fish with existing CWT releases; and (4) combine trawl efficiencies with genetic samples of trawl catch to provide estimates of fall, spring and winter-run salmon abundance (with estimated precision) entering and exiting the Delta in 2016-2022.

Need

There is growing appreciation that a salmon monitoring network that could provide quantitative estimates of abundance is desirable to improve our knowledge and resolution of life stage success and movement across the landscape (Salmon SAIL conceptual models 2016).

Objectives

- Estimate the population-level status and trends for winter run; and status of spring and fall run.
- Evaluate production estimates for juvenile winter-run Chinook Salmon entering the Delta used in water project take development.
- Provide estimates of winter and fall run-specific freshwater cohort strength to support ocean harvest management decisions.
- Establish a time series of winter, spring and fall run-specific production estimates at key locations for incorporation into life cycle models.

Schedule of Milestones

- October 2022 – May 2023: Field sampling/tagging completed
- February – September 2023: CWT and genetic identification processing
- October – December 2023: Data processing, analyses, modeling, and reporting
- Long-term operation of project (general process moving forward).
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