2022 DELTA SCIENCE FELLOW FACT SHEET

Sea Grant CALIFORNIA

Delta Stewardship Council
Delta Science Program

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Focus Assessing the effect of tidal marsh restoration on food webs

Award $150,725

Research Mentor
Dr. Albert Ruhi,
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Community Mentors
Dr. Susan De La Cruz,
USGS Western Ecological Research Center

"Given the increasing number of restoration projects planned for the Bay-Delta, understanding how tidal marsh restoration may affect food web recovery is key."

PROJECT

This project will examine whether removing dikes helps food webs in tidal marshes to recover. By conducting isotopic analysis to compare food webs at several tidal marshes, the project will analyze how – and why – food webs differ at restored and reference sites, and analyze what role non-native species play in these differences.

TIMELINE

2022-2023 Analyze existing stable isotope data and conduct new isotope processing of previously collected longfin smelt, and, based on the results, estimate quantitative feeding relationships at marsh sites; begin a broader analysis that includes macroinvertebrates, vegetation and algae.

2023-2024 Complete isotopic analysis, with a focus on examining various mechanisms that might influence energy flow within food webs; synthesize findings into a white paper for ecosystem managers.

IMPACTS

Even though thousands of acres of land have been restored to tidal marshes in the Bay-Delta over the last two decades, little is known about the extent to which such restoration leads to the recovery of robust and diverse aquatic food webs. Further insights into their success will help improve our efforts to conserve native species, including longfin smelt, which will become increasingly difficult as the climate changes.