2025 Delta Science Fellows

Information Sheet

Delta Science Program
DELTA STEWARDSHIP COUNCIL

- The Delta Science Program and California Sea Grant are pleased to announce awards for the 2025 Delta Science Fellowships, supporting scientific research during the 2025-2026 academic years.
- Over $1 million will support six graduate students and postdoctoral researchers working with research and community mentors in collaborative data analysis and research projects.
- Since 2013, the Delta Stewardship Council has partnered with California Sea Grant to fund research projects lasting up to two years, aimed at expanding knowledge on critical science issues affecting the Sacramento-San Joaquin Delta.

Overview

The Delta Science Program and California Sea Grant are excited to announce awards for the 14th class of Delta Science Fellowships. These fellowships provide master's students, Ph.D. students, and postdoctoral researchers with stipends and research and/or education expenses for the 2025-2026 academic years. The program brings early career scientists and their research advisors together with community mentors at various state, local, and federal agencies, non-governmental institutions, and other community-based organizations to carry out collaborative data analysis and research projects. Research

projects are up to two years in duration and are selected according to how clearly they advance knowledge of underlying high priority science issues that affect the Sacramento-San Joaquin Delta and its management as an integrated social-ecological system.

For 2025, the Delta Science Fellows Program is providing $1 million to fund six projects that are responsive to one or more of the priority Management Needs and associated Science Action(s) identified in the **2022-2026 Science Action Agenda** (available here: scienceactionagenda.deltacouncil.ca.gov/). Successful applicants include one masters student, three doctoral students, and two postdoctoral researchers. Projects address a wide range of priority topics, including exploring miniature acoustic tagging and eRNA methods to monitor Longfin smelt, tracking salinity intrusion using satellite imagery, modeling drivers of historical and future land use change in the Central Valley, incorporating climate change into modeling environmental flows, and engaging local youth in Chinook salmon research.

Connections to the Science Action Agenda

Delta Science Fellows were selected in part based on the relevance of their research to the 2022-2026 Science Action Agenda, which was developed by and for the Delta science community to align science actions to inform the following six priority management needs:

1. Improve coordination and integration of large-scale experiments, data collection, and evaluation across regions and institutions
2. Enhance monitoring and model interoperability [ability to exchange information], integration, and forecasting
3. Expand multi-benefit approaches to managing the Delta as a social-ecological system
4. Build and integrate knowledge on social process and behavior of Delta communities and residents to support effective and equitable management
5. Acquire new knowledge and synthesize existing knowledge of interaction stressors to support species recovery and ecosystem health
6. Assess and anticipate impacts of climate change and extreme events to support successful adaptation strategies

2025 Fellowship Awards

Sebastian Gonzales
Master's student
University of California, Davis

https://sciencetracker.deltacouncil.ca.gov/node/54223

The Effects of Surgical Implantation of Miniaturized Acoustic Transmitters in Longfin Smelt, *Spirinchus thaleichthys*

Sebastian's project will explore applications of newly developed miniature acoustic transmitters (also known as 'tags') to monitor Longfin smelt, a fish species listed as endangered under the Endangered Species Act in July 2024. His research will focus on effects of surgical implantation of the tags in Longfin Smelt and will evaluate survival, tag retention, and swimming performance compared to untagged fish. This research provides a promising new approach to studying this rare and imperiled native species.

SAA Management Needs: 2, 5

Research Mentor:
Nann Fangue, University of California, Davis

Community Mentors:
Rick Wilder, ICF International Inc.
Brian Schreier, Department of Water Resources

Nihar Chhatiawala
Ph.D. student
Pardee RAND Graduate School

https://sciencetracker.deltacouncil.ca.gov/node/54182

Managing for Maladaptation in Environmental Flow Planning

Nihar's project will combine two previously unconnected models to evaluate the performance of management actions across diverse climate conditions. Specifically, the Community Water Model (or CWatM, an open-source community-driven model that simulates the daily water cycle at variable scales) will be used to project future surface water flows using the latest climate projections. That model will be integrated with the Sacramento Water Allocation Model (or SacWAM, used by the California State Water Resources Control Board) to highlight ecological and social tradeoffs to various management actions. This approach will provide critical information on how various strategies can balance ecological, social, and economic objectives under changing water availability and climate conditions.

SAA Management Needs: 1, 3, 6

Research Mentor:
Michelle Miro, RAND Corporation

Community Mentors:
Sam Bashevkin, State Water Resources Control Board
Andrew Schwarz, Department of Water Resources
Dor Fridman, International Institute for Applied Systems Analysis

Dana Myers
Ph.D. student
University of California, Santa Barbara

https://sciencetracker.deltacouncil.ca.gov/node/54217

Tracking Saltwater Intrusion in the Sacramento–San Joaquin Delta: A Satellite Remote Sensing Approach to Estuarine Turbidity Maxima

Dana's research project involves developing a model to track the mixing between Bay and Delta waters using daily satellite color imagery. Results of the model will be linked to field-based measurements throughout the system and used to inform relevant agencies of flow characteristics within waterways. This work is motivated by a need for high frequency monitoring of fine-scale features within the dynamic Bay-Delta ecosystem and to take advantage of new advanced remote sensing technology to inform on long-term trends within the Delta.

SAA Management Needs: 2, 3, 6

Research Mentor:
Nick Nidzieko, University of California, Santa Barbara

Community Mentor:
Michelle Stern, U.S. Geological Survey

Becca VanArnam
Ph.D. student
University of California, Davis

https://sciencetracker.deltacouncil.ca.gov/node/54197

Bridging Science and Community: Engaging Youth in Delta Conservation Through the Spinning Salmon Program

Becca's project involves engaging underrepresented schools in the Spinning Salmon Program (SSP), a youth-focused citizen science project. Students raise Chinook salmon from the Feather River Fish Hatchery to support research on thiamine (vitamin B1) deficiency , a condition in salmon that causes abnormal swimming patterns, lethargy, and high mortality rates. Becca's research includes an assessment of how participation in SSP impacts students' understanding of scientific concepts and processes and cultivates a sense of environmental stewardship. Additionally, the program emphasizes the involvement of community members in co-creating and refining educational strategies, ensuring these approaches are tailored to the diverse cultural and educational needs of the Delta community.

SAA Management Need: 4

Research Mentor:
Heidi Ballard, University of California, Davis

Community Mentor:
Dina Flamik, Maine Prairie High School, Dixon, CA

Shahinur Islam
Post-doctoral researcher
University of California, Davis

https://sciencetracker.deltacouncil.ca.gov/node/54210

Developing novel non-invasive environmental RNA (eRNA) tools for conservation of two endangered Bay-Delta fish species

Shahinur's project involves developing innovative non-harmful tools to monitor the presence and health of larval Delta and Longfin Smelt. His approach includes validating the detection of genetic material (RNA) shed by these species in controlled lab conditions, testing the reliability of detection methods in the field to monitor the presence of larval Smelt near water export facilities, and assessing whether these approaches can reveal responses of fish to acute thermal stress in early-life-stage Smelt.

SAA Management Need: 2

Research Mentor:
Andrea Schreier, University of California

Community Mentor:
Daphne Gill, Department of Water Resources

Abhinav Sharma
Post-doctoral researcher
University of California, Santa Cruz

https://sciencetracker.deltacouncil.ca.gov/node/54204

FutureTracts: Leveraging Agent-Based Models to Forecast Land Use Changes in California's Central Valley

Abhinav's project will use modeling to dissect how land use has changed historically in California's Central Valley due to various drivers including environmental changes and socio-economic developments. His research will integrate future hydrology data (generated by CalSim3, a water resource planning model developed by DWR) and socio-economic scenarios to analyze potential futures and explore strategic land use changes that can meet socio-economic goals under varying water availability. Given the region's water needs, dependency on agriculture and its vulnerability to climate change, it's crucial to model these dynamics accurately to forecast future conditions and plan effectively.

SAA Management Needs: 1, 6

Research Mentor:
James Gilbert, University of California, Santa Cruz

Community Mentor:
Josué Medellín-Azuara, University of California, Merced

Additional information

Additional information about the Delta Science Fellows program can be found on the Council's Research Funding and Fellowships web page (available here: https://deltacouncil.ca.gov/delta-science-program/research-funding-and-fellowships) and the California Sea Grant website (available here: https://caseagrant.ucsd.edu/funding/2025-delta-science-fellowship) . We also invite you to track progress of these projects by visiting their activity pages in the Delta Science Tracker (available here: https://sciencetracker.deltacouncil.ca.gov/).