



INFORMATION ITEM

Lead Scientist Report

Summary

This month's Lead Scientist Report provides a summary of a recent publication from Rogers and Bashevkin et. al. (2024) that shares results from a synthesis working group held in partnership between the Delta Science Program and National Center for Ecological Analysis and Synthesis (NCEAS). The synthesis team used 40+ years of monitoring data to explore the importance of different drivers of food web dynamics throughout the estuary.

Evaluating top-down, bottom-up, and environmental drivers of pelagic food web dynamics along an estuarine gradient

Rogers, Tanya L., Samuel M. Bashevkin, Christina E. Burdi, Denise D. Colombano, Peter N. Dudley, Brian Mahardja, Lara Mitchell, Sarah Perry, and Parsa Saffarinia. 2024. "Evaluating Top-Down, Bottom-Up, and Environmental Drivers of Pelagic Food Web Dynamics along an Estuarine Gradient." Ecology e4274. <http://doi.org/10.1002/ecy.4274>

The first cohort of researchers from the 2021 Delta Science Program and National Center for Ecological Analysis and Synthesis (NCEAS) synthesis working group recently published their findings in the journal *Ecology*. The team integrated and synthesized 40+ years of publicly available data from seven monitoring surveys, four regions, and 11 taxonomic groups, resulting in a single long-term dataset that allowed them to model the estuarine food web in ways that had not previously been possible. The team sought to answer a longstanding question: *what drives pelagic food web dynamics across the estuary?*

The team examined how each player in the food web (phytoplankton, herbivorous zooplankton, predatory zooplankton, prey fish) is affected by three drivers: its food supply, its predators, and environmental conditions. The models showed that all three drivers were influential. Notably, the effects of environmental conditions like turbidity (i.e., cloudiness) and flow were similar to the effects of food supply and predators, suggesting that targeted management actions may be able to achieve desirable responses within the

food web. The models also revealed that phytoplankton was often a good predictor of zooplankton, but the predictors of phytoplankton remained unclear due to limited data availability. The study lays the groundwork for developing more detailed and predictive food web models in the estuary.

The team used an “open science” framework, which was part of the curriculum taught during the NCEAS workshop, to publish the article, dataset, and analyses. More information about this workshop, its curriculum, and associated products are available on the Delta Stewardship Council’s website at <https://deltacouncil.ca.gov/delta-science-program/science-synthesis-working-group>. Findings from this project will be presented at a research symposium on May 31st at UC Davis, with the theme “Understanding Food Web Dynamics from the San Francisco Estuary to the Pacific Ocean,” jointly hosted by the Delta Science Program and the University of California Davis Coastal and Marine Science Institute (see below for additional details).

In 2023, the Delta Science Program and NCEAS again partnered to convene a synthesis working group focused on exploring the integration of human dimension and social science data into research and management decision-making. These Delta Science Program and NCEAS initiatives are productive because they bring high-quality training in data science and statistical techniques to participants and provide a focused opportunity for collaboration between scientists from federal and state agencies as well as academic scientists. For each working group, participants convene for three weeks and receive training facilitated by experts from NCEAS, after which they analyze and synthesize data using their newly developed skills to address questions important to Bay-Delta management. Another synthesis working group is planned to begin in 2025.

Delta Science Program Activities

Delta Research Awards

The 2025 Delta Research Awards Proposal Solicitation is now open for Letters of Intent. In partnership with California Sea Grant, the Delta Science Program is soliciting up to \$6 million in research projects that advance the 2022-2026 Science Action Agenda. This solicitation incentivizes social science proposals and encourages co-produced research, where information is produced by both the researchers and the communities affected by the research. The Council continues to offer optional assistance identifying tribal and/or community partners, where

researchers can submit a survey response here until May 1, 2024:

<https://www.surveymonkey.com/r/N7X8S9F>

Key dates:

Solicitation announced: April 3, 2024

First application webinar: April 19, 2024

Letters of Intent due: May 14, 2024

Proposals due: August 26, 2024

Projects start date: April 1, 2025

[March 26-27, 2024: Salinity Management Workshop](#)

The Delta Science Program held the final installment of the Salinity Management Workshop Series on March 26 and March 27. The two-day virtual workshop provided a venue for more than 100 participants to discuss tools and strategies, identify knowledge gaps, and build shared goals for adaptively managing ocean saltwater intrusion in the Sacramento-San Joaquin Delta. Day one of the workshop focused on tradeoffs involved with salinity management and who is impacted, while Day two focused on discussing modeling results that compare scenarios with different management actions and amounts of sea level rise.

Recordings are now available here:

<https://www.youtube.com/playlist?list=PLqTHClIW1Hhrv1x7DuBJaw1Somfo9S7fH>. Next steps include work on a summary white paper from the Delta Science Program that synthesizes lessons from speakers, panelists, breakout group conversations and modeling work, which is expected to be completed by December 2024.

[Call for Abstracts open for the 2024 Bay-Delta Science Conference](#)

The Call for Abstracts is now open for oral, poster, and art presentations at the 12th Biennial Bay-Delta Science Conference. The Delta Stewardship Council and U.S. Geological Survey are pleased to co-host this event at the SAFE Credit Union Convention Center in Sacramento, CA from September 30 - October 2, 2024. This year's theme – *Cultivating connections for a dynamically changing environment* – further recognizes the need for the diverse perspectives necessary to confront the multiple challenges faced in a dynamically changing environment such as the Sacramento-San Joaquin Delta. To cultivate this more holistic approach for conservation, the planning team invites submissions for both presentations as well as sessions that encompass a wide variety of disciplines, such as the use of traditional ecological knowledges, identifying contaminants within and around the

watershed, identifying the needs of a variety of species, or ways to mitigate climate change impacts. To find more information and submit an abstract, please visit the conference website: www.baydeltascienceconference.com. The deadline for submissions is May 27, 2024.

On Your Radar

2025 Delta Science Fellowship Program

The Delta Science Program and California Sea Grant are excited to announce the 13th round of Delta Science Fellowships, with support for the 2024-2026 academic years. This fellowship funds research projects of up to two years that will advance the state of knowledge underlying high priority science issues that affect the Sacramento-San Joaquin Delta (Delta) and its management as an integrated socio-ecological system. Eligible applicants include postdoctoral researchers, Ph.D. students, and master's students. The request for applications is anticipated to be released on April 30, 2024. Information about this funding opportunity can be found at <https://caseagrants.ucsd.edu/funding/delta-science-fellowship>.

2024 State of the Estuary Conference

The 2024 biennial State of the Estuary Conference, originally planned for March 12-13, has been rescheduled for May 28-29, 2024 in Oakland, CA at the Scottish Rite Center. The San Francisco Estuary Partnership (SFEP) organizes this event every two years to highlight the current management and ecological health of the San Francisco Bay-Delta Estuary. Several Council staff are participating in the conference as planning team members, session organizers and facilitators, and oral and poster presenters. More information is available here: <https://www.sfestuary.org/state-of-the-estuary-conference/>.

May 31, 2024 Understanding Food Web Dynamics from the San Francisco Estuary to the Pacific Ocean Symposium

The UC Davis Coastal and Marine Sciences Institute (CMSI) and the Delta Science Program are hosting a one-day symposium exploring food webs research from the San Francisco Estuary to the Pacific Ocean on May 31, 2024. This symposium aims to convene food web experts to discuss ongoing research, find synergies in approaches and findings, and identify information gaps, with the goal of improving ecosystem-based fisheries management. The event can be attended in-person at the International Center Multipurpose Room at UC Davis or virtually via Zoom.

Registration is now open at

https://airtable.com/appEOgQ4D9g6QsZqP/pagpUzcyBYZCyK9ak/form?mc_cid=95b4b67d11&mc_eid=UNIQID.

By the Numbers

Science Program staff will summarize current numbers related to Delta water and environmental management. The summary (Attachment 1) will inform the Council of recent counts, measurements, and monitoring figures driving water and environmental management issues.

List of Attachments

Attachment 1: By the Numbers

Attachment 2: Visual Summary of Article

Contact

Dr. Lisamarie Windham-Myers

Delta Lead Scientist

Phone: (916) 275-6888