

Advancing Interdisciplinary Research

Event Summary



Delta
Science
Program

DELTA STEWARDSHIP COUNCIL

Event Summary

In October 2022, the Delta Stewardship Council and the Bay-Delta Social Science Community of Practice (CoP) hosted a two-part event (training and workshop) on interdisciplinary research for the Sacramento-San Joaquin Delta. The event aimed to (1) share knowledge across the social and natural science communities, (2) provide examples of interdisciplinary research that could advance useable science in the Delta, and (3) overcome barriers to interdisciplinary research by spurring new relationships and exploring innovative solutions to the Delta's entrenched challenges. Training and workshop attendees were a diverse audience of over 80 participants from agencies and academia: two-thirds had backgrounds in natural science, and over half had training in interdisciplinary or social sciences.

Peruse the agenda and workshop materials in the Events section of the [CoP web page](https://www.deltastewardship.org/coop) (bit.ly/BayDelta-CoP).

Training: Intro to Social Science and Interdisciplinary Approaches

The first part of the symposium was training in the basics of environmental social sciences. The keynote speaker, Edy MacDonald, introduced several social science disciplines, methods, and examples of integrated approaches to natural resource management. For example, social network analysis can identify key stakeholders and how they interact, allowing managers to incorporate stakeholder priorities more effectively. A recording of her talk, *A quick guide to how social science research can mitigate roadblocks to natural resource management*, is available on the Council's [YouTube page](https://www.deltastewardship.org/youtube) (bit.ly/EMacDonald).

Why do we need interdisciplinary science in the Delta? The Delta is a complex, "wicked problem" where entrenched and long-standing priorities and values conflict with one-another, and interactions between biophysical and social elements in the system are not entirely understood. There are no easy solutions to the challenges at hand, so progress toward improved management requires creativity, cooperation, and conflict resolution. Getting different perspectives from multiple disciplines, forms of knowledge, and expertise can help!

Case Studies of Interdisciplinary Research

Speakers from across the country presented case studies that demonstrate how integrating social sciences into natural resource management leads to more effective and equitable policy solutions.

- Jessica Bolson, Florida International University: *Barriers and bridges to integrated water management (One Water solutions) in urban areas across the U.S.: Results from transdisciplinary participatory research conducted through the Urban Water Innovation Network*
- Robyn S. Wilson, Ohio State University: *Increasing motivation and promoting persistence in farmer conservation*
- Deniss Martinez, University of California, Davis: *We shape the land: Fire governance and Indigenous climate justice*

Recordings of all talks are available on the Council's [YouTube page](#) (youtu.be/IM8GLHO7AC0).

Workshop: Mock Proposals for Interdisciplinary Projects

Participants worked in small groups to develop mock proposals for hypothetical interdisciplinary projects that are responsive to one of the Management Needs identified in the [2022-2026 Science Action Agenda](#) (bit.ly/SAA-webpage). Some of the ideas that came out of this exercise:

- **Management Need:** *Coordination of large-scale efforts across the system*
 - **Idea:** Assess salinity management alternatives (e.g., drought barrier, restoration, flow regimes) by looking at socio-economic impacts on local communities, such as agriculture, fishing, and boating

- **Management Need:** *Multi-benefit approaches to managing the Delta as a social-ecological system*
 - **Idea:** Evaluate interactions between carbon sequestration, land subsidence, and farming choices (e.g., knowledge and economic subsidies to inform crop choices, rice growing for multiple benefits)
 - **Idea:** Study social and ecological shoreline vulnerabilities in the Delta (e.g., flood risk to housing, habitat for target species)
- **Management Need:** *Assess and anticipate impacts of climate change*
 - **Idea:** Use participatory planning to assess options for managing a hypothetical 25-year drought scenario

Delta Collaborative Groups Pursuing Interdisciplinary Work

Symposium participants heard from Delta collaborative groups that are pursuing interdisciplinary work, including:

- Lisa Wainger shared how the Delta Independent Science Board is evaluating management tradeoffs, incorporating costs and benefits to people.
- Steve Culberson presented on the Interagency Ecological Program's new focus on outreach and community input.
- Alex Thomsen introduced the Wetland Regional Monitoring Program's new People and Wetlands Workgroup, which is adding human indicators to their monitoring program for wetland restoration in the San Francisco Estuary.
- Bruce DiGennaro highlighted interdisciplinary research funded by the Collaborative Science and Adaptive Management Program to better understand the monitoring enterprise in the Delta.

To learn about interdisciplinary initiatives by other groups, see the full list of Delta collaborative science venues in the Events section of the [CoP web page](http://bit.ly/BayDelta-CoP) (<http://bit.ly/BayDelta-CoP>).

Perceptions of Interdisciplinary Work

Participants at the Training were polled on their perceptions of interdisciplinary research in the Delta:

What are the barriers...	What resources are needed...
<ul style="list-style-type: none"> • Lack of understanding of how to do interdisciplinary research (77%) • Lack of opportunities (49%) • Insufficient funding (48%) • <i>Selected less often</i>: Delta dominated by natural sciences; lack of interest; not enough incentive 	<ul style="list-style-type: none"> • Training (68%) • Funding (66%) • Collaboration opportunities (57%) • <i>Selected less often</i>: interest; demonstrations of beneficial outcomes; support from department; professional incentive
What are the benefits...	Why is it so challenging...
<ul style="list-style-type: none"> • Necessary to understand complexity and "wicked problems" • More rewarding (but also more difficult) • Essential to finding realistic approaches to resource management • Need interdisciplinary lens at start, not end, of projects 	<ul style="list-style-type: none"> • Vocabulary, methods differ across fields • Not traditionally part of training • Time-consuming • Not historically valued • Often unequal investment across disciplines • Requires long-term collaborations

What's next for interdisciplinary work in the Delta?

- **Programming:** Future events will be announced on the [CoP web page](https://bit.ly/BayDelta-CoP) (bit.ly/BayDelta-CoP) and to the CoP listserv. Contact Jessica.Rudnick@deltacouncil.ca.gov to sign up.
- **Resources:** A resource library will be hosted on the Council's [social science web page](https://deltacouncil.ca.gov/social-science) (deltacouncil.ca.gov/social-science). Help us build a repository of interdisciplinary research in the Delta by adding your projects to the [Delta Science Tracker](https://sciencetracker.deltacouncil.ca.gov) (sciencetracker.deltacouncil.ca.gov).
- **Funding:** The Delta Science Program will announce its next round of competitive research funding in 2023. Interdisciplinary and social science proposals are particularly encouraged. [Sign up for our listserv](https://lp.constantcontactpages.com/su/UZzT2rz) (lp.constantcontactpages.com/su/UZzT2rz) to be notified of funding opportunities.