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Posted Date: October 27, 2023

## **Meeting Notice of the Delta Independent Science Board**

### **Workshop: Exploring Scientific and Management Implications of Upper Trophic Level Food Webs in the Delta**

Day 1, Wednesday, November 8, 2023  
8:30 AM to 5:00 PM

Day 2, Thursday, November 9, 2023  
8:30 AM to 5:00 PM

#### **Meeting Location**

Tsakopoulos Library Galleria  
East Room  
828 I Street, Sacramento, CA 95814  
(See [parking information](#) for more details)

For the health and safety of everyone attending this meeting, masks and physical distancing are strongly recommended.

#### **Public Comments**

Information for providing public comments is at the end of this notice. Public comment may be limited to three minutes per person.

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#### **Webcast**

The meeting will be webcast and recorded. The webcast may be accessed at on [Cal-SPAN](https://cal-span.org/static/index.php): <https://cal-span.org/static/index.php>. With this option, you will not be able to provide oral comments.

### **Remote Participation Option**

To participate remotely via [Zoom](#), please provide a Zoom name and email address at [https://us02web.zoom.us/webinar/register/WN\\_DXFdGcHFS2mHr-PwEyCB7A#/registration](https://us02web.zoom.us/webinar/register/WN_DXFdGcHFS2mHr-PwEyCB7A#/registration)

After registering, you will receive an email to the email address provided with instructions to join the webcast. If you have a computer microphone, you will have the option to receive audio and provide oral comments through your computer. If not, please dial the phone number listed in your confirmation email.

Note: Accessing the Zoom webcast requires you to enter a name and email, which may be disclosed as public information.

### **Phone Only Option**

If you need a phone-only option, please call the Clerk of the Board at 916-902-6571 by 8:00 AM on Wednesday November 8, 2023.

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### **Meeting Materials**

Materials referenced in this notice are available on the Delta Independent Science Board's (Delta ISB's) [meetings web page](#) at <https://deltacouncil.ca.gov/delta-isb/meetings>. Members of the public are encouraged to visit the events web page to view the meeting materials.

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### **Purpose**

On **November 8 and 9**, the Delta ISB will host a two-day workshop as part of its [food-webs review](#). The workshop will assess the importance of food-web interactions in the Delta and help identify where improved understanding and tools (e.g., food-web models) might substantially improve predictions of an individual species' responses to environmental drivers and management actions. The workshop will inform the Delta ISB review on how understanding upper trophic level dynamics could add new capabilities to anticipate fish population changes and complement existing research on the base of the food web.

Registration is not needed to participate in the workshop, but please consider registering to attend [in-person](#) or [virtually](#) to help with planning.

This Purpose section describes the highlights. For more information about the meeting, refer to the agenda below.

## **Agenda**

The agenda items listed below may be considered in a different order pursuant to the determination of the Delta ISB chair. The times listed on the agenda are approximate only. At the discretion of the Delta ISB, all items appearing on this agenda, whether expressly listed for action, may be deliberated upon and may be subject to action.

### **Day 1, November 8, 2023**

Workshop Topic: How a better understanding of food web interactions might improve management

**~ 8:30 AM: Meeting Starts**

#### **Session 1: Setting the Stage: Why are Food Webs Important for Management in the Delta?**

1. Welcome and Declarations
2. Land Acknowledgement by Delta ISB Chair Lisa Wainger
3. Workshop Overview
4. Plenary Presentation #1: Food web science in the Bay-Delta: A complete and unbiased history by Ted Sommer (Public Policy Institute of California)
5. Plenary Presentation #2: Importance of food-webs for management and forecasting forward by Mike Chotkowski (United States Geological Survey)
6. Plenary Presentation #3: Delta discussions: Understanding the priorities for food web science and management by Lillian McCormick and Kristine Grace Cabugao (Delta ISB postdoctoral scholars via California Sea Grant)

**~ 10:20 AM: 20 Minute Break**

**~ 10:40 AM: Reconvene**

#### **Session 2: How has a Better Understanding of Food Web Interactions Improved Resource Management Elsewhere?**

7. Presentations: Examples of applications of food webs to other large ecosystems to inform decision making (moderated by Delta ISB Member Bob Naiman)

- a. End-to-end modeling reveals species-specific effects of large-scale coastal restoration on living resources facing climate change by Kim De Mutsert (University of Southern Mississippi)
- b. Linking spatially-explicit bioenergetics and foraging models to hydrodynamics to assess fish habitat quality and production by Stephen Brandt (Delta ISB Member)
- c. Climate effects on food webs and fisheries: A linked Earth System Model for the Great Lakes by Doran Mason (NOAA Great Lakes Environmental Research Lab)
- d. Using fisheries ecosystem models in the Northwest Atlantic continental shelf for management of Atlantic menhaden and their predators by Andre Buchheister (Cal Poly Humbolt)
- e. Restoration of food webs in the Columbia River Basin by Stan Gregory (Oregon State University)

**~ 12:20 PM: 1 Hour Lunch Break with Poster Session**

Workshop participants will be able to view the posters during the lunch break.

**~ 1:20 PM: Reconvene**

**Session 3: What are the important fisheries and management issues for the Delta and what do we know about food web drivers?**

8. Panel #1: Fisheries Management in the Delta

Delta ISB Member Stephen Brandt will moderate a panel discussion on what are the important fisheries management issues for the Delta and what is known about food web drivers.

*Panelists*

- Zachary Emerson (United Auburn Indian Community)
- Matt Nobriga (United States Fish and Wildlife Service)
- Carson Jeffres (University of California, Davis)
- Jim Hobbs (California Department of Fish and Wildlife)
- Steve Lindley (NOAA Southwest Fisheries Science Center)
- Matt Young (United States Geological Survey)

9. Panel #2: Ecosystem Management in the Delta

Delta ISB Member Diane McKnight will moderate a panel discussion on what are the important ecosystem management issues for the Delta and what is known about food web drivers.

### *Panelists*

- Zachary Emerson (United Auburn Indian Community)
- John Durand (University of California, Davis)
- Shawn Acuña (Metropolitan Water District of Southern California)
- Louise Conrad (California Department of Water Resources)
- Brian Mahardja (United States Bureau of Reclamation)
- Rachel Wigginton (Sacramento San Joaquin Delta Conservancy)

**~ 3:20 PM: 20 Minute Break**

**~ 3:40 PM: Reconvene**

10. Breakout Session #1

Workshop participants will break out into small groups to discuss key management issues in the Delta where an upper-trophic level food web modeling approach is critical to predicting responses to management actions or changes in environmental drivers.

11. Public Comment

**~ 5:00 PM: Recess until the next day, November 9, 2023, at ~8:30 AM**

### **Day 2, November 9, 2023**

Workshop Topic: Food webs forward: Examining new tools and models, data, and information to incorporate food web modeling into management

**~ 8:30 AM: Meeting Starts**

### **Session 4: Food Web Models and Approaches, Emerging Tools, Data Needs and Applicability for the Delta**

12. Welcome Back

13. Day 1 Recap and Day 2 Preview

14. Plenary Presentation #4: Aquatic food web approaches: A primer by Ryan Bellmore (United States Department of Agriculture)

15. Presentations: Food Web Models and Approaches, Emerging Tools, Data Needs, and Applicability for the Delta (moderated by Delta ISB Member Stephen Brandt)

- a. Traditional Knowledge surrounding food webs by Zachary Emerson (United Auburn Indian Community)
- b. E<sub>c</sub>opath With Ecosim (EwE) as a tool for fisheries management and ecological reference points by Andre Buchheister (Cal Poly Humbolt)
- c. Using advanced modules in EwE to develop spatial ecosystem models or track contaminants through a food web by Kim De Mutsert (University of Southern Mississippi)
- d. Development and application of bioenergetics models to diagnose constraints on growth, quantify predation and competition, and infer spatial-temporal distribution, species overlap, and interactions by Dave Beauchamp (United States Geological Survey)

**~ 10:35 AM: 20 Minute Break**

**~ 10:55 AM: Reconvene**

16. Lightning Talks: New Tools and Methods for Assessing Food Webs  
(moderated by Delta ISB Member Bob Naiman)

- a. Seeing the unseen: Using genetic tools to understand predation by Melinda Baerwald (California Department of Water Resources)
- b. Seeing underwater: How fish eyes can provide insight into fish food by Matt Young (United States Geological Survey)
- c. Otoliths to inform food-webs: prey, production, migration by Levi Lewis (UC Davis)
- d. Predation Event Recorders (PERs): An effective, adaptable platform for studying predation across a variety of aquatic environments by Lance Takata (NOAA Southwest Fisheries Science Center)
- e. Towards a numerical testbed for upper trophic food web dynamics with the Enhanced Particle Tracking Model by Vamsi Krishna Sridharan (Tetra Tech)
- f. Remotely sensed data for tracking macrophytes in the Delta by Shruti Khanna (California Department of Fish and Wildlife)
- g. Accessible and inter-operable datasets for food web science by Rosemary Hartman (California Department of Water Resources)

**~ 12:00 PM: 1 Hour Lunch Break with Poster Session**

Workshop participants can view the posters during the lunch break.

**~ 1:00 PM: Reconvene**

## 17. Breakout Session #2

Workshop participants will break out into small groups to discuss the following questions:

- What models and tools might be most effective in the Delta?
- What are the best time/spatial scales to consider?
- What data are needed to develop the identified models?

**~ 2:20 PM: 20 Minute Break**

**~ 2:40 PM: Reconvene**

18. Plenary Presentation #5: Team Science: Accelerating actionable knowledge and synthesis under uncertainty by Peter Goodwin (University of Maryland Center for Environmental Science)

## 19. Breakout Session #3

Workshop participants will break out into small groups to discuss and prioritize the top three things that can be done to make progress on food-web science and modeling in the Delta.

20. Closing Remarks on Workshop and Next Steps for the Review by Stephen Brandt (Delta ISB)

21. Public Comment

**~ 5:00 PM: Meeting adjourned**

## Contact

- If you have any questions, please contact the Clerk of the Board at 916-902-6571 or [disb@deltacouncil.ca.gov](mailto:disb@deltacouncil.ca.gov).
- If you need reasonable accommodation due to a disability, please contact the Delta Stewardship Council's Human Resources Office at 916-445-5511.

## Public Comments

- Members of the public shall be provided an opportunity to address the Delta ISB on any agenda items except closed session items and those items for which the public has already been afforded such opportunity at an earlier meeting.
  - In addition, comments during the Public Comment period (Agenda Item 11 and 21) shall be limited to matters within the Delta ISB's jurisdiction and not on the agenda. Reasonable time limits may be established for public comments (Government Code Sections 11125.7).

- To make an oral public comment, please complete a blue card that is available near the entrance of the meeting location and provide it to the meeting clerk or Delta ISB member at that meeting location.
- If you are on the Zoom webcast and would like to provide oral public comments, please email the Clerk of the Board at [disb@deltacouncil.ca.gov](mailto:disb@deltacouncil.ca.gov) and provide a name, organization (if applicable – not required), and the agenda item you wish to comment on. Please be on mute until prompted by the Delta ISB chair to provide your comment. If you prefer to provide written comments, please email the Clerk of the Board the message that should be read to the Delta ISB during the agenda item.
  - The Delta ISB is not responsible for unforeseen technical difficulties that may occur. The Delta ISB is under no obligation to postpone or delay its meeting in the event such technical difficulties occur during or before the meeting. In the event of technical difficulties with access via Zoom, please listen in by phone using the number that is provided to you upon registration.