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Workshop:

Exploring scientific and management implications of upper trophic level food webs in the Delta

An assessment of the scientific needs to inform management actions

Draft agenda for discussion at the Delta Independent Science Board's August 17, 2023 meeting

November 8 to 9, 2023
Sacramento, California

Two full days of presentations, panels, lightening talks, posters, and breakout groups.

Workshop Goal:

Assess the importance of upper trophic level food-web interactions in the Delta, and 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 a Delta ISB review that will explore 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. The workshop will also evaluate the degree to which the inclusion of food-web interactions across trophic levels could benefit and facilitate ecosystem management in the Delta and whether available data and science can support the development of tools such as food-web models.

Draft Agenda

Focus of Day 1: How will a better understanding of food web interactions improve management in the Delta?

Session 1- Setting the Stage: Why are food webs important for management in the Delta?

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Morning:

This session will be a series of plenary talks designed to provide a general overview of the history of food webs in the Delta, explain the potential importance of incorporating food webs into management, and present a preliminary analysis of topics of concerns and interests that stakeholders raised when discussing food webs in the Delta.

Session 2- How has a better understanding of food web interactions improved management elsewhere and how can these strategies be applied in the Delta?

Morning:

Session 2 will begin with a series of presentations on how food webs have been incorporated into management in other large, complex ecosystems. Topics include spatially explicit food web and bioenergetics modeling, climate change, invasive species, restoration, and multi-species fisheries management. Speakers will focus on how the use of food webs improved management of the ecosystem in a way that other models or strategies could not and recommend strategies that can be employed in the Delta.

Afternoon:

Session 2 will continue with a series of moderated panels focused on how food webs can be incorporated into fisheries management and ecosystem management. Panelists will identify important issues in the Delta and help identify potential applications and limitations to using a food web approach, and how food web knowledge could enhance management in the Delta.

This session will conclude with breakout discussions to help identify the key management questions in the Delta where an upper trophic level food web approach is critical to predicting responses to management actions or environmental drivers.

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Focus of Day 2: Examining new tools and models, data, and information needs to incorporate food web modeling into management in the Delta.

Session 3- Food web models, emerging tools, data needs and applicability for the Delta

Morning:

Session 3 will begin with a plenary talk on the diversity of approaches for food web science and modeling. This will be followed by several presentations on the specifics of different types of large-scale food web models or approaches. These talks will focus on the benefits and limits of the model, the data needs, and how each could be incorporated into Delta management.

A series of lightning talks will introduce some newer tools and methods that can be used to understand food web dynamics. Speakers from multiple groups and agencies within the Delta will give a quick overview of the technique, how it is currently being employed, and future ideas or development of this tool for food web applications.

Afternoon:

The afternoon will begin with a breakout session to discuss which models and tools may be most effective to the Delta. The discussion can also include the relevant temporal/spatial scales for food web modeling or monitoring in the Delta and any associated data needs.

Attendees will then listen to a plenary talk on the role of information management and synthesis in the Delta, and the importance and feasibility of implementing some of the topics discussed at the workshop. This talk was designed to inspire creative thinking for the final breakout session, where participants will discuss the main priorities and action items to make progress on food web science/modeling in the Delta.