



SACRAMENTO - SAN JOAQUIN

DELTA CONSERVANCY

A California State Agency

Sacramento-San Joaquin Delta Conservancy Comments on the Delta ISB Food webs review.

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disb@deltacouncil.ca.gov

June 13, 2024

Delta Independent Science Board

Delta Stewardship Council

715 P Street, 15-300

Sacramento, CA 95814

Dear Delta Independent Science Board,

Delta Conservancy staff have reviewed the Delta Independent Science Board's (ISB) draft review of "Exploring scientific and management implications of upper trophic level food webs in the Delta" and we appreciate the opportunity to provide feedback on the document. We agree with and support the recommendations provided in the assessment, but we believe the review would be improved by a more detailed discussion of restoration types; additional consideration of other changes to land use, particularly rice cultivation; and recommendations for how to advance food web science while balancing funding and regulatory constraints.

First, the discussion of restoration's impacts on Delta food webs could be strengthened by more specifically detailing the potential impacts of different types of restoration. The review currently discusses restoration at a very general level and acknowledges current and future restorations are likely to affect food webs in the Delta. Tidal wetland restoration is considered in the current draft, but the impacts of both tidal wetland restoration and managed wetland restoration on Delta food webs are actively being studied. Tidal wetland restoration has been shown to benefit upper trophic level food web support through production of prey items and the creation of foraging habitat, especially for juvenile fishes (Colombano 2019, Colombano et al. 2021). Due to land subsidence, many areas in the Delta are not at tidal elevation and may be restored to managed wetlands. Studies have suggested managed wetlands may provide food web support for upper trophic levels (Aha et al. 2021), but further study is needed to understand how broadly applicable these findings may be in the Delta. In both cases of wetland restoration, the timescales over which these benefits develop and magnitude of their impacts are currently being studied. Floodplain restoration and riparian habitat restoration are also likely to have their own impacts on the Delta food web. To the extent that the impacts of specific restoration types are known, a specific discussion of these impacts would strengthen the review. Likewise, providing a list of the gaps in current study would provide strong direction for future Delta science and better represent the overall state of the science.

Second, the review could be strengthened by including the impacts of land use changes beyond restoration. For example, there is much focus in the Delta on the potential conversion from row crops to flooded rice cultivation. The connection between rice cultivation and the Delta food web has been explicitly studied as part of the Nigiri project (<https://www.nigiriproject.com/>), which found young fish foraging on the rice field surface exited the Delta with larger body sizes than those that did not spend time on fields (Katz et al. 2017, Jeffres et al. 2020). The paper by Jeffres et al. (2020) is cited in the current draft, but only as it related to detrital support of the food web and not in the broader context of the study. Additionally, the review currently outlines the potential impacts of birds on the Delta food web, rice fields have the potential to provide increased bird habitat after harvest or during fallowing (Golet 2018). Programs funded by California Department of Fish and

Wildlife and implemented by The Nature Conservancy are looking to pay farmers to shallowly flood additional fields for bird habitat across the Delta (<https://birdreturns.org/program/farmlands/>). We believe these examples highlight the importance of land use changes on agricultural fields to the Delta food web and food web science in the Delta.

Last, the review could be improved by providing a more detailed ranking of recommendations and next steps. The review acknowledges that many recommendations have been made across multiple ISB products, but capacity and funding limit the ability to implement these recommendations. Future reviews could provide additional context about the relative importance of the different recommendations from the perspective of the Delta ISB. It is the mission of the Sacramento-San Joaquin Delta Conservancy to protect, enhance, and restore the Delta's economy, agriculture, working landscapes, and the environment in partnership with local communities. The Delta Conservancy and Delta community would benefit from additional insights from the Delta ISB on how to advance food web science while achieving ambitious restoration goals, using limited funding, and navigating new or existing regulations.

If you have questions or require additional information, please contact me at (916) 634-3682 or rachel.wigginton@deltaconservancy.ca.gov.

Sincerely,

Rachel D. Wigginton

Senior Environmental Scientist

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