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Summary of July 2019 Planning Session on Future Reviews

Draft

Delta Independent Science Board

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Background

The Delta Independent Science Board (Delta ISB), which provides oversight of programs that support adaptive management, is in the process of brainstorming ideas for future reviews, as its current reviews are expected to wrap up by the end of 2020. Currently, the Delta ISB meets its legislative mandate by reviewing “programs” by thematic areas, which tends to follow the organization of the Delta Plan. However, the Delta ISB has also undertaken other thematic areas based on feedback or requests from the Delta community.

To help brainstorm ideas and priorities, the Delta ISB had its first planning session at its meeting on July 11, 2019. Major ideas that were discussed at the planning session are summarized in this document, which will be discussed further at the Delta ISB’s meeting on September 12, 2019.

Restoration and Water Quality II

During its [planning retreat in 2017](#), the Delta ISB identified the following major categories for review: (1) the Interagency Ecological Program (IEP), (2) ecosystems, (3) water supply reliability, (4) restoration, and (5) water quality. Descriptions were drafted for each of these categories, and the Delta ISB decided to move forward with the first three ideas in 2017. In July 2019, the Delta ISB discussed whether another restoration review, which would build upon the Delta ISB’s 2013 restoration review, and another water quality review, which would look at constituents that were not covered in the Delta ISB’s 2018 water quality review, should be priorities.

Restoration

Although the current ecosystems review will look into the effects of non-native species on ecological restoration, there is still interest to pursue a review on restoration that takes a broader view than just non-native species. Restoration was one of the very first thematic reviews by the Delta ISB, and the Delta ISB will likely take a very different approach to the review if it were done today. If the Delta ISB decides to revisit restoration, there will be an opportunity to see how the Delta ISB recommendations were addressed, whether they are still relevant, and explore new ways of thinking on restoration in the context of novel ecosystems, resilience, and field experimentation.

Water Quality

As the scientific basis for managing salinity, dissolved oxygen, and temperature has been covered in reviews by other entities, a review by the Delta ISB on these constituents is of lower priority. However, the Delta ISB could potentially scope out a more mechanistic review that focuses on water quality and hydrodynamic modeling, or other aspects of modeling (e.g., biogeochemical).

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During the July 2019 planning session, there were three individuals who provided public comment and all were supportive of a modeling review with a suggestion to focus on validation for all of the models that are used to inform water project operations.

Other 2017 Retreat Ideas

During the planning retreat in July 2017, the Delta ISB discussed the idea that each new major thematic review should consider including the following topics: climate change impacts, connections upstream and to the Bay, modeling and forecasting capabilities, state of science integration, broad science vision on the topic, uncertainty, and science and social system linkages. Many of these topics span across thematic areas with the idea that these topics could eventually be turned into its own thematic review. Some of these ideas re-emerged during the 2019 discussion. Ideas are below.

- *Climate Change*: Based on the recent discussions on rapid environmental change, it may be useful for the Delta ISB to conduct a review on climate change, sea level rise, or adaptation science. A climate change review could build off the Delta Plan Interagency Implementation Committee's efforts to develop a science needs assessment centered on climate change, and the Delta Stewardship Council's efforts to develop a Climate Change Vulnerability Assessment and Adaptation Strategy.
- *Predictive Capabilities*: Based on [Tonkin et al. \(2019\)](#), there is a need to move beyond monitoring to understand the ecosystem and develop better forecasting tools. The Delta ISB could pursue a review that looks at the predictive capabilities over a range of topics and identify where the gaps are.
- *Delta Connections Upstream and to the Bay*: This has been a huge area of interest for the Voluntary Agreements.

New Ideas

- *Emerging Tools*: The Delta ISB can look into how new and emerging tools can be used to support adaptive management in the Delta. New tools to look into include genomic tools, artificial intelligence, decision-support analysis, and risk assessment.
- *Endangered Species Act Regulations*: There may be some value in reviewing the Endangered Species Act regulations, and its consequences with managing species and water supply reliability. The Delta ISB review could explore solutions to reduce conflicts in the Delta.
- *Data Management*: This review could focus on how data are collected and managed in the Delta to inform adaptive management. A recent article by [Pendelton et al. \(2019\)](#) looked at the challenges of data management, sharing, and analysis to inform management of ocean ecosystems. The article provided solutions to overcome these challenges and how to make better use of all the collected data. A similar review could be pursued in the Delta.
- *Socio-economic Issues*: One of the biggest challenges with the monitoring review is framing up the scope of the review in terms of the socio-economic components

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of monitoring. There is an opportunity to explore issues not covered by the monitoring review or topics that did not end up being in the final report of the Delta ISB's review of the Delta as an evolving place. There is some unused materials from the Delta as an evolving place review that could be used to scope out a review on socio-economic issues.

- Risk Reduction: There is much more to Chapter 7 of the Delta Plan ("Reduce Risk to People, Property, and State Interests in the Delta") that goes beyond what was covered by the Delta ISB's levees review in 2016.
- Resource Use: Most of the Delta ISB reviews have either focused on how well a tool is applied in the Delta (e.g., adaptive management, monitoring) or on ecosystem stressors. Common stressors include: pollution, invasive species, habitat alteration, climate, resource use, and extreme events. At this point, the Delta ISB has not covered resource use (e.g., fisheries), extreme events, or climate.
- Extreme Events: See description above.

Approach to Reviews

In its early years, the Delta ISB decided to review "programs" by thematic areas since it would not be feasible to review the numerous programs that support adaptive management of the Delta once every four years. When the Delta ISB started with these thematic reviews, which aligned with the chapters of the Delta Plan, the idea was to eventually revisit a completed review, to ensure programs are reviewed once every four years. There is interest to better quantify the "programs" that have been covered in past reviews, and better track this for current reviews. Some programs like IEP have been covered in multiple thematic reviews, so some "programs" are likely covered once every four years.

Another reason why "programs" are being reviewed by thematic area is that most agencies did not have science plans at the time. Many science plans have been developed since 2010, and the Delta ISB may want to consider changing its approach by reviewing agency science plans once every four years. Agencies that do not have science plans will need to develop them.

Links Referenced

1. Planning Retreat in 2017: <http://deltacouncil.ca.gov/pdf/isb/meeting-materials/2017-09-09-disb-future-review-ideas.pdf>
2. Tonkin et al. 2019: <https://www.nature.com/articles/d41586-019-01877-1>
3. Pendelton et al. 2019: <https://academic.oup.com/icesjms/advance-article/doi/10.1093/icesjms/fsz068/5480138>