DRAFT (DO NOT CITE)

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1. Approach by the Delta ISB for reviewing the Draft 2026 Delta Science Plan

Each member of the Delta Independent Science Board (Delta ISB) reviewed the draft 2026 Delta Science Plan independently, with some members focusing on specific areas of the plan that aligned with their expertise. The questions posed by the Delta Science Program were considered in the review process. The Delta ISB notes that overall, the document is well structured and presents a concise action plan based on the four "Grand Challenges". The process of developing the plan is also clearly explained. Below, we organize our general overarching feedback around the key questions, and then provide more detailed recommendations, organized around each of the sections of the plan. Detailed editorial comments provided by individual ISB members are presented at the end of this document.

2. Overarching feedback:

The Delta ISB notes that the comprehensive planning process used to develop the draft 2026 Delta Science Plan is evidence of the Delta Science Program's ability to: (1) engage the broad spectrum of scientific interests and large number of organizations, (2) synthesize diverse ideas into a concise and clear call-to-action, and (3) demonstrate progress in the understanding of a complex and dynamic socio-ecological system. In reviewing the draft 2026 Delta Science Plan, the Delta ISB recognizes that, given the program's limited resources, the plan relies on clear logic and justification to effect change and guide future investments. This Delta Science Plan thus is a cornerstone for future progress towards the coequal goals for the Delta.

a) Is the plan bold, flexible, and forward looking?:

Overall, the draft 2026 Delta Science Plan's Grand Challenges are bold, flexible and forward-looking. In particular, the Delta ISB commends the inclusive process and emphasis on holistic approaches, social science integration, and collaboration. The draft Delta Science Plan also highlights a range of actions that support flexibility, including actions such as horizon scanning, scenario planning under radically different futures, integrated modeling, and the use of Traditional Knowledge. The integration of a social-ecological framework throughout the draft Delta Science Plan

represents a bold new direction that will likely ensure that the plan is addressing emerging societal and environmental conditions.

While the Delta ISB supports the plan's boldness in recommending better integration of social science into the Delta Science Enterprise, the plan could be more focused with respect to the types of questions and specific knowledge gaps in the Delta which require social science. For instance, the social science disciplines and methods required for understanding land-use changes in the Delta are quite different from social science approaches needed to understand the governance system (and how well it is coordinated). Likewise, very different social science disciplines and methods are needed to understand the political dynamics and preferences of key decision-makers in their support or opposition to the various solutions to salinity intrusion in the Delta compared to the disciplines for understanding the costs and benefits of those solutions. Given that the key questions that can be informed by social science in the Delta are vast, one path to success may be to start by identifying known problems to which social science can contribute and prioritize those problems.

The plan's effort to better understand and incorporate Traditional Ecological Knowledge and other "ways of knowing" is also bold. However, additional recognition of the long-term view may be needed to build a well-trained scientific community (e.g., starting with young scientists) with training support from tribal organizations, agencies, academia and non-governmental organizations (NGOs). Elements of these supporting programs are distributed throughout the plan, but perhaps a specific action, guided by tribes, would inspire the science community to consider elements where their organizations could contribute or show how their institutional efforts provide opportunities to contribute to this important pathway.

In terms of the draft Delta Science Plan's flexibility, the targeted funding opportunities exist and can meet this goal to some extent. In addition, Action 2.6 calls for "more responsive and targeted funding structures", which is essential for responding to challenges in a flexible manner. The Delta ISB encourages efforts to maintain trust in these responsive funding opportunities, by including some wording on criteria for the selection process, e.g. "…. while maintaining a rigorous selection process/defined selection criteria" (page 39, Action 2.6).

The Delta ISB recognizes that one strength of the draft Delta Science Plan is the listing of multiple actions to foster collaboration. At the same time, however, the Delta ISB notes that the draft Delta Science Plan is not so as bold as to envision pathways toward a more coordinated and system-focused science governance. Such an approach was advocated in the 2019 Delta ISB Memo to Delta Plan Interagency Implementation Committee[1] that was based on draft 2019 Delta Science Plan review. This approach can help address many challenges facing the Delta, such as severe drought, or extensive hazardous algal blooms. For example, the memo called for "a Joint Powers Authority (e.g., the Southern California Coastal Water Research Project and the San Francisco Estuary Institute/Aquatic Science Center) and/or a system of problem-focused joint science centers that involve experts from a variety of agencies, universities, and NGOs." The Delta ISB recognizes that such goals have been the focus of the Science Needs Assessment and Delta Science Funding and Governance Initiative in 2019, but a path forward was not advanced through those efforts. Still, building a cohesive vision for a governance system that will enable the bold approach envisioned, while promoting effective resource allocation, remains important. The potential benefits of having an established framework in place may be increasing with the increasing pace of environmental change.

The plan also could be more forward-looking by recommending the types of analytical tools or modeling approaches that might be needed to sustain momentum and action on the plan, and even beyond the 5-year time frame of the plan. Additionally, the next iteration of the Science Action Agenda could be used to offer specific examples of the changes needed in monitoring, analysis, and modeling of Delta systems to ensure alignment of the Delta Science Enterprise with the draft Delta Science Plan.

b) Are the actions appropriate, actionable and feasible?

Appropriate: The actions identified in support of the Grand Challenges generally are appropriate, although some important actions and focal areas are missing or

[1] Delta ISB. 2019. Urgency & Opportunities for Improving Delta Interagency Science & Technical Integration. Memo to the Delta Plan Interagency Implementation Committee. Available at https://deltacouncil.ca.gov/pdf/isb/products/2019-02-11-isb-letter-to-dpiic.pdf

underrepresented. For instance, establishing and maintaining good conditions of the land and hydrology of the Delta, and the conditions of the levees (salinity, loss of water supply) all are essential to achieving the coequal goals and maintaining the ecosystem (such as those associated with methylmercury exposure, wetlands, and salinity). Yet, actions related to advancing the science of levee vulnerability and maintenance are not identified in the draft Delta Science Plan.

Another underrepresented topic in Grand Challenges 1 and 2 are the issues surrounding "Data Accessibility". These issues overlap with Grand Challenge 3 (information flow). The Delta ISB encourages greater emphasis on consolidating data from different databases and presenting these data resources in ways that managers and non-experts can understand and work with.

The Delta ISB also has some concern that some actions drift into policy prescription, which should be moderated. Careful framing of science as supporting decision-making rather than directing policy may be needed. Alternatively, using science-forward language like "support" or "inform" instead of "implement" or "require" may be helpful.

Actionable: The actions in the draft Delta Science Plan generally offer useful guidance for the science community in the Delta. Nonetheless, the lack of specificity on responsible parties for the actions raises questions about how to ensure accountability and ensure likely implementation. The Delta ISB recommends a more explicit acknowledgement of how to operationalize actions in the draft Delta Science Plan and connect the actions in the Plan to implementation.

Feasible: The plan needs to balance a bold vision with feasibility. Feasibility could be more clearly demonstrated by including additional details such as: (1) explicitly identifying how responsibility for plan implementation will be determined (e.g., through the Science Action Agenda or other means); (2) describing how each action connects to the Science Action Agenda and/or funding opportunities; and (3) specifying both short- and long-term milestones.

c) Are Delta ISB review and product findings sufficiently leveraged?

The plan is strong in acknowledging Delta ISB reviews and input from the Delta ISB is recognized in several places through references to specific Delta ISB products, which is encouraging. The draft Delta Science Plan contains actions to strengthen the role of social sciences, communication and collaboration, monitoring, data management and the use of more holistic approaches. Findings of the Delta ISB's Decision-Making under Deep Uncertainty Review[2] are represented by actions under Grand Challenges 2 and 3. In expanding the emphasis on the physical and hydrologic science needed to protect the Delta, the draft Delta Science Plan could more clearly identify priorities highlighted in the Delta ISB's draft Subsidence Review.

Overall, the draft Delta Science Plan does not provide explicit detail tracing the proposed actions back to those reviews for each Grand Challenge. One approach to strengthen the draft Delta Science Plan would be to add, as a resource or appendix, a one- to two-page crosswalk linking Actions and Resources to key Delta ISB findings, allowing readers to clearly see how previous and ongoing Delta ISB reviews have helped shape the actions in this draft Plan.

d) How should progress toward achieving the plan actions be tracked and shared?

An approach to evaluating the performance of the plan is needed, including performance evaluation metrics, reporting, and longitudinal tracking of science initiatives. This information could be connected to the Delta Science Tracker and the evaluation of the Science Action Agenda implementation. One approach is to create a "Public Dashboard," such as an expanded version of the Delta Science Tracker, that presents the status, key outputs, and a narrative describing how each Action and Grand Challenge is influencing system management. In addition, regular reports published in other venues that track Delta science (e.g., in Maven's Notebook, the State of Bay-Delta Science, and peer-reviewed publications) should

[2] Delta Independent Science Board 2024. Understanding Decision-Making under Deep Uncertainty. Report to the Delta Stewardship Council. Sacramento, California. Available at https://www.deltacouncil.ca.gov/pdf/isb/products/2024-10-02-isb-dmdu-seminar-synthesis.pdf

be continued and encouraged. Publications in journals that are read by environmental managers should be targeted.

e) Do the current momentums accurately reflect ongoing or planned efforts and any that are missing?

The "Current Momentum" examples are quite useful and important for establishing the feasibility of the actions. Each action is presented in a logical and easy to follow manner (action, current momentum). Because many of these actions (particularly trust building in the social context) will take time to achieve, it is worthwhile to note progress and intentions. Given that these examples are not representative of the full suite of activities that might be ongoing, the Delta ISB encourages a revision to relabel these as "foundational examples." If available, it would be helpful to summarize any further steps being taken or planned for each action, i.e. how the "current momentum" will be carried forward. Efforts should be made to begin to systematically track the examples (e.g., like a portfolio), which could be integrated with the tracking efforts described above.

3. Section-specific feedback

a) Grand Challenge 1

- A little more information on why this grand challenge (Scientists and managers must anticipate a world in which environmental conditions and regulations may be fundamentally different from those faced today) is so hard and what it will take to solve would be useful. Will proposed action, if all successful, solve the challenge? If not, what else will be needed?
- Grand challenge #1 has no action for funding but all others do. It must be a priority to get good forecasts of likely effective mitigating actions to take soon so that they can be enacted before the rapid acceleration in flooding, droughts, and sea level rise predicted to occur around 2050.

ACTION 1.1: Support the ongoing shift from single species to holistic monitoring and management of ecosystems

- **What steps should be taken to support a more holistic ecosystem approach?** Recent advancements include the approach to the Summer-Fall

Habitat Action. A more integrated hybrid modeling-monitoring strategy could be used that allows concurrent adaptation of both the models to be enhanced while the models are used to design specific monitoring plans for specific studies or refine the monitoring programs.

- The section suggests shifting to holistic monitoring and management away from single-species management. Single-species management is not going away anytime soon. Both holistic and single-species management can occur simultaneously. Something seems missing about framing the monitoring need as multi-species and larger scale. The lesson learned from the Chesapeake Bay is that we need to be monitoring in the places that drive conditions in the waterbody. In the Chesapeake Bay, capturing drivers required monitoring water and habitat conditions in smaller tributaries. In the Delta, it might mean something similar or it might mean increasing spatial resolution of waterbody monitoring to better understand variability.

Current Momentum

- It may be a good idea to include a definition of "ecosystem function", or clarify how this focus does not contradict the need for protecting endangered species. Otherwise, it could easily lead one to argue that individual species are not needed to maintain ecosystem function.

ACTION 1.2: Support horizon scanning to detect and understand emerging signals

- The text needs to more clearly connect horizon scanning to science and management. Some people are always horizon scanning, but that information often is not reaching people who need that information, or the management processes are reticent to make changes. For example, although it was known that snowmelt runoff would be reduced after an extended drought, that knowledge was not incorporated into water infrastructure operations. **Perhaps you could resolve this problem by adding something to Section 1.3 about considering information from horizon scanning as inputs to models.**
- This section states that horizon scanning is useful for anticipating issues concerning emerging contaminants and invasive species, but provides an example from climate science (where models tend to be more advanced).

- We will increasingly see things that haven't occurred historically or in deeper paleo records. Devising scenarios will require more than extrapolating or sampling from observations. That would be part, but also require theory-based methods that can go beyond observations with some reliability.

Current Momentum

- ArkStorm 2.0 is used as an example of progress. The authors of the draft Delta Science Plan should consider describing how this valuable planning tool is or could be linked with the Delta Stewardship Council's plans to develop a Delta Flood Risk Model or to the Central Valley Flood Protection Board strategy and tools. Are these modeling initiatives complementary and mutually supportive or could improvements be made to improve consistency and efficiency?

ACTION 1.3: Strengthen links between models and data for more streamlined and informed decision-making

- This action has been explored for almost two decades with significant support across agencies. Can the Science Plan be more specific to ensure this potentially transformative concept keeps momentum? The recent 2025 National Academies of Sciences, Engineering, and Medicine review[3] on the long-term operations of the Central Valley Project and State Water Project highlighted the need for a comprehensive feasibility study steered by the key action agencies.
- This action is little unclear in terms of what it means to strengthen links between models and data for more informed decision-making.

Current Momentum

- The definition of a Collaboratory is provided but no information is given on whether this is being established or planned for the future. What is the status of efforts to get a Delta collaboratory running? Please include information on the current status.

[3] National Academies of Sciences, Engineering, and Medicine. 2025. *Review of the Long-Term Operations of the Central Valley Project and the State Water Project*. Washington, DC: The National Academies Press. Available at https://www.nationalacademies.org/publications/29130

ACTION 1.5: Improve connectivity between executive, management, and staff/scientist levels

- A detail that might be added here, or perhaps under Action 1.6, is how developing shared performance metrics can improve such communication. If scientists learn how decisions are made, they can package their results into the most relevant indicators.
- Consider whether this action - "improve connectivity between exec and staff scientists" belongs under Grand Challenge #3, which is about the flows of communication between the science community and decision-makers.

Current Momentum

- FloodMAR is doing this really well by using thoughtful indicators to summarize how their program is likely to affect water deficits. You would have to ask them whether they arrived at these indicators by discussing needs with managers.

b) Grand Challenge 2

ACTION 2.1: Expand adaptive monitoring and management

- Specifying where and how adaptive monitoring and management needs to be expanded might be helpful. The Delta ISB's Monitoring Enterprise Review (2022)[4] also recommended an adaptive monitoring framework that is more specific to monitoring than the general adaptive management cycle, which could be referenced or integrated here as well.

Current Momentum

- Please define the term "water quality" in this context. It sounds as if this program only looks at flow/salinity.

ACTION 2.2: Invest in enhanced tools and expertise in cutting-edge technology to anticipate near-future conditions

- Forecast-Informed Reservoir Operations (FIRO) has been used on small systems and illustrates the value of improving linkages between

[4] Delta Independent Science Board. 2022. Review of the Monitoring Enterprise in the Sacramento-San Joaquin Delta. Report to the Delta Stewardship Council. Sacramento, California. Available at https://deltacouncil.ca.gov/pdf/isb/products/2022-03-22-isb-monitoring-enterprise-review.pdf

observational data, modeling and providing information in a timely and relevant manner. The next step in this technology would be to look at larger, more complex regulated systems. For example, the benefits associated with a more flexible approach to the water year classification and the constraints imposed on water managers by an inflexible 'step-function' change between designations. Could a more data-driven approach result in greater benefits to both water deliveries and species recovery?

ACTION 2.3: Support scenario-based models that allow us to test management interventions that consider radically different future conditions

- This wording is a bit awkward. We suggest this alternative text:
    - Uncertainty surrounding future environmental, social, and economic conditions strongly influences how decisions are made and how well those decisions hold up over time. Deep Uncertainty refers to unpredictable events or system variability that cannot be reliably described with existing data, models, or scientific understanding. When probabilities of uncertain events cannot be estimated, they may be omitted from research and planning. Tools for Decision-Making Under Deep Uncertainty (DMDU) assist agencies in planning more effectively for the future by helping to avoid costs associated with being underprepared for an event. While DMDU approaches cannot eliminate harm entirely, they strengthen preparedness and improve recovery rates by equipping decision makers to respond more effectively when challenges arise. A central DMDU approach is using scenarios to explore a wide range of possible outcomes to evaluate when a management strategy may fail and to include risks that may underestimated or omitted, often due to common cognitive biases (e.g., normalcy bias, optimism bias). As highlighted in Action 1.2's Current Momentum, ARkStorm 2.0 is an example of scenario planning that was used to inform management changes that improve disaster preparation and response.

Current Momentum

- Perhaps the ARkStorm 2.0 example (Action 1.2) would be better placed as an example of ongoing work (momentum) in this action item, rather than under 1.2 (where it didn't match well with the focus of the action).

ACTION 2.4: Support actions to cut green tape and streamline decision-making practices

- Could specify how the green tape streamlining relates to science better. As is, the recommendation feels more policy focused than science focused.

ACTION 2.5: Investigate mechanisms of sharing information more efficiently and effectively

- What does it mean to "investigate" mechanisms of sharing information? The discussion of this action points to communication and new ways or releasing information. This is more pointed than simply "investigating". Could this point be made stronger in the action title?

ACTION 2.6: Implement more responsive and targeted funding structures

- It would be important to insert some wording on criteria for the selection process, e.g. "…. while maintaining a rigorous selection process/defined selection criteria". Are there clear selection criteria for such directed funding? If so, please include the information.

c) Grand Challenge 3

There are inherent issues with the polycentric structure beyond insufficient information sharing, as described in the Introduction. Should part of our science goals focus on investigating potential remedies to these deficiencies?

ACTION 3.1: Support free and open data

- There is overlap with Action 2.5, which could be cross-referenced here. Creating and maintaining easy-to use databases/data dash boards for monitoring data (of all kinds) requires funding, which is often scarce in monitoring programs. We recommend mentioning mechanisms (if they exist) for funding such work. For example, how is the California Water Data Consortium (a non-profit org.) funded?

ACTION 3.2: Support collaborative venues for efficient flow of information

- This action points to "promoting cross-agency and cross-disciplinary collaborative venues for mutual learning." However, as shown in the network analyses in the appendix, we have a lot of collaborative venues in the Delta. Rather than simply "promoting" them, we need more information on where the collaborative venues are working, what gaps exist in the scientific disciplines that these venues engage in, and how well they are coordinating.

ACTION 3.4: Improve social science literacy

- This action needs to be more specific about who needs to improve social science literacy and for what questions. We would argue that you need to improve social science literacy at the highest levels of management, not only among social and ecological scientists, as the text suggests. People who control funding must understand the promise and the limits of social science research. For that reason, we are not sure you can use the community of practice (CoP) as an example here, but perhaps it is merely the description that needs to change. The CoP would only improve social science literacy if it were engaging people other than social scientists. So, either there needs to be managers or ecologists involved, or there have to be presentations or products that are reaching those folks. We know the group was successful at attracting non-social scientists early on, but we don't know the current status.

ACTION 3.5: Use social science data and disciplines to inform management decisions

- Under this action, it may be beneficial to highlight the role of social science in understanding behavioral drivers and in designing incentives for change. Such efforts may require interdisciplinary teams of social scientists (anthropologists, economists, governance and policy experts) and biophysical scientists (ecologists, engineers) to design approaches.
- It should be mentioned in in the longer text that social scientists should be engaged when deciding which social science is relevant to a management question.
- The wording of this action title is awkward. We suggest you highlight the use of existing knowledge here and elsewhere talk about supporting social science that supports management. Some ideas:

- Use insights from social science disciplines and data to inform management actions
- Invest in social science that supports management, including adaptive management

The second point recognizes that we haven't used social science in many actions and we could target research to programs that aren't working as intended. However, the more general statement under Action 3.7 does cover #2, so if generality is preferred, then that works too. We should clearly prioritize social science that addresses known problems before we invest in basic research that would certainly be useful but might have only indirect effects on management actions.

ACTION 3.6: Proactively identify opportunities to leverage independent scientific peer review processes to enhance the scientific rigor, transparency, and credibility of science underpinning management and policy decisions

- The peer review process by the Delta Science Program is well established, high quality, trusted and an outstanding service for the State of California. Due to very short timelines, some recent reviews have been conducted as individual written reviews in the same manner as a journal article. There is no question that these reviews have also been of the highest quality, but the Delta ISB would encourage the agencies requesting reviews and the Delta Science Program to use public meetings and opportunity for internal interactions (virtual or in-person) between reviewers whenever possible. Virtually every action in the Delta and its watershed cross multiple disciplines and there is much to be gained from dialogue between the discipline specific experts. Similarly, the scientific panels with opportunity for public input ensures transparency and engagement of those entities affected by the science.

ACTION 3.7: Increase funding opportunities and capacity for social science research and collaborations

- The Delta Science Program and the science community have made major steps in integrating social sciences to the earth sciences. An exemplar project is provided to illustrate this Action. However, broad metrics should be

developed to track the progress and changes as a result of the *Social Science Strategy for the Sacramento-San Joaquin Delta* (May 2020) and the establishment of the *Community of Practice for the Social Scientists working in the Delta* (2021). These metrics should ensure social sciences are meaningfully embedded and not an after-thought or separate element of the research activity.

d) Grand Challenge 4

ACTION 4.4: Build trust through intentional and reciprocal working relationships

- The Delta Stewardship Council should be recognized for both initiating and the subsequent leadership role in developing the position paper on tribal and environmental justice in the Delta[5]. This is a significant step forward and an important question is how can the science community and Delta scientific enterprise respond to the recommendations made in this seminal position paper - specifically in support of Strategy 1b: *Create a more inclusive workplace through creative and equitable recruitment and retention, building staff capacity and literacy on equity and tribal and environmental justice, and using inclusive language.* Specifically, this action could promote long-term strategies for enhancing the workforce in science and environmental management. Despite the deep ties and cultural reliance on the natural environment, indigenous people continue to be proportionally among the most under-represented ethnic group in PhDs awarded in the earth sciences and environmental engineering and this dismal statistic shows little sign of improving. For example, in 1999 only 0.7% of all PhDs from accredited universities in the US were awarded to American Indian or native Alaskans[6] but 25 years later, in 2024, this proportion had dropped to 0.36%[7]. According to the 2020 U.S. Census about 2.9% of the population identifies as American Indian or Alaska Native (AI/AN). In specific disciplines, this disparity is even more marked. For example, in 2024 only one AI/AN PhD graduated in the geosciences, atmospheric and ocean sciences down from 6 in 1999. Addressing this challenge and ensuring the science leadership of the future represents all communities, knowledge sources and cultural nuances will necessitate a long-term view to ensure the science community reflects the

[5] Delta Stewardship Council. 2025. Tribal and Environmental Justice in the Sacramento-San Joaquin Delta: History, Current Perspectives, and Recommendations for a Way Forward.
[6] Adopting the terminology of the US Census and NCSES
[7] National Center for Science and Engineering Statistics, National Science Foundation, 2024. Survey of Earned Doctorates. Table 1.11. www.ncses.nsf.gov/surveys/earned-doctorates/2024.

population of the US (for example: Thomas and Gion, 2021[8]). The scientific community has an important role in helping create opportunities for mentorship, training at all levels from 8th grade to postdoctoral fellows. This cycle of learning, culminating in programs such as the National Science Foundation's Alliances for Graduate Education and the Professoriate (AGEP) program or Science/Policy Fellowships requires the support of tribal organizations, agencies, academia and non-governmental organizations. Elements of these supporting programs are distributed throughout the Science Plan but perhaps a specific Action, guided by tribes, would inspire the science community to consider elements where their organizations could contribute or show how their institutional efforts provide opportunities to contribute to this important pathway.

- For the action title, build trust among whom? Where is trust a problem related to the science enterprise and traditional knowledge?

ACTION 4.5: Embrace more ways of knowing

- "Embrace more ways of knowing" feels vague and not intuitive for how to translate this into Delta science.
- Something that may be missing here or possibly in another action under Grand Challenge #4 is the idea of bringing communities in early in decision processes such as when options are first being created. The Current Momentum example reinforces the idea that tribal representatives can be brought in late in the process to "weigh in" rather than being involved early. In our discussions with tribes, this idea of being at the table when projects are first imagined has been a common concern.

e) Appendix A: Implementation successes: Status of 2019 Delta Science Plan and relevant outcomes

Overview

Appendix A of the 2026 Draft Delta Science Plan provides selected examples of progress on actions identified in the 2019 Delta Science Plan, but does not attempt to be comprehensive across the entire scientific enterprise. As effective as Appendix A is at showing significant progress towards the goals laid out in the 2019 Delta Science Plan, we had a number of related questions about program

[8] Thomas, A. and S.S. Gion, 2021. Nation Building in STEM through Relationships, Education and Research. Journal of American Indian Education. 60(3). pp 72-94.

performance that are not answered by Appendix A that are likely to be raised by many readers of the Delta Science Plan:

- Have the products from Delta Science Plan actions influenced management decisions?
- Which of these actions would not have been done without support from the Delta Science Program?
- Were there unanticipated (or anticipated) challenges that prevented satisfactory progress on actions identified in the 2019 Plan, and has the 2026 draft Plan been adjusted accordingly?
- How effective were direct investments by the Delta Science Program (in terms of money or staff time) in attracting and engaging investments by partners?

These kinds of questions could be addressed through a more systematic longitudinal tracking of science initiatives to understand the consequences of outcomes. Longitudinal tracking is frequently conducted in programs such as the National Science Foundation's Engineering Research Centers, Science and Technology Centers (STCs), Established Program to Stimulate Competitive Research (EPSCoR) and other large research programs. Longitudinal tracking documents the evidence supporting the efficacy of programs, highlights achievements and identifies areas needing improvement. This typically involves identifying quantitative performance metrics that relate to program goals and periodically evaluating them relative to pre-defined benchmarks indicating success. It may not make sense to do this for the 2019 Delta Science Plan, but the Delta Science Program could consider this for the 2026 Delta Science Plan or its Science Action Agenda.

Appendix A might also be improved by digging into some of the most significant accomplishments in terms of successes, challenges, opportunities and risks. Some potential actions that might benefit from such a treatment include an assessment of what happened to the Collaborative Adaptive Management Team (CAMT)/Collaborative Science and Adaptive Management Program (CSAMP) and what can be learned from this major initiative, the efficacy of the Delta Science Tracker and how this valuable tool could be enhanced, enhanced support of early-

career scientists in the face of federal pullback, and an assessment of the Delta Science Program s role in the overall science budget for the Delta.

CSAMP

Appendix A highlights two outcomes relating to the Collaborative Science and Adaptive Management Program (CSAMP; 2.1, 4.1) and another to its science advisory team, the Collaborative Adaptive Management Team (CAMT; 2.1). CSAMP formed in 2013 as a voluntary collaborative of state and federal agencies, water agencies, and environmental groups that were interested in coming to shared understandings about scientific issues around operations of the water projects and their impacts on fish, with a goal towards application of adaptive management principles. The Delta Stewardship Council was represented on CSAMP and the Delta Science Program on CAMT. In addition to the three outcomes identified in Appendix A, the Delta Science Program also provided funding for the Reorienting to Recovery Project, which brought together interested parties to identify recovery goals for Chinook salmon populations that went beyond the delisting criteria established for ESA-protected species and evaluate suites of potential actions that could be taken to achieve these goals. In spite of this progress, key participants from the environmental groups stopped participating in CSAMP in 2022, and as of 2024, CSAMP (and CAMT) are on hiatus. Is it obvious why this effort has faltered? Will this status jeopardize any effort to establish a science hub or collaboratory? Would it be feasible or helpful for CSAMP to separate the science and policy decisions more firmly or formally since there will always be major differences in the value placed on outcomes by different entities? It might be expected that the group could make more progress on achieving consensus on science questions rather than decisions on management actions. In any case, it is critical to learn lessons from the faltering of CSAMP that might help progress on a collaboratory or other long-term, multi-institutional collaborative science and modeling efforts.

Cross-cut budget

The Cross-cut budget (items 3.5 and 5.1) is offered as an outcome of the effort to establish sustainable funding for forward-looking science and establish shared mechanisms and processes to enhance funding. Appendix D mentions that in 2022 to 2023, the Delta Science Program contributed $4M to a total of nearly $57M of research funding via research awards, directed actions, and science fellowships.

The 2020 to 2021 cross-cut budget report details funding sources and amounts spent on several categories of science actions, but there is no assessment of whether:

(a) the total budget is adequate to address urgent needs,
(b) major funding gaps and unaddressed issues or questions exist,
(c) the Delta Science Program and its science planning products (Delta Science Plan, Science Action Agenda) influenced the expenditures, and
(d) science products from these investments are being used in decisions.

It would be a significant effort to conduct these assessments, and probably beyond the scope of Appendix A, but they would be invaluable for guiding future investments by the Delta Science Program and tracking in future iterations of the Science Plan.

The use of Delta Stewardship Council funding to catalyze new directions can be linked to Action 2.6 of the Draft 2026 Science Plan to establish responsive and targeted funding structures. The Delta Stewardship Council funding, although very limited, is critically important for sparking new innovations or new directions. On occasion, these funds are used to support high-risk but potentially transformative ideas that it would be difficult for agencies to initiate without evidence of the potential of the technology or research. This Delta Stewardship Council funding is often leveraged with support from other sources for greater impact. The importance of this Delta Stewardship Council funding as a catalyst for inter-agency and multi-entity collaboration and communication cannot be underestimated.

Directed Actions and Rapid Response

The Delta Stewardship Council funding is also used to support Directed Actions for science when answers are needed quickly or there is only one group positioned and prepared for the project. This has proven very useful in delivering results that are timely and relevant. Should consideration be given to expanding this valuable and successful service to a more formal Rapid Response mechanism as described in Resource D and Action 2.6?

One example of these successes has been the significant progress made in an interagency approach to early detection and response for invasive species. Consideration could be given to the feasibility of a more generic rapid response funding mechanism for other potential crises that could affect the co-equal goals. This program could initiate or support:

- rapid deployment of monitoring equipment
- assessment of the threat and potential actions
- ability to convene experts from agencies, academia, consultants from across California and beyond.
- Delta Science Program expert databases are one source that could be useful for agencies in identifying potential experts to supplement in-house expertise.

Sharing Information and the Delta Science Tracker

(Appendix Action 5.3 and Draft Science Plan 2.5)

It is important to acknowledge the outstanding contribution of Dr. Sam Luoma and staff to ensuring accessibility and sustain the quality and usefulness of the San Francisco Estuary and Watershed Science Journal. This is made possible by the continued financial and institutional support of the Delta Stewardship Council for the journal.

Likewise, the Delta Science Tracker represents a significant step forward and is a result of requests from the science community for better understanding of the scope of the science enterprise supporting the Delta and its watershed. It is a major challenge to sustain and encourage the science community to ensure this database is kept current and relevant. It is also important to maintain the database through staffing changes. Recommendations for the Science Tracker are:

- Celebrate this major achievement - and produce google analytics on who (type of organization/individuals) and how many are using this valuable tool (if this data is not already available).
- Based on the information above, consider a survey (if not already done) and session at the Bay-Delta Science Conference about what could make the Delta Science Tracker more useful, usable and dynamic as well as ensuring sustainability (if anything needs to be enhanced).

Workforce Development (Action 2.6 and 5.4)

One of the most successful initiatives that has been universally supported across federal agencies and state government has been the California Sea Grant State Fellows, Delta Science Fellows and California Policy Fellows program. In this era of reduced opportunity for early career individuals working in environmental management due to reductions in university budgets and federal agency activities, these fellowships take on even more importance. The Sea Grant office maintains records on the next career steps of many Fellows (an example of longitudinal tracking). We suggest that this program is highlighted - perhaps the number of Fellows, the number that move on to positions in academia, state or federal government and perhaps highlight some of these Fellows who now occupy prominent leadership roles in California water management.

Although Appendix A does not attempt to be comprehensive, it is suggested that mention is made of the products for the Integrated modeling inventory under Action 3.8 and 3.9 that creates the foundation for the Collaboratory concept, including:

- Recommendation for Modeling Best Practices (2020),
- Integrated Modeling in the Delta: status, challenges and a view to the future (2020)
- Survey of Recent Integrated Modeling Applications in the Delta and Central Valley (2020)
- Model Inventory (California Water and Environmental Monitoring Forum and Delta Science Program)

f) Resource B: Making science whole: Embedding social science in natural science workflows

- **Page 89:** We have some concerns about this sentence, “The social sciences provide tools to help navigate these management challenges by focusing on understanding community values, institutional structures, and behavioral change needs…”. The text should be clear that solutions tend to emerge from behavior change throughout the socio-ecological system (including institutions and scientists), and not just among resource users.

- **Page 89:** Box B-1 could provide another sentence or two clarifying that different social science fields and methodologies use a wide range of assumptions, theories, and epistemologies. They are not necessarily interchangeable or equally useful for all questions. Understanding the right tool for the right problem/question is key.
- **Page 90**: We suggest changing the wording of "hard to control". We are not really sure what you mean. When one is studying human behavior, one is only rarely trying to *control* that behavior. *Hard to influence* would be less aggressive, but we think this phrase could also be deleted because we think you are also implying unpredictability. The role of social science is sometimes to see what behaviors can be predicted or influenced, despite high variability among individuals.

  We are concerned about the short and partial explanation of researcher bias. Many fields of social science try to limit observer bias. They recognize it and then take steps to minimize it. So, this sentence only applies to a subset of fields or perhaps leaves out the minimizing part,

  > "Rather than seeing the researcher as a detached observer, these traditions often emphasize reflexivity and positionality – acknowledging that researchers are not neutral observers; instead, their values shape how they interpret information and experiences…".

  We are concerned that this sentence may be misunderstood by those outside the social sciences as, "so you can't really trust social science to be unbiased". Also, researcher bias is not unique to social sciences. We suggest embellishing this idea further or removing it.
- **Page 91:** We suggested wording change to the following sentence:
  - **Original**: "Behavioral economics identifies how cognitive biases and heuristics influence decision-making under uncertainty…"
    - **Suggestions**: Behavioral economics uses data and experimental designs to identify how cognitive biases and heuristics influence decision-making …
- **Page 91:** In this sentence , it seems to confound research design with solutions. Suggested edits are below.

    - **Original**: "These contributions go well beyond outreach – they are foundational to designing workable, equitable, and effective research…"
        - **Suggestion:** These tools go well beyond outreach – they are foundational to gaining insights or testing ideas with data, as part of feasible, equitable, and effective research.
- **Page 91:** The next sentence below needs a better segue.
    - **Original:** "Ignoring social science until the natural science research is ready to be implemented often results in solutions that are sound in theory but socially unviable."
    - **Suggestion:** Evidence-based insights from social science promote socially viable solutions to natural resource concerns, but social scientists need to be involved early enough to affect the solutions being considered, rather than brought in late in the process.
- **Page 91, Section 1. Collaborate with social scientists early on:** The first point under this heading is – see if you need an Institutional Review Board (IRB). We rather see that come later after highlighting some more concrete benefits of early collaboration. The sentence above about "socially unviable" solutions would be a better way to start this section.

  Another strong point is that social scientists can predict how people may adapt to or change their behavior in response to a management action in ways that are often unexpected by natural resource managers. For example, government agencies that offered to cost-share water saving irrigation equipment for farms found that participants expanded the acreage under irrigation rather than reduce water use. So, social scientists can be valuable members of teams devising regulation or incentives to enhance their effectiveness at meeting resource goals.
- **Page 92, Box B-2:** Needs to clarify that you don't just go looking for a generic "social scientist" (to the point above about Box B-1). You need to understand the relevant disciplines for the question at hand before you go looking.
- **Page 93, Section 3. Start learning social science methodologies:** The recommendations in this section are very specific and somewhat narrow. We suggest adding something at the end about there being many resources available that might be found by searching within a management topic area. We

might also add that the most robust approaches tend to come from teams that include social scientists and that case studies written entirely by biophysical scientists can be unreliable examples of applying evidence-based social research.

- **Page 93, Section 3. Start learning social science methodologies:** Could be nuanced a bit more in terms of who the audience is. Who needs to learn the methods? And should the emphasis be on "familiarity" rather than "learning"? We have plenty of well-trained social scientists. So, we don't necessarily need more people to learn to be social scientists. Perhaps we just need more physical and natural scientists to be "conversant" with the social sciences. At the same time, social scientists also need to be conversant with physical and natural scientists if we want more interdisciplinary collaboration.
- **Page 93, Section 4. Co-design:** We are wondering if it would be helpful to explain the distinction between social science practitioners and researchers. We would say that social science practitioners may have excellent skills for facilitating co-design (to navigate power dynamics, etc.), while social science researchers might help to design research to learn about the effectiveness of an approach or to document outcomes. However, some social scientists are both practitioners and researchers and may play both roles in designing group processes.
- **Page 94, Case Studies**: The case studies are nice, but miss out on an opportunity to highlight the wide range of questions that have been explored through social science research in the Delta. A preface to the case studies could be added that recognizes this.

g) Resource F: Science governance and the collaborative Delta science-scape

- This resource offers an up-to-date description of what science governance looks like in the Delta. The Delta ISB recommends adding a sentence or two that explains why people need to know what the structure of science governance looks like and how this information can benefit the implementation of the Delta Science Plan.
    - Where does the knowledge of the governance structure connect to specific actions within the plan?

  - How can this help us understand areas where we need more coordination or new science venues, or where interdisciplinary knowledge is lacking?
  - How can this help us understand the degree to which science relates to decision-making (e.g., which agencies are represented within the science governance network)?
  - How well do the venues cover key science issues in the Delta?
- In the collaborative science participants section, the authors may want to consider the limitations of the current definition of what a “core network” participant is. An alternative definition, for example, could be those organizations or individuals who are “active” – or regular participants over time. Participating in more than one venue misses those participants who are deeply involved in one single venue and therefore may under-represent the core.
- In discussing the Delta Science Tracker, it would help to clarify how the network derived from a tracker would be informative or useful for diagnosing how well the science enterprise is functioning.
- On Figures F-1 and F-2, it would help to add a note about the time period when these networks were observed as networks change over time.

Appendix: Editorial and Other Minor Suggestions

Below are some editorial and other minor suggestions from individual members of the Delta ISB.

#	Suggestion	Page #	Text
1	All figures should be cited in the text before they appear: Figures 1, 2, 4, Appx. B-1, Appx. B-2, D-1 are not cited in the text. (Fig. 3 + some in Resources are.)	N/A	N/A
2	Tables should generally be cited in the text before they appear: • Table 1 (This one really needs some explanation before it shows up. See comment #1&#2 below.) • There are tables in the appendices that are self-evident and not cited, which I think is okay. However, one of the appendix tables is cited in the text (Appx. B-3), so for self-consistency I recommend that all or none of the Appendix table be cited in the text. • Tables in Resources section not cited or indicated in the text: E-1	N/A	N/A
3	Hyperlinks should be embedded in the text.	N/A	N/A
4	The introductory paragraphs to the sections on GC 1 & 2 indicates that GC #1 is focused on the strategic, i.e., those actions that prepare for a future Delta, and that GC #2 is more focused on the near-term/"tactical" actions, i.e., actions that respond to current or near-future conditions and events. We think that some of the actions listed for each should be moved to correspond to this, and in one case (regarding modeling), we recommend splitting an action that has mixed messaging into two, so that one action deals with near-term (in GC #2) and one long-term (in GC #1). We go through each action in GC#1 & #2 below.	N/A	N/A

#	Suggestion	Page #	Text
	1. Action 1.1 – This is a very good one for GC 1. Keep as is. 2. Action 1.2 – Based on the title alone, we think it could go in 1.2, but the description makes it clear that it is looking for information about unforeseen or very rapidly evolving events that have potential near-term consequence. We recommend moving to GC #2 2. 3. Action 1.3 – This one is complicated because the description mixes strategic and tactical needs. ◦ As written now, i.e., where the focus is more on comparing models to data, not incorporating data into models, we think it is more focused on the near-term, in which case it should be moved to GC #2. ◦ However, GC #1 still needs an action related for modeling, but it should focus on a SOTA dynamic model that couples hydrology, geomorphology, and ecosystem (land and aquatic) function, and that incorporates measured data into the model for calibration, validation, and dynamic updates to the model. This is along the lines of the Delta-X project's model framework, which has just been published (*Simard, M., Jones, C. E., Twilley, R. R., Castañeda-Moya, E., Fagherazzi, S., Fichot, C. G., ... & Zheng, Y. (2026). Delta-X: An airborne remote sensing framework to calibrate hydrodynamic and ecogeomorphic processes responsible for land building in coast),* but modified to the Sacramento-San Joaquin Delta and taking input from the water basins that feed it. This is also forward-		

#	Suggestion	Page #	Text
	looking, incorporating the vast amount to remote sensing data available now or in the next few years from the European Space Agency and NASA, with in situ measurements made in the Delta. 4. Action 1.4, 1.5, 1.6 – Keep in GC #1. 5. Action 2.1, 2.2 – Keep in GC #2 6. Action 2.3 – Move to GC #1 (Really is focused on the longer-term) 7. Action 2.4, 2.5, 2.6 – Keep in GC #2		
5	Change to **questions, timeframes, and settings**	5	Everyone loves a cool science story, but we as a community need to also share the love for science that moves the needle on management decisions. The stakes are too high for the risks facing us in terms of reliable water supplies, ecosystem sustainability, and cultural preservation. Aligning **research questions and timeframes** and settings with actual agency and economic pivot points makes research efforts imminently more useful and impactful.
6	'and' implies that systems thinking is different from the following clause, which is found confusing. Maybe changing to 'Systems thinking, through…' will avoid this.	5	Systems thinking, **and** its search for integration of landscape and societal components, allows us to fully embrace the tools and opportunities we have to respond to resource management
7	This paragraph is problematic for several reasons: • It uses the term 'theme' in a different way than Table 1. There are really 7 themes, defined in Table 1. This paragraph calls three things 'themes' that do not correspond identically to any one of those. 'Theme' needs to be used exclusively for the seven items listed in Table 1 and elsewhere throughout the document. • This is subject to interpretation, but this sentence	9	The 2026 Delta Science Plan continues to advance priorities such as adaptive management, science communication, scientific peer review, and science funding, while also expanding on themes related to social science, governance, and Traditional Knowledge. These three themes are considered priority tools for tackling the four grand challenges by the Delta science community.

#	Suggestion	Page #	Text
	implies the 2026 Delta Science Plan is downplaying the importance of all themes except those related to governance (G), Traditional Knowledge (TK), and social science (SS). Rather, we think that the intent is to **ADD** these topics/factors as being more important than indicated in the prior science plans. • After careful consideration, we find that the cues that gave some members this impression are the words in the first sentence, 'advances priorities such as' etc., etc., etc. This gives the impression that the listed items here are just a few among many that are relatively minor compared to the listed 'priorities'. • It is arguable that these three 'priorities' can possibly be stand-alone priorities in the absence, for instance, of funding. Making these three the focus can alienate those in the community who see Actions 1 & 2 as critical to knowledge of current and likely future conditions, or whose focus is on other factors. It is entirely possible that this paragraph will alienate some audiences by their perceiving that the Delta Science Program is downplaying something that is a priority of theirs. • Semantics: How is a 'theme' a 'tool'? A theme is an intangible; a tool is tangible. • We recommend totally rewriting this paragraph to specify what the 'themes' are (and cite Table 1 since in this draft, it is the first appearance of the official 'themes') and clarify that SS/TK/G is equally important rather than more important than the others.		

#	Suggestion	Page #	Text
	• We think that the main point that the writers were trying to make is that real progress towards meeting the coequal goals of sustainable ecosystems and water supply requires participation and by-in from those people who are directly affected by day-to-day conditions and economic considerations, and that hard data alone, be it from measurements or models, will not suffice to resolve or ameliorate the issues.		
8	The actions are cross-referenced to seven themes in this table. In a couple places later in the document, these are mentioned as "cross-cutting themes", which seem to be distinct from some other kinds of themes. It might be helpful to discuss these themes more explicitly, early in the document. They make sense but it isn't clear where they came from. The seven themes seem like elements of a conceptual model of how we go from data collection to decision making in an adaptive management framework, and perhaps illustrating that would be a way to justify them. In the table itself, it seems that many of the actions touch on more of the themes than indicated by check marks– for example, to "strengthen links between models and data…", better data accessibility is needed, it might require more funding, and it could benefit and benefit from improved governance and relationships.	10 to 13	Table 1
9	Please think about placing this table after the detailed plan as a summary and overview. It may be more meaningful for the reader this way.	10 to 13	Table 1
10	The blue trace of the San Joaquin River should be continuous, not cut off to include only the part in the Sacramento watershed.	18	Figure 2
11	The period after One Science should be a comma	20	help further the vision of One Delta, One Science**.** with the capacity to adapt and inform future water and

#	Suggestion	Page #	Text
			environmental decisions and reduce disagreements influenced by conflicting interest.
12	There should be a comma after e.g.,	20	**The Science Action Agenda** identifies focused science actions to help achieve the objectives of the Delta Science Plan and to address key management questions. The science actions are specifically focused on filling gaps and promoting collaborative efforts. The SAA serves as the common agenda from which agencies and programs can develop more detailed, shorter-term work plans (**e.g.** the Interagency Ecological Program Annual Work Plan).
13	The figure is too low resolution	22	Figure 3
14	The heading "Four Chapters" is somewhat confusing. The section on progress since the last Delta Science Plan is quite important, which is why it deserves more space in the main document. The detailed information presented in Appendix A could be inserted here, and Appendix A could be reduced to Table A-1.	23	Progress since 2019
15	These aren't in the Resources. If they were recorded or involved written material, links should be included.	23	**Shared Mechanisms to Inform Policy and Management:** Calling for the creation and expansion of tools to support effective coordination and collaboration in the Delta science community, most progress was achieved by the creation of new online tracking tools, workshops, and **trainings.**
16	Change "to build from" to "from which to build"	23	**Collectively Support Implementation of The Delta Science Plan:** Most efforts to promote implementation of the Delta Science Plan were only initiated or ongoing, providing opportunities **to build from** with the 2026 Delta Science Plan

#	Suggestion	Page #	Text
17	This section doesn't define the seven themes. Everything in this section should be moved to a section called 'Social Science' or 'Expansions to the Delta Science Plan', and the edits suggested in comment #1 above applied here. The section 'Themes' should be kept and the seven themes described therein. This is also a place to again say that the actions can address several themes but are listed under their primary one.	24	Section, Themes
18	The distinction between Resources and Appendices is well-intended, but may cause confusion. They are all appendices in the end, and should be listed as such.	24	
19	Not sure if the title "How is this update different" is needed, since most readers may not remember the previous plans in detail. You could just call it "Structure and focus areas" or something similar.	24	How is this update different?
20	Remove/strike through "and useful"	24	While Appendices describe work to develop the current plan and the implementation progress from the previous plan, the Resources provide practical **and useful information** for the Delta science community and are responsive to the actions included within this plan.
21	Remove the word "While the"	25	**While the** 2019 Delta Science Plan included a call to establish a social science task force (Action 3.2),
22	Insert the word "and" before "the"	25	**the** 2026 iteration builds on this foundation, emphasizing the importance of social science to addressing the Delta's challenges.
23	This definition doesn't restrict TK to originating in the tribes, but the rest of the paragraph implies that is the intension. Please clarify.	25	Perhaps the most significant change is through the addition of grand challenge 4: Other ways of knowing, especially Traditional Knowledge, remain siloed from decision-making. As used in the Delta Science Plan framework, Traditional **Knowledge "…is a body of observations, oral and written knowledge, innovations, practices, and beliefs that promote sustainability and the responsible stewardship of cultural and natural**

#	Suggestion	Page #	Text
			resources through relationships between humans and their landscapes" (Daniel et al., 2022).
24	Change to "tools and actions"	27	The resilience of the Delta's social-ecological system depends on all vested parties of the Delta working together to create strategies to address these challenges and prioritize tools that can advance progress.
25	Add 'changes in temperature and salinity, land subsidence'	29	Climate change, altered hydrology, shifting species distributions, novel **contaminants**, and a myriad of other stressors are transforming the Delta in complex and unpredictable ways. Without a holistic management approach,
26	Who (what agency, group) uses this and how? Who owns/maintains it?	30	**ARkStorm 2.0** is a scenario generated from climate model projections, based on a series of intense atmospheric storms that hit the western US coastline over approximately one month. By modeling potential future storm sequences before they occur, ARkStorm 2.0 applies horizon scanning principles to anticipate flooding vulnerabilities and inform
27	It can do more than just this. It can provide more realistic models, which should be mentioned.	30	Linking models more directly with monitoring data can **further support real-time decision-making and adaptive management.**
28	Suggest rewording: The Delta ecological and hydrological systems are influenced by socioeconomic factors such as …	31	The Delta **social-ecological system is primarily influenced by actions that occur outside of the Delta, such as upstream water management practices and downstream land use and water demand.**
29	**Add** … challenges and inform activities that reduce the impact of future climate variability.' (Or something similar)	32	This can also ensure that limited science funding is used strategically to address the most pressing **challenges**.
30	This is very descriptive, but is missing a statement about what the action is.	38	To support timely, informed decision-making, scientific findings must be communicated efficiently, clearly, and in accessible formats. Too often, research is underutilized because results are delivered in overly technical formats or

#	Suggestion	Page #	Text
			directed to narrow audiences. Additionally, the traditional pace of science – including lengthy publication timelines – can delay the integration of new information into action. Sustaining rigorous scientific peer review remains critical to maintaining the credibility of science, but mechanisms such as pre-print repositories, summary briefs, or early-release formats could accelerate the availability of key findings.
31	This should not be limited to water data. There is much, much more available now. For example, subsidence and land movement data and flood extent data is now available through NASA's OPERA (Observational Products for End-Users from Remote Sensing Analysis) project. Within the next five years, more information products should become available. We suggest making this refer to data and information more generally.	41	The Delta science community can support open data in many ways, including requiring data management plans and open data practices for funded research and promoting open-source platforms and decision-support tools **related to water data.**
32	Recommend changing the action to 'Increase interdisciplinary research coordination...'	42	ACTION 3.3: **Increase research coordination** at the watershed and estuary scale through systems thinking
33	This is covered by actions 3.1 and 3.2. Focus here on what makes 3.3 different from those.	42	Strong communication and effective knowledge transfer facilitated through initiatives such as open data and collaborative venues will be crucial to watershed and estuary-scale projects
34	Change “techniques” to “techniques accounting for societal factors” Change “threats” to “factors” Change “recommendations to “recommendations based on realized outcomes.”	43	This embodies systems thinking by enabling analyses that compare the success of different restoration **techniques,** identify **threats** that inhibit success, and inform restoration design and adaptive management **recommendations**
35	Correct typo	44	This **chapter following chapter** identifies actions to address grand challenge 4.
36	Recommend either deleting this sentence or updating it to account for the reduction in federally-funded research in 2025, which is likely to continue in 2026 and will	45	Despite its importance, funding for social science has increased at a slower rate than funding for the biophysical sciences nationwide (**NSF, 2018; Table 5.6**).

#	Suggestion	Page #	Text
	definitely have a ripple effect through unfunded multi-year projects. Independent of the funding status nationwide, the Draft Delta Science Plan should promote SS research in the Delta This should be 'Table 5.6 in NSF, 2018'. (The semicolon indicates that Table 5.6 is a different reference than NSF, 2018.)		
37	Change to tribes and tribal and local communities	47	Traditional Knowledge stemming **from tribes and tribal communities,** as well as other ways of knowing such as local ecological knowledge or experiential knowledge, are often siloed, despite offering important contributions to the understanding of complex social-ecological systems (Delta Stewardship Council, 2025)
38	Is there an update on the schedule for these events? Or a link to a website for them?	50	The Delta Stewardship Council's Traditional Knowledge Roundtable Series' goal is to cultivate and/or strengthen relationships between tribal and non-tribal partners in the estuary through collaboration and dialogue. By creating a space to share experiences and exchange perspectives, the series can help identify approaches for interweaving Traditional Knowledge and Western science to explore the management of the estuary**. The first events are anticipated to take place in Spring 2026.**
39	i.e., (add comma)	60	Public – For the Delta Science Plan, 'public' generally refers to something being open to everyone (**i.e.** not restricted to agency staff), such as a public comment period; or more usually referring to a group of people as the public that may not necessarily fall into the category of "scientist", "decision-maker," or "interested party".
40	Why is there a headline "Chapter 2"? It would be clearer to put Chapter 2 etc. in brackets after the headline.	63	Chapter 2. Shared mechanisms to inform policy and management

#	Suggestion	Page #	Text
	Alternatively, give a brief explanation/introduction to the structure of this appendix, e.g. "The following tables address actions detailed in chapters 2-5 of the 2019 Delta Plan".		This chapter aims to motivate the development and expansion of tools to support effective coordination and collaboration among Delta decision-makers, scientists, and interested parties in the Delta. While progress is ongoing for many actions, noticeable progress has been achieved through the creation of new online tracking tools (e.g., Delta Science Tracker), public workshops, and new training sessions.
41	Define acronyms	64	Table Appx. A-1
42	Has the annual report been released since 2020-2021? You should include a more recent one or state why there isn't one.	67	Release of the annual crosscut budget, FY 2020-2021 Delta Crosscut Budget Report
43	Make this a link to the portal.	68	**USGS Data portal** for high frequency data in the Delta, including flow and water quality
44	Change to "better reflect"	80	The following 2019 appendices have been transitioned to be "Resources" and were updated to **reflect** our current practices and progress better:
45	Delete "better"	80	The following 2019 appendices have been transitioned to be "Resources" and were updated to reflect our current practices and progress **better:**
46	Not sure if a separate chapter section on the "short history" is useful or needed. Table A-1 could just be integrated into the previous section (description of Open Data).	85	Appendix B
47	Recommend changing this to multiple tables, one for documents/informational websites, one for data portals, add one for training. Also, the data portals listed here are very limited. Could add United States Geological Survey, National Oceanic and Atmospheric	85	Table A-1. **Key guiding documents or online** resources with information on open data best practices, protocols, or other resources.

#	Suggestion	Page #	Text
	Administration (if have resources in Delta/Suisun Marsh), NASA OPERA, probably more.		
48	Add comma after e.g.	103	Environmental justice or other advocacy groups, interest groups (**e.g.** duck hunters, fishers, boaters)
49	Add a one blank line before this to indicate that the caption goes with the table below, not above.	139	Table F-4. Participation by Venue. The first column displays the total number of participants in each venue, while the second column indicates the number of core participants involved in each venue.