



Delta Independent Science Board

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July 15, 2013

To: Delta Stewardship Council

From: Delta Independent Science Board

RE: DISB Comments on the First Draft of the Delta Science Plan

The DISB applauds the overall approach taken by the Stewardship Council's Delta Science Program in developing the first Delta Science Plan (hereinafter, the Science Plan). The Science Plan is one of three components of a proposed overall Delta Science Strategy, the other parts being a Science Action Agenda and the State of Bay-Delta Science. The Science Plan is a first concrete step toward a science framework that brings together a wide array of past, present, and future science activities. An effective Delta Science Plan is needed for managing the Delta to meet the coequal goals in a 'science-informed' manner.

We advise making the Science Plan more boldly transformative. The draft outlines activities to better unify the Delta science community and improve the interface between science, policy, and management¹. However, the changes proposed are incremental and fall short of the larger transformation of the organization and culture of Delta science needed for effective adaptive management and the achievement of the coequal goals. We see a need for a Delta Science Plan and Delta Science Program that provide greater scientific unity and synthesis to support Delta management decisions and policies. This more unified approach would functionally integrate the major scientific activities of state, federal, and local government agencies along with university, research institute, and non-governmental efforts and expertise.

The following suggestions should help guide revision of the draft Science Plan:

1. *State the overarching problem more clearly.* The Science Plan should be more explicit about the overarching problem being addressed by the plan, and bring that problem statement to the beginning of the document, rather than nine pages into the document. The problem statement should be at the beginning of the Executive Summary, as well as at the beginning of the Introduction. If the problem statement is clearly articulated, together with the ineffective attempts to remedy the situation over past decades, this charge will argue for more substantive structural change for Delta science than is currently

¹ Note that, for the purposes of the Science Plan, "science" should be considered broadly, to include not only biological and physical sciences but Earth, engineering, and social sciences.

envisioned in the Plan. Be bold in proposing large initiatives—although the changes proposed in this first draft are achievable, they should probably be a fallback position. Propose a grander plan to address the Delta’s long-term challenges.

2. *Summarize the main goals.* The major purposes of the Science Plan should be summarized up front—these include science synthesis and integration, building a comprehensive and readily accessible knowledge base, improving science quality, aligning science activities with current and future needs, streamlined data repository, and improved science communication. The plan should advance a scientific culture of open debate and discussion of scientific issues and how they intersect management and policy decisions and actions.

3. *Give more emphasis to synthesis and integration.* The need for science synthesis and integration is called out as “the central challenge”, and deserves stronger emphasis. The plan should work to make science synthesis *systemic* in the Delta—the current focus on a Science Synthesis Team is good, but the charge for that group should be broadened. That is, it shouldn’t appear that all needed syntheses are done by or even under the auspices of that team—rather the SST should work to inculcate science synthesis among agencies and institutions involved in conducting Delta science. Synthesis understandably receives a lot of attention in the Science Plan, but coordination and integration and execution of science are equally important. The plan needs to be more explicit about how the proposed structures will support and enhance these activities. (Perhaps some parenthetical examples could help in this regard.)

4. *Say more about resolving conflict.* The Science Plan says very little about scientific conflict resolution. The Science Program has played a role in that by providing venues where scientific debate can occur. It is important that those venues continue to be provided. That activity should be specifically called out and included in the Science Plan and Executive Summary, perhaps as part of building the infrastructure. We think it is important to emphasize that dialogue over honest scientific disagreements is a part of good science and is intended to be fostered in this plan.

5. *Highlight improved ways to provide scientific information.* Propose ways of being more nimble and responsive in providing science information, because of the pressing timeframe in which policy and management decisions are being (and will be) made. As one example, the State of Bay-Delta Science should be a living document, readily available online, rather than being published on a 4+ year cycle. Being nimble and responsive requires shared and accessible data and documents. Scientific documents and data across all scientific activities should be more available using a data and document-management system and coordination of data analyses.

6. *Offer details on structuring science to support adaptive management.* The Science Plan recognizes the central importance of Adaptive Management in meshing science with management and policy, and the need to develop a framework for actually *doing* it rather than talking about it. Achieving real Adaptive Management at the scale of the Delta and the environmental and water issues will require leadership and coordination. How these will be accomplished within the proposed science structure should be defined in detail. The plan should also highlight the need to develop a framework for determining when Adaptive Management will and will not be appropriate and effective.

7. *Develop data and tools for meeting grand challenges.* More “grand challenges” to science-based management and policy in the Delta will evolve with future conditions and the attendant uncertainty. Addressing these challenges will require a common foundation of data and fundamental studies of

physical, chemical, geomorphological, biological, economic, and sociological processes. The Science Plan should consider more explicitly how tools such as modeling and risk analysis can be used to meet grand challenges, and how they can be developed, deployed, and maintained.

8. *Sketch out funding needs and associated interagency partnerships.* The DSC's Delta Plan sets expectations for science that cannot be met with the current, fragmented science capacity. This reality should be emphasized if future decisions are to be based on science. The Science Plan should include at least a rough outline of funding needs and plans (as mentioned in the introduction but not addressed subsequently), and the nature of the partnerships with agencies and other entities that will be needed to meet those needs.

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