



INFORMATION ITEM

Proposed 2025 Delta Science Plan Update

Summary

The Delta Science Program (DSP) is in the process of developing the third iteration of the Delta Science Plan. The Delta Science Plan, recommended in the Delta Plan, is collaboratively developed with the Delta science community and aims to provide the vision, principles, and approaches for coordinating Delta science within the scientific community, and communicating the outcomes of science activities and their Delta management implications to decision-makers.

DSP is planning to structure the 2025 Delta Science Plan around specific “grand challenges” – a major scientific problem – that, when addressed through coordination and collaboration, can advance shared goals and accelerate scientific understanding and decision-making. With this more targeted and forward-looking approach, the 2025 Delta Science Plan will be more strategic and proactive, and serve as a rallying cry for improving Delta science coordination. Today’s presentation will summarize progress to date and next steps.

Background

The Sacramento-San Joaquin Delta Reform Act of 2009 (Delta Reform Act) (Cal. Wat. Code section 85000 et seq.) identified two coequal goals¹ for the State of California to inform its management of the Delta and states that the mission of the DSP is to provide best possible unbiased scientific information to inform water and environmental decision-making in the Delta (Cal. Wat. Code section 85280(b)(4)). Challenges in the Delta have many dimensions (e.g., physical, socioeconomic, water

¹ “Coequal goals” means the two goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place (Cal. Wat. Code section 85054)

supply) and sometimes conflicting solutions, so much so that Luoma et al., 2015² describes managing them as “Problems like the Delta are formally ‘wicked’ problems that cannot be ‘solved’ in the traditional sense, but they can be managed with appropriate knowledge and flexible institutions”. By focusing the next Delta Science Plan around the “grand challenges” in Delta science, the DSP seeks to tackle this wicked problem. Defined by the National Research Council (NRC)³, a grand challenge is defined as a major scientific task that is compelling for both intellectual and practical reasons, offers potential for major breakthroughs based on recent developments in science and technology, and is feasible given current capabilities assuming a significant infusion of resources.

Drawing inspiration from Luoma et al., 2015 and the NRC’s report, the Delta Science Program is proposing that the next Delta Science Plan identify the necessary tools, resources, and new approaches to address the grand challenges to Delta science, with the ultimate goal of providing best possible science for decision-making and advancing the State’s coequal goals for the Delta.

Grand Challenges

To identify and synthesize grand challenges, DSP staff reviewed highly referenced, visionary documents relevant to the science of the Delta, its watershed, and the broader San Francisco Estuary. Staff restricted analysis to papers, reports, and conference/symposia white papers that:

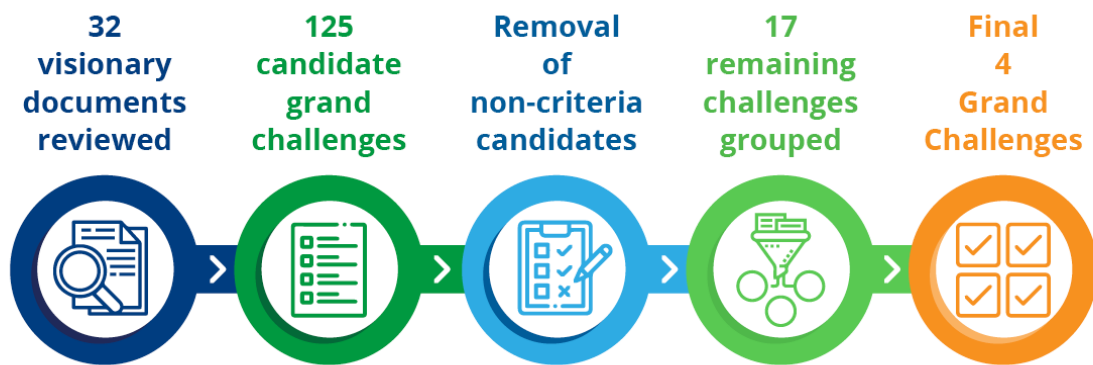
1. focused on Delta issues;
2. addressed larger, overarching issues (i.e., grand challenges); and
3. were published since 2007 when the Delta Vision Blue Ribbon Task Force laid the foundation for the Delta Reform Act.

² Luoma, S.N., Dahm, C.N., Healey, M., Moore, J.N. 2015 Challenges facing the Sacramento-San Joaquin Delta: complex, chaotic, or simply cantankerous? San Francisco Estuary and Watershed Science 13(3):2. <https://doi.org/10.15447/sfews.2015v13iss3art7>

³ National Research Council. 2001. Grand challenges in environmental sciences. National Academies Press.

This resulted in the review of 32 documents, from which 125 candidate grand challenges were identified. These candidate grand challenges were reviewed against the NRC's definition to refine the list to 17 grand challenges. These were grouped into thematic areas that became four final overarching grand challenges.

The four grand challenges are:



- **Grand Challenge #1** – Scientists and managers must anticipate a world in which environmental conditions and regulations may be fundamentally different from those faced today.
- **Grand Challenge #2** – Environmental change is outpacing the traditional pace of science.
- **Grand Challenge #3** – Flows of scientific information remain decentralized and poorly connected to communities and decision-makers.
- **Grand Challenge #4** – Other ways of knowing, especially Traditional Knowledge, remain siloed from decision-making.

Timeline

An essay describing the grand challenges in more detail was released for public input in summer 2024. The final version of this essay is now available.

The DSP is hosting a public workshop in February 2025, to engage with the Delta science community and develop and identify strategies and tools to address the Grand Challenges. The draft Delta Science Plan is expected to be released for public input and a presentation to the Council in Fall 2025.

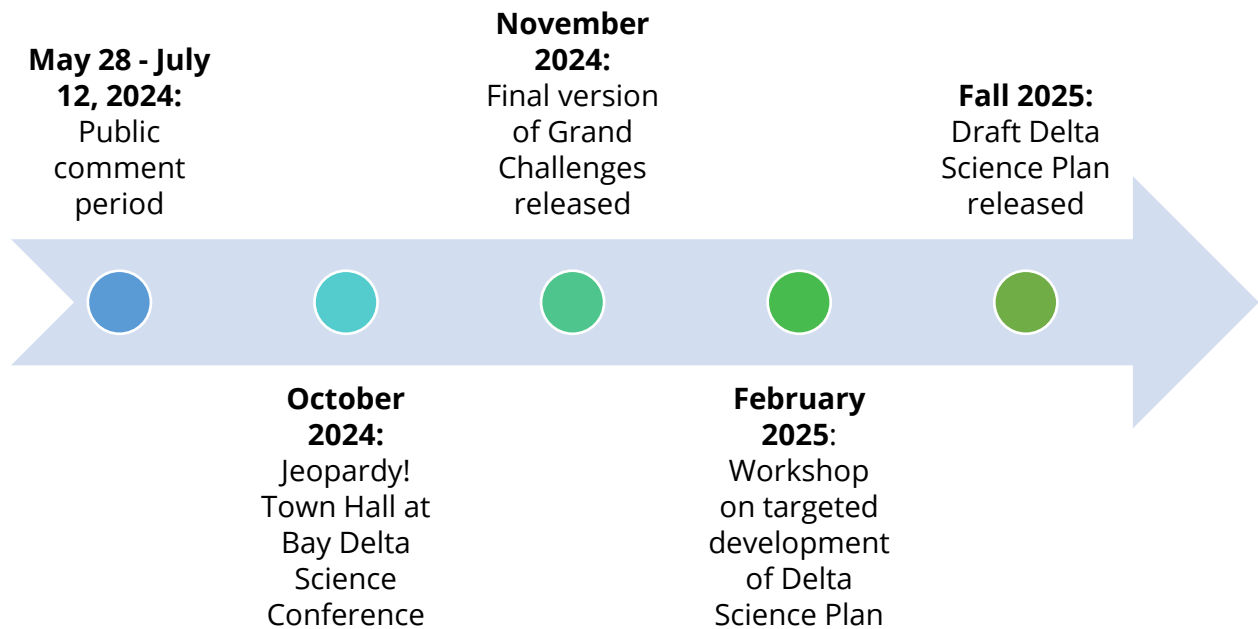


Figure 1. Timeline of Delta Science Plan development

Fiscal Information

Not applicable.

List of Attachments

Attachment 1: Final Grand Challenges essay

Attachment 2: Grand Challenges information sheet

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