



INFORMATION ITEM

Delta Independent Science Board (ISB) Update

Summary

Delta Independent Science Board (ISB) Chair Dr. Inge Werner and Delta ISB Member Dr. Jayantha Obeysekera will provide an update on the Delta ISB's current activities, including a report out on its recent Emerging Climate Science Symposium. This hybrid symposium, which took place at UC Davis from September 16-17, 2025, explored the current climate projections for the Sacramento-San Joaquin Delta, related uncertainties, and how the current state of climate science is being integrated into decision-making in the Delta. To help inform Delta Stewardship Council (Council) efforts, the Delta ISB provides the Council with independent scientific advice on the Delta Plan and reports findings and recommendations from Delta ISB reviews on the scientific programs that support adaptive management in the Delta.

Background

As mandated by the Sacramento-San Joaquin Delta Reform Act of 2009, California Water Code sections 85000, et seq., (Delta Reform Act), the Delta Independent Science Board (Delta ISB) is responsible for providing oversight of the scientific research, monitoring, and assessment programs that support adaptive management in the Delta (Water Code Section 85280(a)(3)) and providing independent advice on the Delta Plan (Water Code Section 85308(a)). The findings and recommendations of the Delta ISB inform updates to and the implementation of the Delta Plan, the Science Action Agenda, the Delta Science Plan, and other Council, including its Delta Science Program, efforts.

The Delta ISB reviews programs that support adaptive management by "thematic" or topical areas to meet its legislative mandate. To date, the Delta ISB has completed and presented the following thematic reviews to the Council: restoration

(2013), fish and flows (2015), adaptive management (2016), levee hazards (2016), Delta as an evolving place (2017), water quality (2018), the Interagency Ecological Program (2019), non-native species (2021), the monitoring enterprise (2022), water supply reliability estimation (2022), and food-webs (2024).

The Delta ISB also reviews specific science documents related to adaptive management or the Delta Plan. These reviews can be either self-initiated or based on a specific request from an individual or entity. In addition, the Delta ISB may develop “call-to-action” memos and letters to specific agencies, including the Council, which are meant to share the Delta ISB’s emerging insights, key findings, or recommendations that require action.

As described in the Delta ISB’s operating guidelines, the comments, findings, and recommendations of the Delta ISB are expected to increase scientific credibility, improve research clarity, advance the debate about Delta issues, and seek better connectivity between science, management, and policy. The communication and relationship between the Council and Delta ISB are critical for helping to inform the Council’s work.

Since the last update to the Council in May 2025, the Delta ISB hosted an emerging climate symposium on September 16-17, 2025, and has continued working on its thematic reviews on subsidence, decision-making under deep uncertainty and contaminants monitoring. On August 31, 2025, Dr. Virginia Dale and Dr. Robert Naiman concluded their term on the Delta ISB. The Delta ISB also welcomed new members: Dr. Steve Lindley, Dr. Cathleen Jones, and Dr. Peter Goodwin. Dr. Lindley and Dr. Jones started on September 1, 2025, while Dr. Goodwin started on October 1, 2025.

Emerging Climate Science Symposium

As global climate change intensifies, human-altered and engineered landscapes around the world are beginning to face increasing stressors and shocks that threaten their stability and functionality. The Delta ISB seeks to stay informed on pressing and important topics affecting the Delta system. To help achieve this, the Delta ISB hosted a hybrid symposium from September 16-17, 2025, at UC Davis that brought together over 250 scientists, practitioners, and decision-makers to assess

the latest climate science and its implications for the Sacramento–San Joaquin Delta.

The symposium highlighted the shift from the current practice of using historical climate data towards one that considers evolving future conditions, emphasizing the uncertainties in projections, extreme events, and their cascading impacts. Presentations and panels examined the latest knowledge regarding climate-driven stressors, such as droughts, floods, atmospheric rivers, wildfires, and sea-level rise, and explored how these hazards interact with hydrology, ecosystems, and infrastructure. Compared to 5 to 10 years ago, science has advanced in areas such as sub-seasonal forecasting, understanding wildfire urgency, and recognizing the role of rare extreme events. However, the symposium highlighted some uncertainties and science gaps, particularly in understanding extreme and compounding events, evapotranspiration (i.e., the process by which water is transferred from the land to the atmosphere), and climate–hydrology linkages, as well as the need to better integrate emerging science into decision-making frameworks. Over the coming months, the Delta ISB will synthesize key takeaways from the symposium and publish a short memo highlighting major insights and proposed next steps. At the Council meeting, the Delta ISB will share a few highlights.

Recordings of the Emerging Climate Science Symposium can be found on the [Council's YouTube Channel](#):

<https://www.youtube.com/playlist?list=PLqTHClIW1Hhp5SLOlOI56o4BkQVqOEwuL>

Other Delta ISB Reviews

[Subsidence](#)

Subsidence is particularly pronounced in the Central Delta where approximately 50,000 acres of agricultural land lie several meters below sea level, protected by over 1,000 miles of levees. A broad cross-section of stakeholders, including both public agencies and private sector parties, are developing approaches to mitigate subsidence. The purpose of this review is to support ongoing and future subsidence management efforts by summarizing, examining, and assessing the existing or planned programs, barriers and opportunities, state of scientific

understanding, and the scientific gaps and deficiencies of interconnected areas of subsidence. This review is based on reflections from a workshop hosted in October 2023, interviews with subject matter experts, and a limited review of relevant literature. The Delta ISB is in the process of completing the review and will release a draft for public comment later this year.

Decision-making under Deep Uncertainty Review

To build an understanding of scientific tools and concepts that can increase the capacity to anticipate and adapt to the growing uncertainty of future conditions in California's Sacramento-San Joaquin Delta, the Delta ISB began a review of decision-making under deep uncertainty in the spring of 2023. The review explored the techniques that could be applied to the Delta to better characterize and prepare for uncertainty and improve decision-making processes. Deep uncertainty is defined here as unpredictable events or system variability that cannot be well characterized with existing data, models, and understanding. Often, there is little or no agreement among interested parties on how systems are likely to behave or the probabilities of occurrence of such events, including the duration, sequence, and co-occurrence of events.

As part of this review effort, the Delta ISB hosted a five-part seminar series that introduced concepts from the decision sciences to the broader Delta community. The Delta ISB completed a synthesis of the seminar presentations on decision-making under deep uncertainty in October 2024, and is working on subsequent reports.

Contaminant Monitoring Review

Thousands of contaminants, often in quantities meaningful to ecosystem processes and human health, enter Delta waterways primarily via urban and agricultural stormwater and irrigation runoff, industrial and municipal wastewater, and the atmosphere. They include metals, pesticides, pharmaceuticals, industrial chemicals, tire-wear constituents, and microplastics. Many have been shown to pose ecological risks in aquatic and river environments. The sheer number of chemicals and the complexities of assessing and measuring their toxic effects in ecosystems present significant challenges for monitoring, ecological risk assessment, and management of chemicals.

The Delta ISB is proposing a review to assess current contaminant monitoring programs in the Sacramento-San Joaquin Delta. The review will focus on how monitoring programs can effectively inform management and decision-making regarding contaminant sources and ecological risks to aquatic ecosystems. It will further evaluate the potential of advanced toxicity testing methods (“effect-based methods”) to contribute to a better understanding of contaminants' impacts on the Delta ecosystem. The Delta ISB has recently finished a prospectus on the review, and is starting the review process.

Attachments

None

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