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# Potential Review Topics

Draft (May 1, 2020)

Delta Independent Science Board

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## Background

The Delta Independent Science Board (Delta ISB) is in the process of selecting future review topics. Based on past ideas discussed at public meetings (see [summary](#)) and [stakeholder feedback](#), individual Delta ISB members are proposing the following topics below for further consideration that will be discussed at the Delta ISB's public meeting on May 8, 2020.

### ***Water Quality and Hydrodynamic Modeling***

*Proposed by Harindra Joseph Fernando*

Hydrodynamic and water quality modeling is key to evaluating the short and long term future of the Sacramento–San Joaquin Delta in terms of the California coequal goals of ecosystem health and reliable water supply. Water operations in the Delta depend on planning and operational understanding as well as analyses of the interaction of Delta hydrodynamics and water quality. Different types of hydrodynamic models are used to calculate spatial and time distribution of water velocities (speed and direction) and water levels with suitable space-time resolutions, and it is customary to couple hydrodynamics with salinity and temperature calculations.

Additional variables of water quality concerns include transport of sediments (turbidity), nutrients and species. Such variables are calculated by passing on information from hydrodynamic to water quality models, where transport and mixing as well as rates of chemical and biological processes are computed. Several computer models are commonly employed for Delta hydrodynamics and water quality calculations, including DSM2, SCHISM, RMA2, UNTRIM, and Deltares codes. These models have different complexity (1D, 2D and 3D), architecture, institutional origins and support, performance, applicability, and capabilities. The diversity of applications as well as differing performance of these models seem to indicate that a review of their efficacy for Delta applications, particularly based on the experiences of the user community, is timely.

## ***Subsidence Reversal***

*Proposed by Thomas L. Holzer*

The land surface of much of the Sacramento-San Joaquin Delta is below sea level (subtidal) because of oxidation of underlying organic soils that was caused by their dewatering for agriculture. Based on current projections of sea level rise, additional intertidal land areas underlain by organic soil are threatened to become subtidal as well from relative subsidence. This review will examine both the state-of-the-science and state-of-practice of subsidence reversal activities. These activities include nurturing growth of native tidal vegetation and accumulation of organic matter at a pace sufficient to achieve and to maintain an intertidal land surface elevation. Such activities are recognized in the Delta Reform Act as one of the strategies to restore interconnected habitat within the Delta. Subsidence reversal is explicitly addressed by Performance Measure 4.12 of the 2020 Ecosystem Amendment to Chapter 4 in The Delta Plan. The proposed Delta ISB review will consist of a report based primarily on a two-day workshop that will summarize current practice and understanding of organic-soil subsidence reversal and identify technical challenges to its successful implementation. The review will be primarily topical and will include experience in Southern Louisiana and other areas as well as the Delta. The review will also include subsidence reversal in deeply subsided islands that would be unlikely to reach intertidal elevation by 2100, the planning horizon of The Delta Plan, as well as an assessment of agricultural practices to reduce subsidence rates in deeply subsided islands.