Science Needs Assessment
Science for a Rapidly-Changing Delta

Draft Outline (12/7/2020)

If you need assistance interpreting the content of the document, please email disb@deltacouncil.ca.gov.
This document makes use of bold and italics for emphasis.

Summary: Problem, major conclusions, and recommendations (2 pp)
Lead with primary objectives; include incremental and strategic change recommendations and the urgent need for bolder, forward looking and better integrated science and management program.

1. Introduction (1 to 2 pp)
   a. Purposes: Identify science priorities and science integration needs in the context of a rapidly changing Delta
   b. Scope of report: Delta-wide science challenges that span mandates of multiple agencies.
   c. Input to report: Symposia, focused discussions, reports, workshop
   d. Connect to other forward-looking initiatives: Water Resilience Portfolio, Nature-based Solutions Executive Order, etc.

2. Problem Statement: Delta Science with Rapid and Uncertain Changes (3 pp)
   a. Overarching Management Challenge: Forecast and prepare for a changing Delta
      i. Climate change: Sea level and temperature rises, Precipitation patterns, Extremes
      ii. Invasive species and native species declines
      iii. Catastrophic structural Delta failures: Floods, Earthquakes, Mega-droughts
      iv. Environmental flows, SGMA, and new regulatory strategies (voluntary agreements)
      v. Future water demands and infrastructure, etc.
   b. Certainties of Major Change – Some changes are nearly certain and some are ongoing
   c. Science for managing the Delta as a complex, integrated and connected system - Agency problems and agency-spanning problems
   d. Where are the gaps in science, expertise, and organization

3. Strategic and Bold Science Priorities (<3 pp) (see below)
   a. About five examples of large interagency needs for collaborative integrated solutions

4. Governance and operation of the Delta scientific enterprise (<5 pp) (see Appendices)

5. Findings and Recommendations (3 pp)
   a. Improve predictive capability of Delta science as a centerpiece for integration
   b. Develop understanding of Delta ecosystems under changing drivers and ecosystem responses
   c. Develop mechanisms to set high-level, multi-agency priorities
   d. Manage the Delta as a complex, integration and connected system responding to both natural and management drivers
   e. Develop a collaborative Delta scientific enterprise (include some implementation steps)

6. Next Steps (1 p)

Appendices

A. Types of Scientific Expertise Needed (<3 pp)
B. A concise overview of scientific organization approaches
C. A Collaboratory proposal?
   a. Resource List and links (Rapid change report, etc.)

References