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## Delta Independent Science Board

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May 22, 2012

To: The Delta Stewardship Council

From: The Delta Independent Science Board

Re: Commentary on the National Research Council Report, *Sustainable Water and Environmental Management in the California Bay-Delta*<sup>1</sup>

The National Research Council (NRC) report offers an insightful examination of the difficulties of generating science for, and linking science to, Delta policy and management. Its great strength lies in its comprehensive synthesis of the issues while also providing key examples and critical insights. The report reinforces many of the key messages the Delta Independent Science Board (DISB) has already conveyed.

The DISB commends the Council for the ways it is already utilizing the NRC report and wishes to further encourage its use, especially with respect to the following points:

- 1. Elaborate the coequal goals to facilitate science and policy for managing scarce water.** The report recommends that the coequal goals be more explicitly defined, and provides suggestions for doing so, to provide better guidance for scientific research and the further development of policy and management. (Chapter 2, p. 38-43)
- 2. Address all stressors.** The report's authors—like most scientists, including this board—are unable to describe a hierarchy of stressors that, in effect, “ranks” or prioritizes them in relative importance. All of the stressors, many of which interact, need to be reduced in this highly stressed ecosystem. (Chapter 3)
- 3. Think systemically.** Manage for broad goals rather than particular targets. The report's good advice emphasizes the fallacies of managing for particular species rather than the properties and functions of ecosystems. (Chapter 3)
- 4. Think ahead and manage for a future Delta.** Most of the Delta's original qualities cannot be recovered although a productive ecosystem can be maintained. The report anticipates changes in climate, changes in landscapes through levee failure, changes in flows and the nature of water scarcity, and changes in ecosystems. It advocates looking ahead and developing adaptive strategies for working with change. (Chapter 4)
- 5. Integrating the science for policy.** The report expresses significant concern over the state of science, including its organization, funding, lack of integrated models, and how it connects, or not, with policy. The fragmented jurisdictions and competing mandates of

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<sup>1</sup> Prepublication version at [http://www.nap.edu/catalog.php?record\\_id=13394](http://www.nap.edu/catalog.php?record_id=13394), 220 pp.

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the many agencies have reduced the effectiveness of science. The report commends the Delta Science Program for fostering constructive scientific dialog. It also illustrates approaches to avoid paralysis in the face of uncertainty. Adversarial science is good for assuring that all of the issues and science are considered, but at the same time, the scientific process must move toward resolution to implement management. The NRC Committee notes the need for synthetic science, true collaboration, and scientific consensus. The report provides advice that will be useful in the development of a Delta Science Plan. (Chapter 5, p. 173-177; Appendix F)

In summary, the DISB is impressed with the NRC report. It provides an excellent synthesis and solid advice while also stressing that there are many serious issues of the organization of science and governance that need to be addressed. Members of the DISB, like the authors of the NRC report, are concerned that the more complex goals of managing Delta ecosystems and the Delta as an evolving place are at risk unless reasonable expectations with respect to comprehensive governance are actually put in place. (Chapter 5, p. 167-172)