

California Department of Fish and Game Responses to: Questions from the Delta ISB for the December 1, 2011 meeting

Below are questions the Delta ISB would like each organization to address in brief opening remarks (5-10 minutes each), followed by a more detailed open discussion. The questions are intentionally broad, so the Delta ISB does not expect answers to all of them during the meeting. Instead, the Delta ISB would appreciate hearing about examples (successful or not) and what lessons were learned. Please feel free to focus on the questions most directly applicable to the organization and constituents you represent. If time doesn't allow you to answer fully, please submit written comments (address below).

1. In what ways do you feel Delta science is a) meeting the challenges of water and environmental management in the Delta, and/or b) not meeting these challenges? The Department believes that science is meeting the challenges of management in the Delta within the constraints of being able to identify appropriate research questions, develop appropriate study designs and implement the studies once designed within the constraints of available funding and contracting requirements. The Department has been particularly pleased with the work associated with the POD studies and the more intensive analysis of historical information. There is the need for ongoing synthesis of science conducted to date, making the results available to decision makers and the public.

Implementing investigations to answer specific questions in a timely manner is always a challenge. The recent efforts to develop and implement the fall low salinity zone investigations is a good example of identifying topics for investigation, vetting them with interested stakeholders and the scientific community, and implementing them in conjunction with ongoing field work conducted through the Interagency Ecological Program.

2. What factors have led to science being effective in addressing today's critical issues, and what factors have led to it being ineffective?

- ***Long term data sets for many of the species of concern and the environmental factors affecting them.***
- ***The availability of funding through agencies, the Delta Science Program, and the Ecosystem Restoration Program to solicit study proposals to address specific research targeted at addressing uncertainties identified in conceptual models for the Delta ecosystem.***
- ***Ongoing efforts through the Interagency Ecological Program to coordinate scientific investigations within the Delta to minimize redundancy and capitalize on synergy between studies and investigators.***

3. What are the emerging critical issues in the Delta that science will need to have addressed a decade from now?

- ***The role and effectiveness of habitat restoration (riparian, flood plain, and intertidal) on Delta and tributary ecosystems and processes.***
- ***The role of nutrients in the health of the Delta ecosystem.***

- *How to manage for a Delta ecosystem with quagga/zebra mussels.*
- *How to manage a Delta with many flooded islands for the benefit of the Delta ecosystem and a sustainable Delta economy.*

4. What should we be doing now and over the next few years to ensure these scientific issues are addressed?

- *Use the existing infra-structure of the DSP, IEP, and Delta ISB to coordinate, synthesize, and target research to address our existing gaps in knowledge about the Delta and the species that depend upon it and identify emerging science needs.*
- *Develop a data base of ongoing monitoring and research on the Delta and its tributaries that is accessible to the scientific community, stakeholders and the public.*
- *Continue to use panels of independent scientists to advise the agencies making decisions affecting the Delta.*
- *Integrate the monitoring, research and synthesis processes of the Delta Plan with those of the Interagency Ecological Program, Bay Delta Conservation Plan, CVPIA, ERP, the San Joaquin River Restoration Program, and Central Valley Flood Protection Program.*

5. To what extent is poor or incomplete communication of science an issue in the Delta? How can and how should the communication of science be improved?

Communication of science in a highly charged environment like the Delta is ongoing issue. The current environment of competing views of what stressors/drivers and to what extent any one stressor/driver affecting the health of the Delta obscures the fact that the Delta is a highly altered and complex ecosystem with many interacting factors.

- *A better process is needed to put the role of various stressors and drivers in context, this could be accomplished by convening independent panels to review current information on specific stressor/drivers and their relationship to other factors.*
- *The further development of existing conceptual models and making them more understandable to the public and decision makers is needed.*
- *Developing the California Estuarine Monitoring site for the California Water Quality Monitoring Council Web Portal would be an important tool in making information on ongoing monitoring and research available to the public. This is currently being coordinated by the IEP in cooperation with the SFWCA and TBI.*
- *Maintaining the current online Journal with the inclusion of articles summarizing the current state of knowledge on specific topics. Alternatively wider distribution of the IEP Newsletter or Estuaries, Outdoor California could be used to present information.*

6. Should separate and distinct roles be assigned to different sectors of the science community in the Delta (e.g., state agency scientists, academic scientists, NGO scientists, federal agency scientists, consulting firm scientists, water contractors, and municipal utility districts)? If so, what are these separate and distinct roles?

No, a higher degree of integration and coordination is needed, the IEP process should be expanded for coordination and processes developed to engage consulting firm scientists, water contractors, and municipal utility districts more fully in that process. IEP will need additional support to perform activities outside of their current work plan and budget.

7. The legislature mandates the Delta ISB to review and assess science programs related to the Delta, covering each science program at least every four years. The Delta ISB would appreciate your advice on how to define a science program and which of the programs merit different levels of reviews.

The Department views programs such as IEP certainly, SFWCA science program, SWRCB/RWQCB monitoring (developing Regional Monitoring Program for the Delta, existing RMP for SF Bay and Suisun), OCAP related monitoring as programs that should be reviewed and assessed.

The Delta ISB should establish standards for the use of science. A widely accepted standard of science is activity that follows acceptable experimental design and protocol that results in publication in peer reviewed journals that contribute to a body of science. Activities less than this are often performed by agencies for regulatory purposes, management purposes, and performance measurement. These activities can and should be just as rigorous scientifically, but may not end up as published science in peer reviewed journals. Reports prepared by agencies are seldom cited in scientific journals.

Opportunity exists for determining which monitoring programs performed by agencies, NGOs, and others provide sufficient scientific rigor that the resulting data could be stored and accessed by those in a position to analyze and publish the data in scientific journals. In this way the information would contribute to the specific body of science and be available in the scientific arena rather than languish in grey literature. The ISB could establish criteria required for a monitoring program to meet this rigor of data collection and management and include those programs as a science program or non-publishing science program. Programs not meeting the standards set by ISB would not merit inclusion as a science program and not require review.

Please submit written comments to:

Dr. Richard Norgaard, Chair of the Delta ISB
c/o Joanne Vinton
jvinton@deltacouncil.ca.gov