

Delta Science Plan Implementation/Priority Actions

Summary: In support of implementation of the Delta Science Plan, California Water Action Plan and, more specifically, the Interim Science Action Agenda, active engagement by DPIIC member agencies in coordination with the Delta Stewardship Council and the Delta Science Program is recommended for the following priority action items for 2015.

I. Overview

The Delta Plan was completed in December 2013 and lays the foundation for achieving a shared vision for Delta science; *'One Delta, One Science'* – an open Delta science community that works collaboratively to build a shared body of scientific knowledge with the capacity to adapt and inform future water and environmental decisions. The Delta Science Plan comprises a three-part planning, implementation, and reporting strategy. The strategy includes

- a) ***The Delta Science Plan*** – A shared vision for Delta science and a living guide for organizing, conducting, and integrating science in the Delta. It establishes the major elements, organizational structures, and key actions for improving the efficiency, utility, and application of Delta science across many agencies and institutions and for assuring its credibility, relevance, and legitimacy.
- b) ***The Science Action Agenda*** – The **Interim Science Action Agenda (ISAA)** is a first step toward the full Science Action Agenda by laying out the current priority science actions within organizations, programs and agencies. It is being used to identify opportunities for leveraging existing efforts and connecting managers and scientists with similar needs. The full Science Action Agenda will prioritize and align near-term science actions to inform management actions, develop the common body of knowledge that advances the understanding of the dynamic Delta system and achieves the objectives of the Delta Science Plan. The Science Action Agenda will identify priorities for research, monitoring, data management, modeling, synthesis, communication, and building science capacity. The Science Action Agenda will be developed by the Delta Science Program collaboratively with federal and State agencies, local government, science programs, academic institutions, stakeholders, and a Science Advisory Committee.
- c) ***The State of Bay-Delta Science (SBDS)*** – A synthesis of the current scientific knowledge for the Delta. Specifically, the *SBDS* communicates the state of knowledge to address the grand challenges, including progress made on key research questions and remaining knowledge gaps, which are used to guide updates to the Science Action Agenda. This is well underway with an editorial board appointed and most contributing authors identified.

II. Delta Science Program: 2015 Priority Science Actions

a. Action Item 1: Comprehensive Assessment of Bay-Delta System Monitoring

Background

Current monitoring programs were designed to meet various regulatory, programmatic, and research needs. Many have a long history of collecting environmental data that have built an invaluable record of the changes that have taken place in the Bay-Delta and its watersheds. However, there is evidential need for a comprehensive review and assessment of the Estuary's "monitoring enterprise", including evaluation and monitoring of how programs could be designed to serve the information needs related to climate change adaptation, population growth, and the effects of large-scale restoration and water management changes on Bay-Delta ecosystems and water supply reliability.

Purpose

This project will build on existing efforts to compile information from current monitoring programs and to understand the rationale behind the various data streams. Existing monitoring programs will be assessed for their scientific rigor and their relevance to current management goals and objectives. Key topics for investigation are appropriateness of monitoring design given advances in sensor technology, data processing, modeling, and decision support tools.

This collaborative analysis will look at the statistical basis behind these efforts and evaluate the ability to detect and understand system-wide responses through the following objectives:

- 1) Provide a comprehensive baseline assessment of the *What, Where, Why, When, and How* of Bay-Delta system monitoring;
- 2) Identify where new program sampling design, statistical analysis approaches and new technology could improve the efficiency and effectiveness of monitoring without compromising the integrity of valuable historic data sets; and
- 3) Develop a roadmap for improvements to monitoring, assessment, modeling, and decision support systems that are able to reduce scientific conflict and fill key information gaps for more integrative assessments of interactive stressors on ecosystem services.

This project will also support implementation of [CWAP Actions 3 and 9](#), [ISAA Action Area 15](#), and [DSP 4.2.2](#).

The scope should be sufficiently comprehensive to scale up more limited, subject- or stressor-specific reviews and produce recommendations that the Delta Plan implementation agencies can phase in as part of a truly comprehensive regional Delta monitoring program.

Implementation Next Steps: DPIIC Action

DPIIC member agency engagement is recommended for the following:

- 1) Participate in scoping the detailed review and assessment charge for this implementation action, and
- 2) Help to identify appropriate experts to comprise the assessment panel, which will require biostatisticians, ecosystem, hydrodynamics, and food web modelers, database managers and web services engineers, hydrologists, and governance and organizational network specialists.

b. Action Item 2: Pilot Interagency Proposal Solicitation

Background

There is a continuous need for scientific research to inform Delta decision-making. In addition to research that addresses specific management questions, research that helps to answer basic questions about how the Bay-Delta system works and research that helps train the next generation of scientists is also needed. However, a shared and balanced portfolio of research funding programs and mechanisms that address sustainable short-term and long-term science needs does not exist. (DSP Action 4.1)

Implementation Next Steps: DPIIC Action

The Delta Science Program recommends the initiation of a Proposal Solicitation Package [PSP] to stimulate high impact science to inform Bay-Delta management actions and policies, and that leverages funding from multiple sources including private foundations. The recommendation for 2015 is a pilot exercise to test how a collaborative science solicitation might work. Teams of scientists would submit proposals to assess and synthesize the state of knowledge about key species and habitats identifying the science needed to make significant progress towards resolving management questions. The focus of the proposals would be on scoping integrated programs that would transform the way science is done in the Delta. Teams should represent agencies, academia, NGOs and Public Water Agencies.

The Interim Science Action Agenda helps to set the stage for a collaborative PSP by identifying key cross-cutting science activities, needs, and action areas for the Delta science community. Such a project supports implementation of [CWAP](#), [ISAA Action Areas 15 and 17](#), [DSP Action 4.1](#).

Example research topics based on action areas identified in the ISAA could include:

- 1) What would it take to develop a comprehensive modeling and research program for Delta Smelt including refinements to Delta Smelt life cycle models?
- 2) What would it take to develop a comprehensive modeling and research program for Chinook salmon similar to the Columbia Basin Integrated Status and Effectiveness Project that includes salmon life cycle models?
- 3) Life cycle models for other species of concern.
- 4) Effects of changing quality and quantity of habitat on Delta plant and animal communities including responses of native and invasive species to restoration.
- 5) Research with the potential to transform Delta science and management, e.g. innovative applications of new sensor or other monitoring technologies.

III. Other 2015 Delta Science Program Priorities for Building Science Infrastructure

1. **Advance integrated physical and ecosystem modeling** (e.g., Host a Modeling Summit – toward community models) – [CWAP Action 9](#), [ISAA Action Area 16](#), [DSP Action 4.4](#)
2. **Initiate development of web-based tracking system for Delta Science** – Refine and expand existing efforts to develop and sustain a web-based tracking system to inventory and track research projects, monitoring, modeling, data management, synthesis, peer review, and other science activities to improve the transparency of science activities in the Delta. The web-based tracking system will make information about research and other science activities available to all. Primary responsibility will be that of the Delta Science Program in close partnership with USGS and with Action Participants including IEP, BDCP, ERP, CWQMC, SFCWA, Sacramento Regional County Sanitation District (SRCSD), and other science programs of federal, State, and local agencies. [CWAP](#), [ISAA Action Area 13, 14](#) and [DSP Action 2.3](#).
3. **Collaborative 2015 Science Fellows Solicitation** - The Fellows program engages talented young scientists in Bay-Delta issues and is an excellent way for agencies to recruit top young scientists to work with them closely before making commitments. The goal of the Delta Science Fellows Program is to enhance collaboration between universities and agencies or NGOs through joint scientific research conducted by an early-career scientist. The Science Fellows work collaboratively on data analysis and research projects relevant to Delta policy and management under the joint mentorship of senior agency scientists and university professors.

The goal of funding this research is to invest in knowledge that will advance the understanding of the complex environments and systems within the Bay-Delta to aid policymakers and managers, and to encourage the next generation of research scientists to engage in the water issues of California. Science Fellows are given early career leadership training that includes how to communicate science effectively and learn of career opportunities beyond academia. Many Science Fellows continue to work on California water issues as university researchers, agency employees, on science panels or on competitive grants. In 2013, the program became a multi-agency effort with additional funding provided by the U.S. Fish and Wildlife Service, NASA's Jet Propulsion Laboratory, and the California Department of Water Resources, which allowed the program to double the number of awards. Fellowships are awarded based on the intellectual merit of the application and the expected contribution to the priority issues facing agencies.

4. **'Science – Being the Messenger' Workshop, February 2015** - Nominations of key scientists from your agency to participate in this 2-day training workshop developed by the National Science Foundations are welcome. (*See attached announcement*)

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DELTA STEWARDSHIP COUNCIL DELTA SCIENCE PROGRAM

SCIENCE: BECOMING THE MESSENGER – COMMUNICATIONS WORKSHOP

Overview - The Delta Stewardship Council's (Council) Delta Science Program (DSP) will host a two-day workshop (February 10-11, 2015) titled – *Science: Becoming the Messenger*. This science communication workshop, led by Ninja Communications and representatives of the National Science Foundation (NSF), equips participants with real-world skills and techniques to plan, create, and implement impactful, convincing communications. This event is an example of DSP efforts to support achieving 'One Delta, One Science'.

Problem Statement – Important scientific information is often underutilized because it is not effectively communicated. Better science communication is needed to effectively inform policy and management decisions and build the Delta science community.

Goal - The goal of this event is to enhance the capacity of the Delta science and management community to effectively communicate and increase the exchange of best available science to support decision-making in pursuit of attaining the coequal goals. Developing science communication capacity is an area of increasing importance and emphasis across all levels of the scientific enterprise. This workshop will directly address section 4.7 of the Delta Science Plan by cultivating science communication capacity across the local science and management community. To engage various partners and the broader science community, DSP is providing workshop access to the member agencies of the Delta Plan Interagency Implementation Committee (DPIIC), other local partners and the academic community that is actively working on Delta science and management issues.

Details characterizing this two-day event:

- Day 1 – The first day of this event will be held at the UC Davis ARC ballroom with ~ 100 active participants. The agenda includes activities to develop clear messages in Power Point presentations and while being interviewed or video- recorded by the media.
- Day 2 – The second day is designed to intensify the training for a select group of about 15 people and will be held at the Park Tower Building (home of the Council in downtown Sacramento) in the 2nd floor conference room. The focus will be on one-on-one coaching and small group activities to develop communication plans, tips to handle Q&A sessions, and deliver persuasive messages to different audiences.

Ninja Communications/NSF Background – Since 2010, Ninja Communications has partnered with the National Science Foundation to offer over 50 of these unique and world-class skill-building science communication workshops. These workshops have mentored thousands of scientists while positioning Ninja Communications as a leader in the field of science communication training. <http://niniacom.com/>