

**Science Symposium on Environmental and Ecological Effects of
Proposed Long-term Water Project Operations
June 19-20, 2003
Redwood Room, University Union
Sacramento State University**

The California Bay-Delta Authority has planned a series of symposia and workshops to present and discuss information related to the environmental and ecological effects of proposed long-term water project operations, the South Delta Improvement Program, and water management strategies such as the Environmental Water Account (EWA).

The June symposium will consider some of the key policy and science issues associated with the long-term Operations Criteria and Plan (OCAP) proposed for the Central Valley Project (CVP) and State Water Project (SWP).¹ Workshops in July and August on Chinook salmon and delta smelt (respectively) will consider new information on modeling and the population biology of these fish, and consider how actions under the EWA program protect these fish. A workshop in October will include an in-depth review of the EWA and discuss the X2 standard. The goals for this series of symposia and workshops are:

1. Provide a forum for a balanced open discussion of proposed CVP and SWP operations, water management strategies, and the consequences to fish species of concern in the Delta and upstream project areas.
2. Help the public, stakeholders, and the agencies developing the biological opinions for CVP and SWP operations, pursue a common understanding of the state of knowledge and critical uncertainties associated with evaluating the implications of proposed water project operations and water management strategies in the Delta and upstream project areas.
3. Provide managers and policy makers a synopsis of the “state of knowledge and uncertainties” for some of the most important intersections between policy and science with respect to proposed changes in water project operations.

¹Background information for many of the management and science issues relevant to water project operations in the Sacramento-San Joaquin Delta are presented in a written summary of the Science Program’s April 2002 Water Operations workshop. This summary is available at <http://science.calwater.ca.gov>, click on “Workshops and Conferences”, click on “Past Workshops” and then scroll down until you see “Water Operations and Environmental Protection in the Delta.”

Day One: June 19, 2003

Session One: Introduction and Policy Perspectives

Welcome

8:00 – 8:25: Sam Luoma, CA Bay-Delta Authority.

Welcome; logistics, symposium goals, context, and approach; review schedule and purpose of upcoming related workshops/symposia.

Policy Perspectives

8:25 – 8:45: Patrick Wright, CA Bay-Delta Authority.

Policy context and policy challenges for water operations and environmental management as the CALFED ROD is implemented, with special emphasis on upcoming OCAP and SDIP projects.

8:45 – 8:55: David Fullerton, Metropolitan Water District of Southern CA.

What are the critical technical and management issues in proposals for future project operations and what is their importance to balancing water supply, quality and reliability with habitat restoration and recovery of listed species?

8:55 – 9:05: Curtis Creel, CA Department of Water Resources.

Future operations of the State and Federal Water Projects: Operational challenges in balancing water supply, quality and reliability with habitat restoration, and recovery of listed species.

9:05 – 9:15: Susan Ramos, US Bureau of Reclamation.

What are the critical technical and management issues in balancing water supply, quality and reliability with habitat restoration, and recovery of listed species?

9:15 – 9:25: Richard Denton, Contra Costa Water District.

The effects of water operations and environmental management on drinking water quality.

9:25 – 9:35: Spreck Rosekrans, Environmental Defense.

What are the important technical and management issues in crafting an environmental water policy with regard to the proposals for long-term water operations?

9:35 – 9:50: Diana Jacobs, CA Department of Fish and Game.

What are the important technical and management challenges in managing environmental resources under the proposals for long-term water operations?

9:50 – 10:05 BREAK

10:05 – 10:25: Ann Lubas-Williams, US Bureau of Reclamation.

A summary of the project description and findings from the draft OCAP assessment including identification and treatment of uncertainties.

10:25 – 10:45: Rick Sitts, Metropolitan Water District of Southern CA.

A framework for assessing the merits of actions affecting fish: integrated fish management as a guiding concept for prioritizing science and policy decisions in the Delta.

Session Two: Upstream Flow Fluctuations and Barriers to Fish Migration

Flow Fluctuations

10:45 – 11:15: Bruce Oppenheim, NOAA Fisheries.

Understanding the consequences of flow fluctuations in managed river systems: Definition of key terms and presentation of a conceptual model. Overview of Chinook salmon ecology and the significance of flow fluctuations in the Lower American River.

11:15 – 11:45: Kenneth Rose, Louisiana State University and EWA Panel.

What we know about managing optimum flows for Chinook salmon in Central Valley streams, combining models with biological needs.

11:45 – 12:45 LUNCH

Barriers to Fish Migration: Red Bluff Diversion Dam (RBDD) Case Study

12:45 – 12:55: Serge Birk, Central Valley Project Water Association.

Introduction and summary of present RBDD operations and policy issues: the need for operational changes to improve fish passage and water supply reliability

12:55 – 1:15: Mike Tucker, NOAA Fisheries.

How do RBDD operations affect fish mortality, fish distribution, and our ability to estimate salmon escapement.

1:15 – 1:35: Dave Vogel, Natural Resource Scientists, Inc.

Scientific uncertainties associated with RBDD fish passage.

Assessing the intersections between scientific information and policy issues: what can we do with the knowledge we have?

1:35 – 2:05: Panel Discussion and Audience Question and Answer. (Serge Birk, Facilitator)

A panel consisting of Kenneth Rose, Dave Vogel, Mike Tucker, Max Stodolski, Bob Williams (invited), and Bruce Oppenheim will present thoughts and discuss the questions below.

- a) What are the benefits and costs to listed and non-listed fish species by choosing an alternative at RBDD? (i.e., redesign fish passage, gates out all year, more pumps and screens, etc). What are the uncertainties?
- b) What flow patterns are optimal for fish protection?
- c) What are the benefits, limits, and uncertainties in managing reservoir releases for salmon?

2:05 – 2:20 BREAK

Session Three: Understanding Bay-Delta Processes, Fish Mortality, and the impacts of water project operations

2:20 – 2:50: Wim Kimmerer, Romberg Tiburon Center.

Open-water processes of the San Francisco Estuary with emphasis on water project operations in the Delta.

2:50 – 3:20: Jon Burau, US Geological Survey.

The affects of river flows, tides, exports and Delta physiography on Delta hydrodynamic processes and the implications for fish movement.

3:20 – 3:50: Jim Cowan, Louisiana State University and EWA panel.

Fish mortality and population dynamics: a conceptual framework for understanding anthropogenic effects on fish populations and the sources of fish mortality in a highly disturbed estuary.

3:50 – 4:10: Zach Hymanson, CA Bay-Delta Authority.

Definitions and conceptual models for the types of fish mortality we think about in the Delta.

4:10 – 4:40: Ted Sommer, CA Department of Water Resources.

Understanding the Sacramento Splittail lifecycle and the effects of environmental stressors on population dynamics: insights into measuring and managing mortality associated with water project operations.

4:40 – 5:10: Bill Bennett, UC Davis, Bodega Marine Laboratory.

Understanding the delta smelt lifecycle and the effects of environmental stressors on population dynamics: insights into measuring and managing mortality associated with water project operations.

5:10 – 5:30: Sam Luoma and Speakers.

Audience Question and Answer, Day one wrap-up and concluding remarks.

Day Two: June 20, 2003

Session Three, Continued: Understanding Bay-Delta Processes, Fish Mortality, and the impacts of water project operations

8:15 – 8:45 John Williams, Independent Consultant. Understanding the salmonid lifecycles and the effects of environmental stressors on population dynamics: insights into measuring and managing mortality associated with water project operations.

8:45 – 9:15: Jim Buell, Buell and Associates.
Sources of direct mortality: understanding the data, assumptions and uncertainties in estimating fish entrainment loss at the south Delta export facilities.

9:15 – 9:35: Jim White, CA Department of Fish and Game.
Regulatory approaches to direct mortality (take management), the legal basis, derivation, historical experience and reasons to consider changes.

9:35 – 9:50 BREAK

9:50 – 10:20: Bryan Manly, Western EcoSystems Technology Inc.
Use/appropriateness of the available statistical tools in assessing and quantifying fish mortality in the delta. How do proportional estimates of salmon mortality differ and why?

10:20 – 10:40: Tina Swanson, The Bay Institute.
Understanding and evaluating uncertainties: Approaches and opportunities for managing fish in the face of uncertainty.

Session Four: Bay-Delta Processes and Export-Related Linkages to Fish Mortality: What have we learned from VAMP and DCC

10:40 – 10:55: Bruce Herbold, US Environmental Protection Agency.
Introduction, impetus for VAMP and DCC; overview of study designs and questions.

10:55 – 11:15: Chuck Hanson, Hanson Environmental Consulting, Inc.
Sampling adequacy and statistical considerations: lessons for other Delta projects and experiments.

11:15 – 12:00: Pat Brandes, US Fish and Wildlife Service.
Salmon mortality in the Delta: Assessing the effects of water project operations and VAMP.

12:00 – 1:00 LUNCH

1:00 – 1:30: **Dave Vogel, Natural Resource Scientists, Inc.**

What have we learned about salmon movement in the Delta from DCC and VAMP experiments?

1:30 – 2:00: **Susan Anderson, UC Davis, Bodega Marine Laboratory.**

Effects of toxic substances on native fish: A perspective linking molecular and population responses.

2:00 – 2:15 BREAK

2:15 – 2:45: **Kevin Fleming, CA Department of Fish and Game.**

How are delta smelt distribution, growth, and salvage affected by pulse flows like VAMP? Movement and behavior of delta smelt in a tidal system: what are the relative effects of different water management strategies?

2:45 – 3:05: **Tara Smith, CA Department of Water Resources.**

Using a particle-tracking model to understand how water project operations affect fish distribution?

3:05 – 4:30: **Panel discussion (led by Bob Twiss and Sam Luoma).**

- Identify and discuss linkages between scientific understanding and water operation management issues, with a focus on delta smelt and spring-run Chinook salmon.
- Where uncertainty exists, what is the degree of coalescence in our understanding of:
 - The data
 - Existing models
 - Current interpretations
- What can we do to reduce the uncertainties that remain?

4:30 – 5:00 Audience Question, Answer and concluding remarks