

Agenda Item: 8-3B
Meeting Dates: April 8, 2004

INFORMATIONAL REPORT ON THE INDEPENDENT SCIENCE BOARD

Summary: This report provides an update on recent and planned activities of the Independent Science Board (ISB).

Recommended Action: Informational only. No action to be taken.

Background

The California Bay-Delta Authority Act of 2003 calls for the establishment of a board of independent experts to be known as the Independent Science Board (ISB) to provide advice and recommendations to the Authority and the Bay-Delta Public Advisory Committee on the application of science to all CALFED Program elements. On August 14, 2003, the Authority approved Resolution 03-08-03 establishing an Independent Science Board, its initial membership, charge, and structure.

The Independent Science Board is a standing board of distinguished experts (scientists and engineers) whose role is to directly advise the Authority's governing body on the application of science and the effectiveness of science practices across the CALFED Program. The Independent Science Board is not asked to pass direct judgment on the success or failure of the Authority's programs, but to provide insights regarding the science underlying those programs, the application of that science, and the technical aspects of those programs.

ISB Meetings

An initial organizational meeting of the ISB was held on October 20, 2003. At this meeting the ISB received presentations regarding specific aspects of the CALFED Program and reviewed its charge.

A second two-day meeting of the ISB took place on January 28-29, 2004. At this meeting the ISB agreed on a recommendation for a new Lead Scientist, elected an ISB chair (Dr. Tom Dunne) and vice chair (Dr. Denise Reed), began to construct a workplan for 2004, and established several subcommittees to investigate specific issues (see details below). The ISB also held an open public session on January 29, 2004 during

which it heard comments and perspectives from agency and stakeholder representatives.

Future meetings of ISB are scheduled for April 22-23, September 22-23, and December 7-8, 2004.

ISB Activity

The following ISB subcommittees have been formed to begin addressing specific issues. These subcommittees will work between ISB meetings to develop findings and recommendations for consideration and action by the entire ISB.

1. **New Member Subcommittee:** Formed to develop a list of disciplines not represented on the Board and a list of potential candidates to recruit to the board. Subcommittee consists of Drs. Helen Ingram (Chair), Bob Twiss, Jack Keller, and Bill Glaze.
2. **ERP/EWA Subcommittee:** Formed to examine coordination and integration between the Ecosystem Restoration Program (ERP) - including the Environmental Water Program (EWP) - and the Environmental Water Account (EWA). Subcommittee consists of Drs. Kenneth Rose (Chair), David Freyberg, Ken Cummins, and Duncan Patten.
3. **Levee Integrity Fact-finding Subcommittee:** Formed to investigate potential science issues associated with integration between the Levee Integrity Program and other programs. Subcommittee consists of Drs. Jeff Mount and Bob Twiss.
4. **Science Program PSP Subcommittee:** Formed to provide review and advice to the Science Program on the development of the Science Agenda and science Program PSP. Subcommittee consists of Drs. Judy Meyer, Duncan Patten, and Kenneth Rose.

In addition to the subcommittee activity noted above, the ISB has targeted the following near-term actions:

- Addressing issues and concerns regarding the potential for conflicts of interest that might arise for Board members;
- Providing review and comment on the proposed structure and composition of a Water Management Program - Independent Review Board;
- Learning about and potentially offering advice regarding the science issues relating to Integrated Delta Improvement Package; and
- Refining the ISB operating guidelines and charge.

The ISB has also preliminarily identified the following cross-program issues that they would like to see considered and addressed in the long-term:

- How the EWA, ERP, and EWP programs share scientific information and visions;
- The relationship between science and policy in CALFED;
- The long-term implications of climate change for CALFED programs;
- How CALFED programs address uncertainty;
- Monitoring and performance assessment;
- Estimation of population growth and its effects on CALFED programs;
- A conceptual framework for assessing changes in water quality;
- Technical and social aspects of water conservation; and
- Invasive species.

Fiscal Information

Not Applicable

Attachment

Attachment 1- Independent Science Board Members and Biographies -
<http://science.calwater.ca.gov/pdf/ISBbios030204.pdf>

Contact

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Independent Science Board Biographies

Ken Cummins, Ph.D

Senior Advisory Scientist, California Cooperative Fisheries Unit, and Adjunct Professor, Humboldt State University.

An expert in stream, river and wetland ecology, Dr. Cummins currently is a member of the CALFED Ecosystem Restoration Program Science Board. He has done extensive research on aquatic ecosystems and land-water interactions, including sources and concentrations of organic carbon. He has served on several national science advisory committees and previously held the post of distinguished scientist for the South Florida Water Management District's Ecosystem Restoration Department, and is a member of the Science Advisory Board for USEPA. He earned his doctorate in zoology / limnology from the University of Michigan, Ann Arbor.

Thomas Dunne, Ph.D. - Chair

Professor, Donald Bren School of Environmental Science and Management and of Geological Sciences, University of California Santa Barbara

Dr. Dunne currently studies hydrology and fluvial geomorphology in the Andes Mountains of Bolivia, the Amazon River basin of Brazil, and the Sacramento River basin. He has practiced research and consultation in many parts of the world, and expressed that experience in teaching, advising government agencies, publishing journal articles, and co-authoring two textbooks. He is a member of the National Academy of Sciences, American Academy of Arts and Sciences, and California Academy of Sciences. He served on a number of National Research Council committees, the CALFED Ecosystem Restoration Program Science Board; and chaired the University of California Committee on Prediction of Cumulative Watershed Effects. He received a doctorate in geography from the Johns Hopkins University.

David Freyberg, Ph.D.

Associate Professor, Department of Civil & Environmental Engineering, Stanford University

Dr. Freyberg's research interests include surface and subsurface hydrology, ephemeral channels, wetlands and sediment management in small reservoirs. He is an expert in hydrology, hydrogeology, and water resources engineering, and has served as a member of the CALFED Environmental Water Account review panel. He is a past chair of the National Research Council's Water Science and Technology Board, and co-author of the widely used text, *Water-Resources Engineering*. He earned his doctorate in engineering from Stanford University.

William Glaze, Ph.D.

Professor, Department of Environmental and Biomolecular Systems, Oregon Health and Science University

Current chair of the U.S. Environmental Protection Agency's Science Advisory Board, Dr. Glaze is an expert in water quality and drinking water treatment. He serves on the National Academy of Sciences Board of Environmental Studies and Toxicology, and is a former chair of EPA's Drinking Water Committee. He received his doctorate in physical chemistry from the University of Wisconsin.

Helen Ingram, Ph.D

Professor of Social Ecology, University of California, Irvine

With her research focus on water resources and equity issues, Dr. Ingram has participated in numerous science conferences and symposia convened by the California Bay-Delta Authority. She is considered an expert in environmental and water policy design and implementation, and has done extensive research into institutional change and the impact of policy on democracy and public participation. She is a member of the National Academy of Sciences and Technology Board and, since 2001, has served on the review panel for the CALFED Environmental Water Account. She received her doctorate in public law and government from Columbia University.

Jack Keller, Ph.D.

Principal, Keller-Bleisner Engineering, and Professor Emeritus, Utah State University

A member of the National Academy of Engineering, Dr. Keller is an international advisor on agricultural water use. He is considered an expert in irrigation, water conservation, and water resources planning in irrigated regions. He serves as an advisor and lead scientist to the CALFED Water Use Efficiency Program. Dr. Keller has a degree in civil engineering and earned his doctorate in agricultural and irrigation engineering at Utah State, University.

Jeff Koseff, Ph.D.

Professor of Environmental Fluid Mechanics in the Department of Civil and Environmental Engineering, Stanford University

Dr. Koseff's research interests are in the general area of environmental fluid mechanics, and focus specifically on the interaction between physical and biological processes, and on transport and mixing processes in the near-coastal environment. An expert in San Francisco Bay and Delta hydrodynamics, Dr. Koseff's work includes modeling and research into transport and mixing processes in the Bay, and the dynamics of stratified flows. Specific research includes bivalve feeders and benthic boundary layers, phytoplankton dynamics in estuarine systems, hydrodynamic transport in estuarine systems and coastal upwelling processes. He earned his doctorate in civil and environmental engineering from Stanford University.

John Melack, Ph.D.

Professor, Donald Bren School of Environmental Science and Management, and Department of Ecology, Evolution and Marine Biology, University of California, Santa Barbara

An international advisor on lake ecosystems, freshwater ecosystems and climate change, Dr. Melack conducts research programs in limnology, biogeochemistry and remote sensing. He serves on the National Academy of Sciences panel on geophysical and environmental data, and is an advisor to NASA on uses of remote sensing. He is a member of the CALFED In-Delta Storage Science Review Panel. Dr. Melack earned his doctorate in biological sciences from Duke University.

Judith Meyer, Ph.D.

Distinguished Research Professor of Ecology, University of Georgia

A nationally recognized expert on aquatic ecology and rivers, Dr. Meyer is past president of the Ecological Society of America and has been Director of the River Basin Science and

Policy Center at the University of Georgia. She is the 2003 recipient of the Award of Excellence in Benthic Science and chaired the Technical Selection Committee for the CALFED's 2002 Ecosystem Restoration Program grant selection process. She earned her doctorate at Cornell University.

Jeff Mount, Ph.D.

Professor, Department of Geology, University of California, Davis

Dr. Mount's research program focuses on the geology, geomorphology and restoration of lowland river systems. Dr. Mount is also involved in the integration of science and policy in the management of California's rivers. Author of the acclaimed book, *California Rivers and Streams*, Dr. Mount currently holds the Roy. J. Shlemon Endowed Chair in Applied Geosciences at UC Davis and is the Director of the UC Davis Watershed Center. He serves as a member of the California Reclamation Board and is a member of the National Academy of Sciences Committee on the Klamath River. He received his doctorate in Earth Sciences from the University of California, Santa Cruz.

Duncan Patten, Ph.D.

Research Professor, Big Sky Institute, Montana State University

With expertise in landscape and riparian ecology, Dr. Patten has conducted extensive research into western desert and mountain ecosystems, and ecological processes and restoration of western riparian and wetland systems.. He was senior scientist with the Bureau of Reclamation's Glen Canyon Environmental Studies, overseeing research on the effects of operations of Glen Canyon Dam on the Colorado River riverine ecosystem, and has directed cumulative effects research on the upper Yellowstone River. He has served on National Science Foundation panels, has been a member of various committees, boards, and commissions of the National Research Council and has been an officer in the Ecological Society of America. He received his doctorate from Duke University.

Denise Reed, Ph.D. – Vice Chair

Professor, Department of Geology and Geophysics, University of New Orleans

Dr. Reed's current research focus includes sediment dynamics and wetlands restoration in the Sacramento-San Joaquin Delta, Louisiana and the Columbia River estuary. She is considered an expert in wetlands geomorphology and has helped develop restoration plans for coastal Louisiana for the past five years. Dr. Reed currently serves on the CALFED Ecosystem Restoration Program Science Board. She earned her doctorate in geography from the University of Cambridge in England.

Kenneth Rose, Ph.D.

Professor, Department of Oceanography & Coastal Sciences/Coastal Fisheries Institute, Louisiana State University

With expertise in fish ecology and population models, Dr. Rose has published numerous articles and served on many national advisory panels regarding fish and water policy. His current research involves mathematical and computer modeling of aquatic populations, communities, food webs and ecosystems. In addition, Dr. Rose currently serves on the review panel for the CALFED Environmental Water Account. He received his doctorate from the University of Washington.

Robert Twiss, Ph.D.

Professor, Graduate Center for Environmental Design Research, University of California, Berkeley

As an expert in environmental and regional planning, Dr. Twiss has been involved in all levels of planning and research for local, regional state and federal agencies as well as the United Nations. He serves as co-chair of the CALFED Ecosystem Restoration Program Science Board. He also serves as consultant to the California Attorney General's Office, and is a member of the Independent Science Panel for the North Coast Regional Water Quality Control Board and Humboldt County Watersheds. He received his doctorate in conservation from the University of Michigan.