## **Panel Discussion: Perspectives on Delta Economic Futures**

<u>Jerry Meral</u>, California Natural Resources Agency, jerry.meral@resources.ca.gov <u>Jeffrey Michael</u>, University of the Pacific, jmichael@PACIFIC.EDU

The Bay Delta Conservation Plan (BDCP) recently released a Statewide Economic Impact Report which will be presented by Jerry Meral of California Natural Resources Agency. Impacts of BDCP implementation were estimated through measuring the BDCP's incremental costs and benefits to state and federal water contractors, Delta-dependent economic activities, non-market environmental amenities, and statewide income and employment. This analysis concluded that the BDCP would have positive economic benefits for California through increasing economic welfare, business activity, and employment.

Dr. Jeffrey Michael of the University of the Pacific will provide a counter discussion surrounding the cost-benefit analysis. Dr. Michael's points include the need to analyze other alternatives which may include options focused on seismic levee upgrades as advocated by the Delta Protection Commission, as well as the Delta corridors plan through-Delta alternative. Additionally, Dr. Michael will discuss the necessity of placing an economic value on environmental impacts, such as the Delta's special status fish species.

Panelists will be asked a series of questions by session moderator Campbell Ingram, to further articulate some of the differences in perspectives that the impacts of the BDCP and other alternatives will have on the economic future of the Delta. Key assumptions of each panelist's perspective will be a primary discussion point. Audience members will also be given the opportunity to pose questions to the panelists.

Keywords: Delta, Economics, BDCP, Levee, Water, Business, Employment, Fish, Impacts

Session Title: Delta Economics and Managing Multiple Stressors

**Speaker Biography:** Gerald Meral, Ph.D. was appointed Natural Resources Agency deputy secretary for the Bay Delta Conservation Plan (BDCP) on Jan. 19, 2011. Dr. Meral will be charged with guiding completion of the BDCP to restore the Bay-Delta ecosystem and create water supply reliability for California. In addition, he will also be responsible for the development of any revenue and funding proposals necessary to complete the plan.

Dr. Meral was executive director of the Planning and Conservation League from 1983 to 2003. He previously served as deputy director of the California Department of Water Resources from 1975 to 1983 under Governor Brown, and director of the western water program of the Environmental Defense Fund from 1971 to 1975. Dr. Meral holds a Ph.D. in zoology from the University of California, Berkeley. He received a Bachelor of Science degree from the University of Michigan. He lives in Inverness, Calif. with his wife Barbara.

**Dr. Jeffrey Michael** is Director of the Business Forecasting Center at the University of the Pacific in Stockton, CA. The Center produces quarterly economic forecasts for California and ten Northern California metro areas in addition to special reports on current business and public policy issues impacting the region. Jeff's areas of expertise include regional economic forecasting and environmental economics including work on the economic impacts of the Endangered Species Act, climate change, and regulation on land use, property values and employment growth. Before coming to Pacific in 2008, he spent nine years as faculty, Associate Dean, and Director of the Center for Applied Business and Economic Research at Towson University in Maryland. Jeff received his Ph.D. from North Carolina State University, M.S. from the University of Maine, and B.A. from Hamilton College.

## Scientist and Stakeholder Views on Delta Ecosystem Management

Ellen Hanak, Public Policy Institute of California, hanak@ppic.org

Despite broad scientific recognition that a wide range of ecosystem stressors are responsible for the declines in the Delta's native fish populations (NRC 2012), significant tensions have arisen between science and policymaking regarding the relative roles of different stressors and the potential of various management actions to improve ecosystem health. This talk summarizes results from a study designed to inform the policy process through the use of confidential surveys of scientific researchers (those publishing in peer-reviewed journals, n=122) and engaged stakeholders and policymakers (n=240). The surveys, conducted in mid-2012, sought views on the sources of ecosystem stress and priority management actions. The scientist survey is an example of the growing use of expert elicitation to address gaps in the scientific literature, particularly where there is uncertainty about priorities for decisionmaking. The stakeholder survey is a useful complement, enabling the identification of areas of consensus and divergence among stakeholder groups and between these groups and scientific experts. The results suggest such surveys are a promising tool for addressing complex water management problems. We found surprisingly high agreement among scientists on the relative roles of stressors and the most promising management actions; they emphasized restoring more natural processes through habitat and flow actions within the watershed, consistent with "reconciliation ecology" approaches. In contrast, scientific consensus was far lower on the potential of infrastructure and technology tools (e.g. tunnels, gates, hatcheries)—underscoring the importance of building knowledge on such efforts. Also surprisingly, stakeholders from groups with widely diverging public positions broadly agreed with scientists that multiple stressors are responsible for the Delta's plight, and most agreed with scientists on management priorities. However, individual groups were more likely to prioritize actions unrelated to their own uses of Delta resources. Building shared understanding on Delta science can contribute to a more constructive policy process.

**Keywords:** Ecosystem Stressors, Delta Science Policy, Survey Methods

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**Speaker Biography:** Ellen Hanak is a senior fellow at the Public Policy Institute of California (PPIC). Her career has focused on the economics of natural resource management and agricultural development. Since joining PPIC in 2001, she has built an influential, multi-disciplinary water policy research program involving scholars from across California. Other areas of expertise include climate change and infrastructure policy. She has also held research positions with the French agricultural research system, the U.S. President's Council of Economic Advisors, the World Bank, and the Brookings Institution. She holds a Ph.D. in economics from the University of Maryland.

## **Managing Delta Ecosystem Reconciliation Adaptively**

Jay Lund, UC Davis, jrlund@ucdavis.edu

The Delta is a diverse and evolving place, subject to a wide range of intense interests and numerous governmental and management authorities. Many of these governmental authorities and programs have advocated "adaptive management" as part of their work, and many have begun to develop their own independent "adaptive management" programs. Rhetorical consensus has been achieved in this regard. Some ideas are presented on how adaptive management might be implemented for the Delta to achieve greater ecosystem management effectiveness, focusing on the uniqueness and developmental potential of different places within the Delta and the importance of developing computational models to integrate and test knowledge. At its best, adaptive management will be an imperfect and awkward process. However, if properly structured and led, it might prove to be less imperfect and controversial, but more effective than current management.

**Keywords:** Adaptive Management

Session Title: Delta Economics and Managing Multiple Stressors

**Speaker Biography:** Jay Lund is the Director of the UC Davis Center for Watershed Sciences and a Professor of Civil and Environmental Engineering. He is also a member of the Delta Independent Science Board and has been mired in Delta issues for several years.