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SF E&W San Francisco Estuary & Watershed Science: A Broad Perspective

Essays on Science and Policy in California's Bay–Delta

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California Governor Jerry Brown and former Secretary of the Interior Kenneth Salazar, in releasing the Bay–Delta Conservation Plan (BDCP) on July 25, 2012, stated that:

> "*Science will guide how to best restore the [Bay–Delta] ecosystem and how much water can be exported.*" (Natural Resources Agency 2012)

The proclamation did not state how this would be accomplished, but set a deadline at the close of 2013 for establishing decisions about how science will guide policy. Phil Isenberg, Chairman of the Delta Stewardship Council (DSC), noted that "policy-makers need the scientific community to tell us what [the scientific community] needs, how their involvement should be structured, and when and where they should get involved." California is poised to take the next step in building a science-based water policy and our leaders want to hear from the science community about what that should look like.

The DSC's Science Program released a draft Science Plan for public comment on June 18, 2013. That plan addresses many of the basic questions about structuring science for the Bay–Delta. But a broader dialogue on science–policy partnership might also be in order to complement the Science Plan and the BDCP. S*an Francisco Estuary and Watershed Science* might be one logical outlet to continue the non-partisan dialogue initiated by the release of the Science Plan, especially given the journal's role as a partner in the DSC's Science Program.

To that end, I invited nine experts each to write a 2,000-word essay addressing the statement that science will guide policies concerning water supply reliability and ecosystem restoration in the Bay–Delta. The idea came from a discussion with two editorial board members and Phil Isenberg. The experts that were invited are all leaders with substantial experience in working between science and policy. Their backgrounds vary: from natural scientists and engineers to social scientists and policymakers and influencers. Some of the authors are independent outside experts, some are people

who are deeply involved in Bay–Delta issues. Few constraints were placed on the essays' content other than addressing the science–policy question and restricting its length. The fact that nine people of this stature, leaders in both California and elsewhere in the nation, were willing to spend time thinking and writing about Bay–Delta issues speaks to the global interest in how we address our challenges with water in California, as well as the importance of the science–policy question in this context.

"The Bay–Delta essays add to this literature in three ways... The diversity of approach reflects how complex it is to optimally mesh science into policy."

There is a large and complex literature that addresses how to optimally use science to guide environmental policy. That literature mostly focuses on the difficulties of establishing efficient and effective interactions. It is probably fair to say the literature is long on identifying problems and short on success stories. The Bay–Delta essays add to this literature in three ways: Some take a broad perspective; some deal directly with science and policy for the Bay–Delta; and some are case studies. The diversity of approach reflects how complex it is to optimally mesh science into policy. There is not one science and one policy, yet we do need bridges to tie them together. The essays identify many nuances in both science and policy that can facilitate or hinder interaction. Considering these nuances, many bridges are probably needed. Our essays suggest that in some cases we can predict aspects of the outcome with reasonable certainty should successful bridges be built. In other cases, there is more uncertainty.

We have made progress in building a solid base of scientific knowledge about the Bay–Delta. The draft Science Plan presents a vision for next steps and a general vision for policy progress may also be taking form. But there is a uniform consensus among the essays that we can do better. There are serious problems with the approach that dominated the last decade, and that approach must change. The future is likely to hold even greater challenges than today, making it paramount that change begin immediately. Words used to characterize these challenges included: "complexity," "uncertainties," "institutional fragmentation," "disrespect and distrust among parties with different interests," "combat science," "value-driven choices," "obstacles to change," and "cultural divide." Yet there is also a clear, unanimous opinion that there are ways to move beyond the dysfunctions of the past. Scientists have (perhaps new) responsibilities if we are to change the approach, as do policymakers and influencers. Clarifying goals, building trust and facilitating linkages are common themes and some insightful approaches are identified for doing so. "Vision," "collaboration," "coalitions," "supportive leadership," "means for changing policy," and "sustained commitment" are words that described the broad recognition that it is time to begin working together in new ways. Adaptive management is seen as one bridge between science and policy, albeit a challenging one to implement. Better communication is another. And specific examples are given of how we might make progress with both.

Each of these essays, in its own right, is thought provoking and insightful. My overall impression from them is that the challenges in addressing water policy issues in California are great, but it is feasible to improve how science can and should be used to guide policy. If we can do that, progress toward solving the larger problems is pos-

sible. At *SFEWS* we are humbled that we can publish these essays in one place. I urge you, our readers, to read all of them and think about their messages. I encourage our leaders do so as well. There is much that is applicable, in a positive way, to aid us in our journey toward a sustainable water future in California.

REFERENCE

[Natural Resources Agency] California Natural Resources Agency. 2012. Governor Brown and Obama Administration outline path forward for Bay Delta Conservation Plan. California, Interior, NOAA reaffirm commitment to comprehensive solution to California's water supplies and a healthy ecosystem [Internet]. Press release dated July 25, 2012. [cited 06 January 2013]. Available from: *http://baydeltaconservationplan.com/Libraries/Dynamic_Document_Library/Joint_Announcement_Press_Release-7-25-12.sflb.ashx*