

Our Actions, Our Estuary
9th Biennial State of the San Francisco Estuary Conference

ORAL ABSTRACTS: Day 2 Presentations

Making Adaptive Management Work: Examples from Australia with Potential Application to the Delta

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Two major water resource efforts in Australia are substantively building adaptive management into the water management framework. The Healthy Waterways Partnership (<http://www.healthywaterways.org/Home.aspx>) is an ongoing collaboration between government, industry, researchers, and the community to manage and improve catchments and waterways in South East Queensland. Two principles guide the Healthy Waterways Partnership. The first is a working partnership where all partners are heard, and the second is developing strategies based on sound science, rigorous monitoring, and adaptive learning. The adaptive management framework for the Healthy Waterway Partnership emphasizes evaluation, targeted research, and improved understanding as key attributes of successful adaptive management accompanying policy planning, implementation, and monitoring. The Commonwealth Water Act 2007 stipulates a Basin Plan for the Murray-Darling Basin commence in 2011 and authorized the Murray-Darling Basin Authority (<http://www.mdba.gov.au/>) to develop the Basin Plan. Preparation of the Basin Plan is ongoing with a draft for review to be completed in 2009. Environmental monitoring will use adaptive management techniques in which new data and information are considered as they become available. New research and understanding are to be incorporated into the planning process through the Basin Plan. Knowledge generation to identify and address knowledge gaps and inform management actions is an important component of the emerging Basin Plan. As planning for the Delta proceeds in California, these examples from Australia may provide guidance and colleagues for common discussions as water resource management faces the challenges of climate change and increased human population.

Session: Scientists' Perspectives on Managing a Changing Delta

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Managing for What We Don't Know, and May Never

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The future is uncertain. No surprise there - yet most of our planning processes for ecosystem management focus on moving towards a future condition which can be described in concrete terms. In New Orleans the transition from describing the effect of levee projects as providing 'protection' to 'risk reduction' importantly recognizes the risk that remains, even with a solid levee system, due to uncertainties that cannot be predicted or in many cases fully described. Louisiana is embarking on a new approach to planning for the future of the coast guided by a stakeholder-developed vision of the future. The vision will be translated into quantifiable targets but the effect of individual projects in meeting those targets will consider a range of future uncertainties – from sea-level rise and subsidence to freshwater and sediment availability to the effects of climate change on the frequency of storms and floods – using simplified models of system dynamics. Using the science we have to better inform planning for the future requires us to more explicitly appreciate what we do not know and develop object and transparent tools that allow decision-makers to explore a range of future possibilities.

Key Words - *Louisiana; ecosystem restoration; planning tools; uncertainty*

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Next Steps in Improving Water Management in California

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There are many important lessons to be drawn from the last decade of experience with California water issues. One is that the development of the goals, strategies and tactics necessary to remodel how we manage water and ecosystems in California is a long-term “journey” in which we should not expect an end-point at which our water problems will be resolved. There exists a consensus that the status quo in the Delta is unacceptable. But Californians also need to think carefully about the benefits, risks and challenges in demanding an immediate fix to today’s perceptions of the problems. The complexity of the issues, a variable mother nature, a changing climate, an ever evolving political environment, and a vastly modified hydrology all suggest a multi-decadal strategy is necessary to progressively move toward sustainable water management. Identification of the ingredients in such a strategy is incomplete, however. For example, stable funding is crucial but not sufficient. An ever-growing knowledge of the complex issues and the response of the system to management and natural changes is essential. Enough water must be “in play” to make a difference in management of both ecosystems and a reliable societal supply. Recognition of the appropriate time scale upon which to expect change is perhaps the greatest challenge. A long-term journey into an uncertain future also requires flexibility. Each choice of tactics should be at least partly judged by how well it allows flexible responses and/or adaptations to surprises. There is political risk, but perhaps ultimately great value in acting systematically, prioritizing flexibility, building on successes and assuming California’s water issues will always require attention, investment and adjustment.

Key Words - *water management, Delta, science program*

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Tackling the Trash Epidemic

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Trash and especially plastic debris continue to present a growing water quality problem in San Francisco Bay and its tributaries. Despite extensive public education campaigns, media attention, and the California Ocean Protection Council's aggressive marine debris reduction strategy, the bay is still under daily assault from trash pollution.

Our bay trash adds to a global problem, flowing through the Golden Gate to join the Texas-sized "Great Pacific Garbage Patch" floating in the Pacific Ocean. Countless seabirds, marine mammals, and fish die annually from eating or getting tangled in marine debris. With the Bay Area population expected to grow to 8.1 million by 2020, bay pollution will increase unless we take bold action.

Solving this trash epidemic requires accelerated and concerted actions at all levels. Federal and state agencies have a crucial role, enforcing U.S. and California laws designed to protect water bodies as a public resource, and imposing tough regulations to achieve water quality standards. In February 2009, The San Francisco Bay Regional Water Quality Control Board voted unanimously to designate large portions of bay and 24 of its tributaries as so choked with trash that they violate the federal Clean Water Act. At the urging of the U.S. Environmental Protection Agency and other stakeholders, the Regional Water Board is now considering significant restrictions on trash discharged by cities and counties in a new Bay Area Municipal Regional Permit for storm water.

New state laws that discourage the production of trash and prevent its discharge into our waters can yield the swiftest progress throughout California. And in the environmentally conscious Bay Area, municipalities also must step up to reduce trash at its source and interdict it before it reaches the bay. Several Bay Area cities have adopted effective programs to reduce trash and other pollution flowing into the bay, and these provide models that can be replicated rapidly throughout the region. These city programs can help the region's seven million residents reduce trash and other toxic bay pollution by making it easier for each of us to prevent it. Some programs cost little or nothing to implement, but they can significantly reduce Bay pollution and protect the bay.

The Bay Area's quality of life and economy depend on a healthy, vibrant bay. Making significant reductions in bay trash is essential to protect the bay for people and wildlife today and for future generations.

Key Words - *trash; pollution; debris*

Session: Pollution Solutions

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A New Era for Pollution Prevention

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Tracking the evolution of Pollution Prevention over the last 50 years takes us through four "ages" and into the modern era of the new millennium. Identifying the successes and remaining work from the BOD, Toxics, Bioaccumulent, and Endocrine Disruption Ages is both encouraging and sobering. It allows us to see the results of four main tactics: Treatment, Product Substitution, Production Stewardship and Product Elimination. Reviewing examples of our efforts in using these tactics gives us good information for the problems of the modern era. Unfortunately some of our newest problems look a lot like the oldest ones, and we won't be able to discard any of our tactics. We will need them all as we go "back to the basics".

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Oil, Sewage, and Estuary Resilience

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Some serious pollution problems in the Bay in recent years – including the 2007 Cosco Busan oil spill, and significant sewage spills – have drawn the attention of regulators, scientists, and the public to our urgent need to develop the Estuary’s resilience to insults both large and small. This is a situation where highlighting the problems can help to build a constituency for solutions that might otherwise be seen as too costly, too labor-intensive, or too long-term to justify public or private investment.

In addition to infrastructure repairs and upgrades and recent legislation aimed at preventing future spills, we can point to wetland restoration projects, which are ongoing in many locations; refuge habitat recovery projects, as at Aramburu Island in Richardson Bay and salt pond restoration areas in both the South Bay and the North Bay; and projects to enhance eelgrass beds, to help minimize the casualties from these types of events. Water Board enforcement actions also call attention to the problems, and our system of penalties for administrative civil liabilities allows us to focus penalties on projects that will help the Estuary. Identifying projects that will enhance the resiliency of the Estuary so that it can recover from any future spills as well as adapt to climate change is a work in progress. But we’re on our way, and increasing public attention to the good news and the bad news can only help us get to where we need to be.

Key Words - *Oil; Sewage*

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