Meeting the San Francisco Bay – Delta Challenge

Collaboration & Science

The Challenge

Background: The ecological health of the San Francisco Bay and the Bay Delta rely on mixing of fresh water from 1,000 miles of rivers – the Sacramento River flowing from the north and the San Joaquin River flowing from the south – with seawater from the Pacific Ocean.

The system has been greatly altered: dams have blocked fish passage, 1,100 miles of levees have changed meanders and floodplains to deepwater channels, reclamation efforts have turned marsh into valuable farmland, and pumping of surface and ground water has diverted water that would have returned to the marshes, Bay Delta, and the Pacific.

The natural interface between salt and fresh water has been impaired, resulting in the loss of vital estuary habitat. More than 25 million people rely on the Bay Delta for their water, their livelihood, and their recreation. Human demands for water continue to increase and the system is further stressed by impaired water quality and invasive species. The future impacts from climate change are not fully known, but a rising sea level will threaten levees and other structures and push salt water further into the system. The current state of the Bay Delta is unsustainable.

The Present: As a result of past research, the current Bay Delta Conservation Planning process, and recent drought conditions, more is known about the Bay Delta system than at any time in the past. The public is focused and energized, and a wide range of stakeholders (fishing, agriculture, urban centers, recreational and environmental interests) are involved.

State and federal agencies are aware of their own strengths and weaknesses. Information needs are widely understood. The current state of the Bay Delta, the importance of the resource to the State of California, and the need to plan for climate change demands we focus and act now.

Need: We need a wide-ranging collaboration to define and implement actions to ensure an acceptable and attainable future for the Bay Delta system. We need to restore and conserve natural resources while recognizing that restoring the Bay Delta in its original state is not attainable.

We need to ensure a reliable water supply, both water quantity and quality, to meet the future needs of agriculture, urban consumption, recreation, and the environment. We need to design an infrastructure capable of minimizing the effects of climate change and seismic events.

We need a practical vision with public support. We need to focus the state and federal agencies, gather relevant expertise, eliminate redundant and conflicting work, and fill information gaps (for example, the impact of invasive species).

We must eliminate institutional barriers so we can make the best use of people and resources. We will involve all stakeholders from the beginning. This may help reduce the constant litigation that disrupts long-term efforts and drains resources. We need to work and learn from a foundation of statistically sound monitoring regimes.

The Resolution

Collaboration: We need a center for collaboration and problem solving, a Bay Delta Collaboration and Science Technical Center, that will bring people together in a real and virtual sense to define an attainable future for the San Francisco Bay Delta system.

The collaborative process will use the principles of Strategic Habitat Conservation to focus resources to desired outcomes, especially when challenged by the need for adaptive management to address the effects of climate change. We will keep public support as we transition from modeling the future to implementing the actions needed to attain the future. We will need an oversight and management structure with long-term vision able to withstand political change.

The Bay Delta Collaboration and Science Technical Center: Much of the capacity for monitoring the physical and biological parameters of the Bay Delta and for implementing habitat restoration projects currently exists within state and federal agencies, universities, and non-governmental organizations.

The Technical Center will focus on the collaboration needed to model and implement actions to address climate change, conservation of species, restoration of habitat, reliability of water supplies, and human needs. The Technical Center will link existing facilities to allow core leadership to expand monitoring and restoration activities through actual and virtual co-location of people, programs, and agencies. The Technical Center will use virtual technology to connect people and agencies to develop, prioritize, and implement Bay Delta restoration. The Center will use the solid foundation of monitoring and restoration capacity that exists within the region through the use of real-time access to the latest data, studies, and models of the Bay Delta system.

Aquatic Species Research Facility: The Bay Delta needs an aquatic species research facility capable of preserving genetic stocks and conducting population restoration research on state and federal imperiled species.

Rapid declines are occurring in a number of Bay Delta species, including delta smelt, longfin smelt, green sturgeon, salmon, and out of basin populations of Sacramento perch. We must conserve imperiled species populations while the Bay Delta ecosystem is restored to a functional level. We must develop the capacity to undertake captive propagation of a number of imperiled aquatic species to maintain genetic broodstocks, conduct population research, and investigate the extent captive propagation could help restore natural populations through augmentation.

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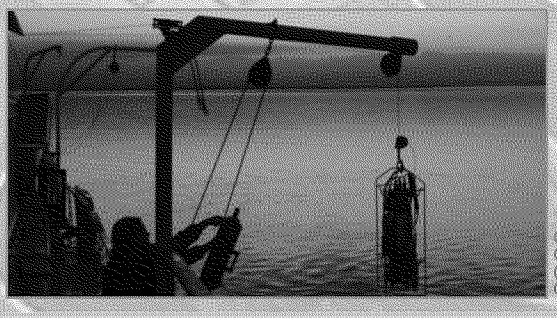

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