

The Baylands and Climate Change: What We Can Do

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The Baylands and Climate Change: What We Can Do is an update to the 1999 Baylands Ecosystem Habitat Goals that synthesizes the latest science about the baylands and factors in projected future change through 2100 to outline new recommendations aimed at achieving healthy baylands ecosystems. Over 150 estuarine scientists, natural resource managers, and restoration practitioners collaborated to produce this report. The need for new recommendations was driven by advances in scientific understanding of drivers of change, particularly climate change and sediment supply, that will significantly impact the baylands by the end of this century. A long-term vision is crucial to prepare for climate change and to plan restoration actions decades in advance. The habitat acreage goals set in 1999 remain the same. However, new approaches need to be taken to achieve the goals, and these approaches are laid out in the updated recommendations. The following strategies are recommended to maintain healthy baylands and the benefits they provide:

Restore complete baylands systems – both the habitats themselves and the processes that sustain the habitats.

Accelerate restoration of complete baylands systems by 2030.

Plan ahead for the dynamic future.

Increase regional coordination and collaboration.

These recommendations will be the focus of the conference presentation. The recommendations must be integrated with social, civic, and economic planning to arrive at appropriate implementation strategies. This report provides technical information that policy makers and others can use in deciding how to take actions to maximize ecosystem health.

Keywords: baylands goals update, climate change, resilience strategies, ecosystem restoration, recommendations

Session Title: Baylands Ecosystem Habitat Goals Science Update 2015

Speaker Biography: Letitia Grenier co-directs SFEI's Resilient Landscapes Program. She is the science lead for the 2015 State of the Estuary Report (a SF Estuary Partnership project) and the 2015 update to the Baylands Ecosystem Habitat Goals (a California Coastal Conservancy project), heading a team of over 200 environmental scientists, managers, and regulators to develop science-based recommendations for restoring and maintaining the health the Bay's tidal wetlands in the face of rising sea levels and other stressors. Letitia holds a PhD in Conservation Biology from the University of California at Berkeley and has previously worked on investigating bioaccumulation of contaminants in estuarine food webs, the condition of California's wetlands, and other ecological questions about the Bay. Her focus now is to work with partners to conserve California's living resources by developing landscape-scale, collaborative, science-based visions and solutions.

Landscape Vision and Implementation Ideas for Suisun and North Bay

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Building on BEHGU's regional recommendations, subregional landscape visions have been developed that are place-specific and incorporate climate change. These provide a picture of how each subregion could look in the future if the recommendations are implemented. Suisun provides abundant opportunity to restore large patches of tidal marsh that adjoin broad areas of transition zone, while maintaining large tracts of diked marsh for intensive waterfowl management. The goal is to restore large connected areas of tidal habitat in Suisun Marsh and along the Contra Costa shore, to conserve and enhance adjacent terrestrial areas and associated seasonal wetlands, and to enhance remaining managed marsh habitat. The North Bay is similarly envisioned with restored large tidal marshes as part of a mosaic of dynamic, diverse, connected habitats from the Bay to the watersheds, and with enhanced managed ponds. Both visions face significant challenges of infrastructure, invasive species, subsidence, and the need to manage water levels and address flood management issues for adjacent lands.

To implement the subregional visions, BEHGU has developed actions grouped by shoreline segment based on the 1999 Habitat Goals. There are two groups of actions: (1) for habitats and the landscape in general that will benefit wildlife communities overall, and (2) for particular wildlife populations. For instance, restorations in Suisun should prioritize the areas that have naturally gentle slopes to maximize plant diversity in the transition zone and are ideal for landward marsh migration. Diked areas of Suisun Marsh that are not restored to tidal marsh should be enhanced to increase waterfowl diversity and carrying capacity, manage mosquitoes, reduce subsidence, and improve water quality. In the North Bay the focus is restoring a broad swath of tidal marsh along the shore as soon as possible and restoring riparian corridors, including floodplains, to connect the Baylands to the lower watersheds.

Keywords: Bayland Goals Update, Suisun Bay, San Pablo Bay, North Bay

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Speaker Biography: Jeremy Lowe is a coastal and estuarine geomorphologist with over 30 years' experience in Europe and the US, the last 15 years on the West Coast with PWA, then ESA and now SFEI. His work has included the design of sea defenses in Venice, Italy and the planning of wetland restoration at Ballona Wetlands in Venice, California. Jeremy is the author of tidal wetland design guidelines for San Francisco Bay and a chapter author for the San Francisco Baylands Ecosystem Habitat Goals Update. He is working on a number of projects in the Bay designed to investigate the integration of ecosystem restoration, water quality and flood risk management in a more resilient shoreline.

Landscape Vision and Implementation Ideas for Central and South Bay

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Just as in the previous presentation, BEHGU subregional landscape visions have been developed for Central and the South Bay. These provide a picture of what each of these subregions could look like in the future if the recommendations were implemented successfully. The Central Bay is the region's most intensively developed shoreline, yet it is home to critical Bayland resources and is the visible center of the urban Bay Area. There are limited opportunities for large-scale restoration, yet there are opportunities for small-scale restoration projects with co-objectives of generating new knowledge and new public-private partnerships and community involvement. The vision for the Central Bay is to protect and enhance marshes and mudflats, while connecting urban residents to the Baylands with restoration projects that demonstrate how climate change adaptation can provide vital services while improving ecological health. In contrast, the South Bay provides some of the most extensive opportunities in the region to restore the Baylands. The vision for South Bay is to restore large tidal marshes as soon as possible. Given the large areas available for restoration and generally high sedimentation rates, tidal marsh restoration (including transition zones) to increase long-term shoreline resilience should be emphasized.

Within each subregion, the BEHGU team has developed implementation actions grouped by segment, following the layout of the 1999 Habitat Goals. There are two groups of actions: (1) for habitats and the landscape in general that will benefit overall Baylands communities, and (2) for particular wildlife populations that need extra attention. Examples of implementation actions range from large-scale restoration of former salt ponds (including creating large upland transition zones) in the South Bay, to multiple smaller-scale efforts in the Central Bay, including restoration of subtidal habitats such as eelgrass and oyster beds, and utilizing living shoreline techniques to protect more urbanized shorelines.

Keywords: Baylands Goals Update, marsh restoration, subtidal, central bay, south bay

Session Title: Baylands Ecosystem Habitat Goals Science Update 2015

Speaker Biography: John is a wetland ecologist that has served as the Executive Project Manager for the South Bay Salt Pond Restoration Project since 2009. John has almost 20 years of experience working on large-scale wetland restoration projects from San Francisco Bay, to coastal Louisiana, to mangrove swamps in the central Pacific. He has an M.S. in biology from the University of Louisiana at Lafayette and a B.S. in biology from Tulane University.

Marilyn Latta is a Project Manager at the California State Coastal Conservancy. She manages the SF Bay Living Shorelines Project, Invasive Spartina Project, and additional regional projects and collaborative planning efforts in San Francisco Bay. She studied Marine Biology/Zoology at Humboldt State University, and prior to joining the Conservancy she worked for a variety of non-profit organizations to educate and involve the public in the protection and restoration of ocean and estuarine resources.