FLOOD CONTROL 2.0

REBUILDING HABITAT AND SHORELINE RESILIENCE THROUGH A NEW GENERATION OF FLOOD CONTROL CHANNEL DESIGN AND MANAGEMENT

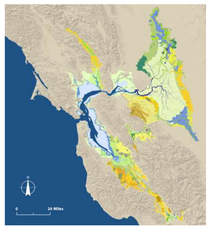
Project partners: San Francisco Estuary Partnership, San Francisco Estuary Institute, San Francisco Bay Conservation and Development Commission, San Francisco Bay Joint Venture, San Francisquito Joint Powers Authority, Committee for Green Foothills, Marin County Flood Control and Water Conservation District, Contra Costa County Flood Control and Water Conservation District. Funding from the US Environmental Protection Agency through the San Francisco Bay Water Quality Improvement Fund

Flood Control 2.0 will help develop and implement a set of innovative approaches to flood control management along the San Francisco Bay shoreline. Our broad local-regional partnership leverages flood control agency resources to significantly improve the amount, quality, and long-term resilience of Bay Area tidal wetlands, beaches and mud flats, and major creeks. This timely and comprehensive project takes advantage of the "second chance" provided by Bay Area history - the need and opportunity to rebuild aging or out-of-date flood control infrastructure at the Bay shore, while addressing the interrelated challenges of habitat restoration, ineffective sediment transport, increasing flood risk, and sea level rise.

HISTORICAL ECOLOGY AND SEDIMENT SYNTHESIS

Regional Historical Ecology Synthesis

- Synthesis of data describing the historical structure and habitat characteristics of the fluval-tidal interface, thereby creating a new understanding of how Bay Area streams interfaced with the San Francisco Bay shoreline
- Development of classification schemes of historical fluvial-tidal interface including form and function of habitat types



Regional Sediment Synthesis

- Development of regional estimates of coarse sediment supply to flood control channels
- Synthesis of regional flood control agency information regarding location and volume of sediment removal in flood control channel
- Synthesis of current regional spending on coarse channel sediment management and estimation of dredged sediment volume available for reuse

Conceptual Model Development

- Development of conceptual models of sediment transport and habitat characteristics of the fluvial-tidal interface and associated shoreline based on historical and modern channel function, watershed characteristics, sediment supply, storage characteristics, grain size, sediment quality and other indicators

REGULATORY AND ECONOMIC GUIDANCE

- Analysis of regulatory challenges, and development of recommendations and guidance document
- Economic analysis of costs and benefits of traditional Flood Control practices versus flood control 2.0

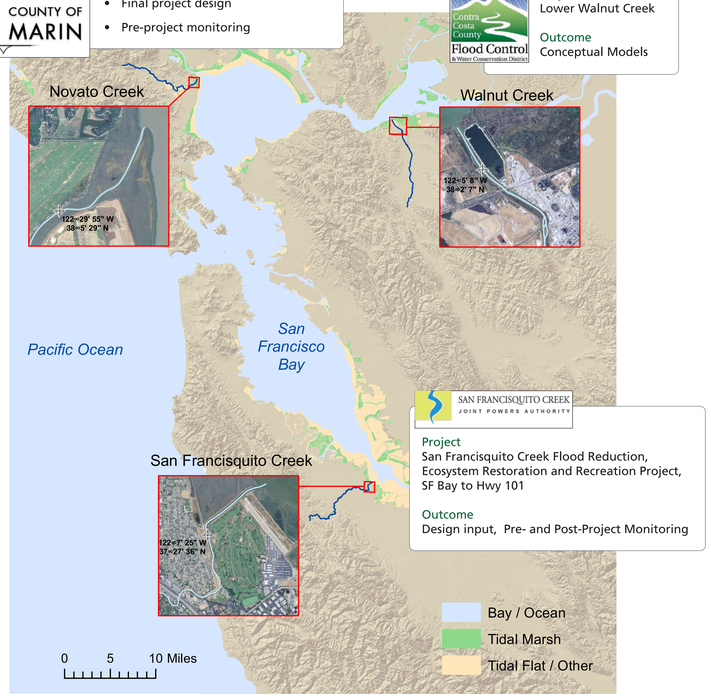
IMPLEMENTATION PROJECTS

Project
Novato Creek Watershed Hydraulics Study and Alternatives Analysis

Outcome
- Historical Ecology study and conceptual design options
- Final project design
- Pre-project monitoring

Project
Lower Walnut Creek

Outcome
Conceptual Models



Project
San Francisquito Creek Flood Reduction, Ecosystem Restoration and Recreation Project, SF Bay to Hwy 101

Outcome
Design input, Pre- and Post-Project Monitoring

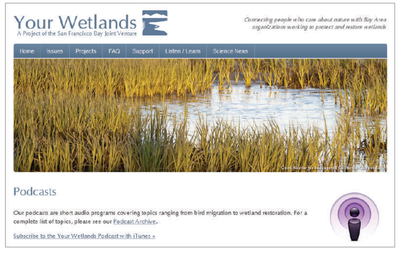
Flood Control 2.0 includes partnerships with local agencies responsible for three flood control channel projects. The three implementation projects represent different regions of the Bay and different stages of project trajectory, providing an ideal suite of case studies to inform the regional approach. The projects will provide an opportunity to take advantage of the historical analysis, test out the redesign concepts, identify and work through regulatory issues, and implement a monitoring program. Results from the local partnerships and implementation projects will help inform future projects in other Bay Area flood control channels.

PUBLIC OUTREACH AND EDUCATION

Engage the public at local and regional levels:

- Focused Local Community Engagement with Each Implementation Project
- Develop and Distribute Project-Related Podcasts covering "What is Flood Control 2.0?," "The Role of Sediment in Estuary," "Historical Ecology of Flood Control Channels," and the Implementation Projects.
- Partner with the Oakland Museum of California to incorporate concepts about Flood Control 2.0 in the museum's exhibition about the San Francisco Bay

(Above and Below: Stories from our Changing Bay, at the Oakland Museum of California August 31, 2013 – February 23, 2014.



Check www.yourwetlands.org for podcasts!

ABOVE AND BELOW
STORIES FROM OUR CHANGING BAY

See http://www.museumca.org/exhibit/above-and-below for more information).

BUILD A REGIONAL TOOLBOX

Creation of "SediMatch", a collaborative effort to bring together the restoration community and the dredging community to find mutually beneficial ways to increase reuse of dredged sediment at habitat restoration sites in need of sediment.

Develop a website vlearinghouse for flood control channel multi-benefit design materials

- Scientific, Design, Policy and Permitting Tools
- Economic Rationale/Guidance
- Decision Trees for Opportunities, Constraints, Benefits
- Project documents, links to other resources including a regional inventory and GIS mapping of flood control infrastructure