



## INFORMATION ITEM

### **Bay Conservation and Development Commission's Adapting to Rising Tides Project**

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**Summary:** Bay Conservation and Development Commission (BCDC) staff will present the findings of the Council-funded East Contra Costa County Adapting to Rising Tides (East Contra Costa County ART) Project. Council staff will also report on how the technical approach and adaptation strategies used by this project may benefit the Council's Climate Change Vulnerability Assessment (CCVA) and Adaptation Strategy.

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#### **Background**

The Delta Reform Act of 2009 (Cal. Wat. Code §§ 85000-85350; Delta Reform Act) charges the Delta Stewardship Council (Council) with furthering California's coequal goals for management of the Sacramento-San Joaquin Delta (Delta). California Water Code section 85058 stipulates that the Delta includes the Suisun Marsh as defined in the Suisun Marsh Preservation Act (Cal. Pub. Res. Code § 29101). The Council shares planning, resource management, and climate change adaptation planning responsibilities in the Suisun Marsh with the San Francisco Bay Conservation and Development Commission (BCDC). BCDC is an independent California state agency established under Title 7.2 of the Government Code (the McAteer-Petris Act) responsible for ensuring that development in San Francisco Bay is consistent with the McAteer-Petris Act, the San Francisco Bay Plan, the Suisun Marsh Preservation Act, the California Environmental Quality Act, and the San Francisco Bay segment of the California Coastal Zone Management Program.

In 2011, the Council and BCDC entered into a memorandum of understanding (MOU) to improve coordination for management of the Suisun Marsh and climate change planning in the San Francisco Bay-Delta. Under the MOU, the Council and BCDC are to mutually review each other's climate change adaptation policies, coordinate in forums and working groups to develop climate change adaptation policies, and to coordinate on sea level rise planning that may be adopted by the Council in the Delta Plan.

#### **The ART Program and East Contra Costa County ART Project**

BCDC's Adapting to Rising Tides (ART) Program has led or supported numerous vulnerability assessments and sea level rise adaptation planning efforts throughout the San Francisco Bay Area; including adaptation planning for western and central Contra Costa County. BCDC's ART program is a collaborative action-focused advisory process to build resilience to sea level rise and storm flooding across multiple assets and jurisdictions. The ART Program's shoreline adaptation planning in the San Francisco Bay Area provides a positive model that can be adapted to help meet the goals of the Delta Reform Act in the face of rising sea levels.

Originally, the ART program did not extend into East Contra Costa County, but the communities within this area were interested in the study and the BCDC did not have adequate funding to undergo a separate study. Seeing the benefits of including this part

of the Delta, the Council entered into a contract with BCDC in 2018 to fund the ART program in East Contra Costa County, extending from Pittsburg east to Discovery Bay. BCDC developed novel hydrodynamic modeling, flood exposure maps, a vulnerability assessment, and proposed adaptation and implementation strategies with collaboration from a stakeholder workgroup comprised of county agencies, cities, special districts, local agencies, private entities, and non-governmental organizations. ART staff also engaged in planning meetings with the public in Antioch and Pittsburg to help identify assets included in the vulnerability assessment.

The project was completed in December 2019. The full report, mapbook, and adaptation strategies can be accessed in full at the following link:

<https://www.dropbox.com/sh/v5r3dgkrbr14yj1/AABs45gRJV6xhdIM8riQ2i5ha?dl=0>. A formatted report will be prepared for public release in January 2020, and is already having a positive impact on raising awareness of sea level rise in East Contra Costa County. Partnership between the Council, BCDC, and the working group is a crucial step in coordinating climate change adaptation planning between the Delta and San Francisco Bay.

### ***Vulnerability Assessment and Adaptation Strategy***

New sea level rise and hydrodynamic modeling that encapsulates daily and extreme water levels in the Delta was used to create inundation and shoreline overtopping maps. These analyses predict temporary flooding from storm events and permanent inundation from sea level rise. Flood risk exposure maps overlaid with asset maps informed the vulnerability assessment and adaptation strategy.

#### Shoreline Flood Explorer Website

The flood risk exposure maps are available to the public via the East Contra Costa Shoreline Flood Explorer website (<https://eccexplorer.adaptingtorisingtides.org/>). The Flood Explorer enables users to visualize how gradual sea level rise and storm flooding would affect the region in different ways.

#### Vulnerability Assessment

The East Contra Costa ART vulnerability assessment consists of asset exposure analyses using four water level scenarios identified in the California Adaptation Planning Guide, with and without a 100-year storm event. Using maps prepared for each of the defined scenarios, the vulnerability assessment identifies that 100-year storm events are an immediate and expansive threat to East Contra Costa County, while sea level rise represents a longer-term threat. Risk of temporary inundation from a 100-year storm event covers much of the low-lying eastern region of the Project Area, and may be a preview of consequences of sea level rise over a longer time period. This is illustrated in **Figure 1**, which consists of two map panels identifying the modeled flood exposure under 12 inches of sea level rise, with and without a 100-year storm event.

BCDC coordinated three workgroup stakeholder meetings to inform the vulnerability assessment phase of the project. The workgroup was pivotal in identifying essential data sources, assessing relevance of vulnerabilities, and steering the resilience goals of the project. BCDC staff and the workgroup identified the following key planning issues

that characterize asset vulnerabilities with significant and early consequences, suites of asset classes that share exposure risk and potential solutions, and vulnerabilities that require collaborative decision-making, funding, or regulatory solutions.

These key vulnerability planning issues focus adaptation strategies for the region:

- Shoreline industries
- Vulnerable communities
- Access to services
- Ad-hoc flood protection
- Parks and open space
- Levees, reclamation, and subsidence
- Worsening water quality

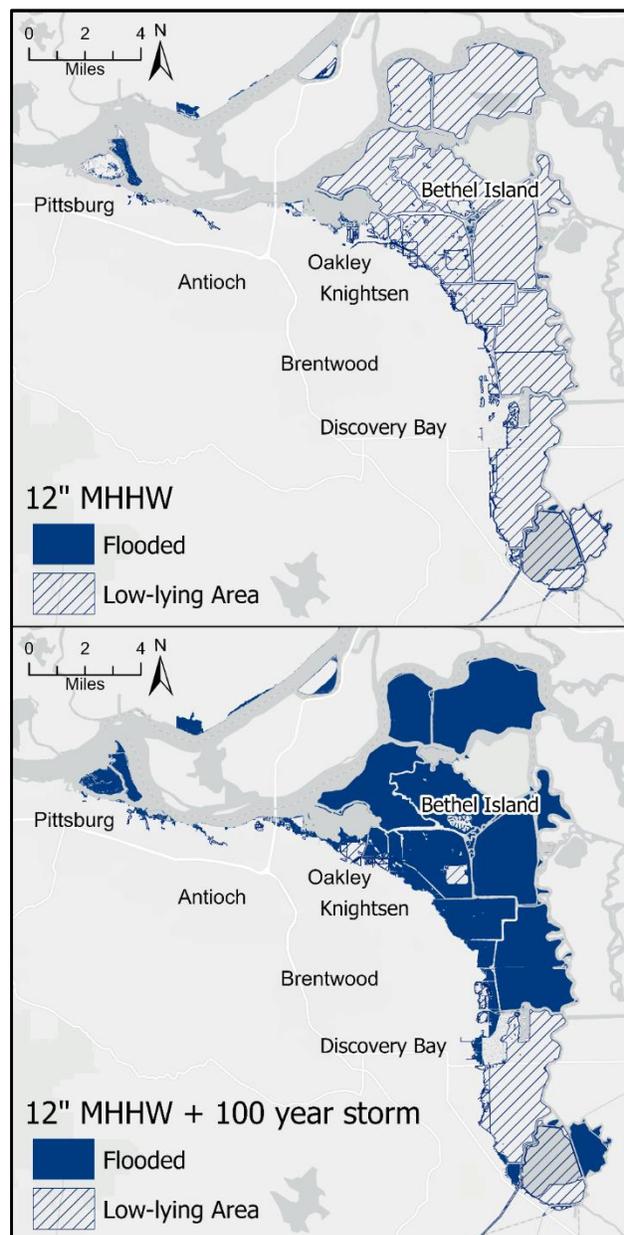
#### Adaptation Strategy

BCDC staff and the workgroup developed adaptation responses for the asset categories and key planning issues. ART adaptation responses are a comprehensive package of adaptation information that:

- presents a number of possible stand-alone or sequenced actions
- connects actions to the assessment outcomes (i.e., the vulnerabilities and key issues)
- identifies possible implementation partners and processes; and
- provides transparency and support for evaluation and implementation

Since many vulnerabilities are interconnected, some adaptation actions can address multiple issues at once. Working group members and BCDC staff expressed that levee stability on Delta islands and maintaining water quality (i.e., salinity) are two adaptation responses that can address a wide range of issues. Working group members also recognize that consequences of widespread flooding in East Contra Costa

**Figure 1: Flood exposure maps for 12-inches of sea level rise (upper panel) and 12-inches of sea level rise plus a 100-year storm (lower panel)**



County would affect other regions within the state, requiring planning, oversight, and funding coordination between local communities, regional governments, and state agencies.

**Relationship to the Council's Climate Change Vulnerability Assessment and Adaptation Strategy**

Council staff are leveraging the BCDC-Council partnership and building upon the East Contra Costa ART's analyses and findings within the Council's ongoing CCVA and Adaptation Strategy in multiple ways.

- The East Contra Costa County ART project's hydrodynamic modeling methodology advanced our understanding of the tidal propagation between the San Francisco Bay and the Delta, thereby informing the modeling approach for the CCVA.
- Council staff are learning from the ART process regarding equitable outreach to communities, effective communication strategies, stakeholder engagement, and flood exposure mapping tool development.
- BCDC ART staff also continue to advise the CCVA through participation in the project's Technical Advisory Committee and Stakeholder Working Group.

Collaboration between the Council and BCDC on this project represents an important first step in coordinating adaptation planning and actions across the entire San Francisco Bay-Delta.

**Fiscal Information**

BCDC's East Contra Costa ART project was previously funded by the Council through an interagency agreement using \$150,000 of fiscal year 2016-2017 funds.

**List of Attachments**

None

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