STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

STAFF SUMMARY REPORT
(Lisa Horowitz McCann and Christina Toms)
MEETING DATE: April 10, 2019

ITEM: **6**

SUBJECT: **Meeting the Challenge of Climate Change: Water Board Plans and Policies** – Information Item

DISCUSSION: The purpose of this agenda item is to demonstrate progress on our activities in response to climate change, as identified and encouraged by a Board subcommittee on climate change (Board Members Jayne Battey and Cecilia Ogbu and Assistant Executive Officer, Lisa Horowitz McCann). This agenda item specifically highlights one of our highest priority projects to address climate change impacts and discusses outreach and leveraging new partnerships.

This agenda item highlights the Triennial Review project to 1) amend the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) with information on climate change and 2) update the regulatory framework to promote and permit multi-benefit wetland restoration and shoreline resiliency projects (Climate Change and Wetland Policy Update). The Triennial Review is a periodic review of the Basin Plan to identify necessary updates. The Climate Change and Wetland Policy Update is the highest priority Triennial Review project. In this item, we will provide an update on the project, including:

- An overview of the project scope;
- Our initial review of wetland protection policies and permitting procedures;
- A summary of outreach efforts and partnerships to leverage climate change adaptation and mitigation; and
- An explanation of regulatory challenges and opportunities.

This item will also include a presentation by Julie Beagle, the Project Manager for the Adaptation Atlas at the San Francisco Estuary Institute – Aquatic Science Center (SFEI-ASC). The Adaptation Atlas provides a science-based framework to support sea level rise adaptation with nature-based infrastructure (described below under Outreach and Partnerships). Ms. Beagle will present the recently released Adaptation Atlas and its recommendations for regional resilience planning. She will also discuss the next phase of the project, and the vision to identify phased adaptation strategies along the Bay margins.

BACKGROUND

Scientists agree that the earth's climate is changing and sea levels are rising as a result. As the earth's climate changes, the San Francisco Bay region will likely experience increasing rate of local sea level rise, warmer temperatures, more extreme weather (including droughts and floods), and changes in the seasonal patterns of rainfall. These phenomena will impact water quality, habitats, and beneficial uses in the Bay, as well as the infrastructure and landscapes that contribute to their protection.

The Board regulates multiple activities that are relevant to climate change adaptation. These activities include (but are not limited to) fill placement in wetlands and waters, sediment removal from streams and flood control channels, dredged sediment management and beneficial reuse, the discharge of treated wastewater in nearshore environments, and contaminated site remediation. The Board, therefore, has broad jurisdiction to support collaborative climate change adaptation that improves the resilience of both the built and natural environments. We have identified activities to address climate change impacts, are evaluating new or modified regulatory strategies to meet the challenges of climate change and are maintaining and seeking new partnerships to leverage climate change adaptation and mitigation.

We determined that the highest priority climate change activities to pursue include planning and permitting wetland restoration and shoreline resiliency projects, reviewing wetland policies, coordinating with other regional planning efforts, and promoting the beneficial reuse of dredged sediment. This agenda item will present a description of and the status of the Climate Change and Wetland Policy Update.

CLIMATE CHANGE AND WETLAND POLICY UPDATE PROJECT

The project will produce proposed amendments to the Basin Plan with information on climate change and update the regulatory framework to promote and permit multi-benefit wetland restoration and shoreline resiliency projects. We are preparing a technical report that summarizes the current threats posed by climate change and sea level rise to the Bay's tidal wetlands, recommendations in the Baylands Ecosystem Habitat Goals Project for tidal wetland restoration and management, and our current policies and related permitting procedures for projects that impact wetlands and waters of the State. This technical report will also present a series of case studies that illustrate how current permitting procedures create challenges to efficiently and comprehensively addressing the spatial and temporal tradeoffs and uncertainties inherent to wetland restoration and sea level rise adaptation planning. Our reviews of policies and permitting procedures highlight the need for an updated regulatory framework.

Staff have identified a preliminary set of goals and key opportunities to improve the regulatory framework for wetland restoration and shoreline resiliency. Staff will vet these opportunities with the Board and stakeholders. Once key opportunities are identified and prioritized, staff will propose a suite of feasible and appropriate regulatory tools to address them. See Appendix A for Goals and Opportunities.

OUTREACH AND PARTNERSHIPS

Staff are leading the development of regional planning and permitting strategies to support multi-benefit tidal wetland restoration and shoreline resilience. We provide technical and policy support to numerous partnerships, agencies, and organizations involved in climate adaptation planning. Staff have been participating in some of these partnerships for years. In addition, we continue to establish new partnerships as climate change science, adaptation opportunities, and needs evolve. Staff often facilitate early planning discussions through workshops, project coordination meetings, and related venues to identify priority climate change adaptation projects for implementation. We seek to raise awareness about the Board's regulatory framework for adaptation and to leverage opportunities emerging from transportation, infrastructure improvement, and local long-range planning in response to climate change adaptation and mitigation.

We are seeking to establish new partnerships with the Metropolitan Transportation Commission (MTC), the Bay Area Flood Protection Agencies Association's Climate Hazards Adaptation Resiliency Group - a strategic initiative for reducing flood risk (CHARG), Bay Area Regional Collaborative (BARC), and other planning and sustainability organizations. With these partnerships, we are seeking to continue planning and implementing wetlands and shoreline resiliency projects, and also to facilitate dialogue around financing and governance barriers to accelerating project implementation.

We continue our engagement with a broad suite of stakeholders and decision-makers to raise awareness about the Board's regulatory framework for adaptation. We participate on the Bay Restoration Regional Integration Team (BRRIT), an outgrowth of the San Francisco Bay Restoration Authority (SFBRA) that seeks to streamline the permitting and implementation of SFBRA projects and other multi-benefit tidal wetland restoration projects. We also advise numerous regional collaborations including Bay Conservation and Development Commission's (BCDC's) Adapting to Rising Tides initiative, BCDC's Bay Plan Amendment on Bay Fill for Habitat Projects, the San Francisco Bay Joint Venture's Science Steering Committee, the San Francisco Bay Regional Sediment Workgroup, and regional workgroups on nature-based infrastructure.

We participate in local planning adaptation efforts including but not limited to the Marin Bay Waterfront Adaptation Vulnerability Evaluation (BayWAVE), Collaboration: Sea-level Marin Adaptation Response Team (C-SMART), Sea Change San Mateo County, and adaptation visioning in Richardson Bay, the Novato Baylands, Highway 37 Corridor, the South Bay Salt Ponds, the South Bay Shoreline, the Peyton Slough region, and other locations.

The Water Board is currently funding SFEI-ASC to develop the Adaptation Atlas that proposes science-based, cross-jurisdictional Operational Landscape Units (OLUs) for low-lying lands around San Francisco Bay, and pair these units with cohesive, multi-benefit strategies for sea level rise adaptation that emphasize nature-based approaches. This project will provide a spatial framework to help decision-makers, permit applicants, and Board staff determine where and how fill placement in waters and wetlands may be necessary to build long-term shoreline and wetland resilience, and where it may need to be minimized. This Adaptation

Atlas will help foster a regional, collaborative, data-driven approach to supporting long-term regional resilience that will address ecosystem, flood risk management, water quality, land-use planning, and social equity goals. OLUs are currently being used by BCDC, MTC, Marin County, and San Mateo County to support sea level rise adaptation planning and vulnerability assessments.

Building on the success of the San Francisco Bay Regional Monitoring Program (RMP) partnership with SFEI-ASC that assesses regional water quality and the effectiveness of water quality regulations, we also play a lead role in the development of a Wetland Regional Monitoring Program to assess the health and condition of the Bay's tidal wetlands. We have convened stakeholders from a broad range of backgrounds and expertise to help local, regional, state, and federal agencies evaluate the effectiveness of existing and proposed efforts to sustain healthy aquatic habitats and resources and identify where interventions may be necessary to improve the resilience of the region's tidal marshes. This regional approach to monitoring would have numerous benefits, among them improving science support for decision making, reducing project-specific monitoring costs and efforts for individual project proponents, minimizing the need to review and approve site-specific monitoring plans and reports.

We continue to engage with wastewater facilities on adaptation planning (including potential discharges needed for horizontal levees), stormwater managers on use of green infrastructure, project proponents and other regulatory agencies on desired conditions for specific wetland and shoreline resiliency projects, and in regional workgroups and technical advisory committees on sea level rise and shoreline resiliency.

CONCLUSION

We will continue to pursue our high priority projects and leverage partnerships to meet climate change challenges. We will inform the Board of progress and outcomes of these projects and partnerships. We will also inform the Board on our progress establishing an updated regulatory framework to promote and permit multi-benefit wetland restoration and shoreline resiliency projects.

RECOMMEN-DATION: This report is presented for information purposes only - no action is needed.

APPENDICES: A. Goals and Opportunities

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APPENDIX A

GOALS AND OPPORTUNITES

UPDATED REGULATORY FRAMEWORK FOR WETLAND RESTORATION AND SHORELINE RESILIENCY

PROJECT GOALS
The goals of this Project are to:

- Review Board policies and procedures to consider how they may affect multi-benefit wetland restoration projects that are intended to anticipate and address climate change impacts.

- Identify potential regulatory challenges and consider updates to the Board's regulatory framework, including (but not limited to) the Basin Plan, to more effectively and efficiently promote and permit multi-benefit wetland restoration and shoreline resilience projects.

- Base the updated regulatory framework on the most recent and relevant science, including but not limited to the California Ocean Protection Council's recent updates to state sea level rise science and guidance (Rising Seas in California: An Update on Sea-Level Rise Science [Ocean Protection Council 2017] and State of California Sea-Level Rise Guidance [Ocean Protection Council 2018]), and science developed by the San Francisco Estuary Institute (with Board funding) to support its Adaptation Atlas/Operational Landscape Units Project (see Outreach and Partnerships, below).

- Engage with a broad range of stakeholders to collaboratively identify and develop an updated regulatory framework that is consistent with the policies and procedures of partner regulatory and resource agencies, and facilitate dialogue around financing and governance barriers to accelerating project implementation.

KEY REGULATORY OPPORTUNITIES
Key opportunities to update the existing regulatory framework for wetland restoration and shoreline resiliency include:

1. Document the threats that climate change poses to the Bay's tidal wetlands and adjacent habitats, and their beneficial uses.
2. Identify preferred strategies for sea level rise adaptation, emphasizing implementation of least-impacting solutions, and noting the roles that nature-based solutions can play. This might include promoting nature-based solutions (such as those described in the Adaptation Atlas Project) over hardening of the shoreline.
3. Clarify the regulatory framework for proposals to convert waters of the State from one type to another (e.g., open water to wetland).
4. The California Wetlands Conservation Policy (Executive Order W-59-93, commonly referred to as the "No Net Loss" policy) established a Water Board policy to ensure *"no overall net loss and a long-term net gain in the quantity, quality, and permanence… of wetland acreage, functions and values in California."* The regulatory framework update can clarify how we will apply this policy to Bay margin wetland restoration projects that may require fill in

wetlands and/or waters to conserve or enhance the permanence, functions, and values of wetland habitat.

5. Identify instances where fill in waters or wetland may be considered beneficial, or otherwise may not trigger a requirement for compensatory mitigation. This will support the design and implementation of restoration projects with an appropriate habitat mosaic. Relevant restoration elements to be considered could include:
    a. Horizontal/ecotone levees or related design features, some of which could also incorporate the beneficial reuse and application of treated wastewater
    b. New/enhanced estuarine-terrestrial transition zones in baylands where they may currently be absent or impacted by shoreline hardening, current or historic land uses, or other anthropogenic impacts
    c. Living shorelines, beaches, and hybrid "green-grey" coastal infrastructure
    d. Strategic sediment placement to raise elevations in subsided baylands and when restoring baylands
6. Clarify that avoidance and minimization in the context of Bay fill includes evaluating opportunities for incorporating the upland/landward edge of the Bay in any alternatives analysis and identify approaches for how projects should consider facilitating the upslope migration of tidal wetlands as sea levels rise.
7. Define multi-benefit projects for regulatory purposes in a way that considers the protection, restoration, and/or enhancement of tidal wetlands, and does not include projects with a primary purpose that is not protection, restoration, and/or enhancement of tidal wetlands.
8. Identify the benefits of "complete" tidal wetlands systems consistent with the definition in the 2015 Baylands Goals update (e.g., from the spray zone above the high tide line to subtidal elements).
9. Develop a framework for considering temporal tradeoffs and uncertainties in wetland restoration, particularly with respect to climate change, sea level rise, and sediment supply. This would include how sea level rise can be taken into consideration when evaluating the long-term benefits and impacts of fill in waters/wetlands (e.g. when compensatory mitigation may not be necessary).
10. Develop a framework for evaluating mitigation on a regional or sub-regional basis, rather than project-by-project, and clarifying expectations for the roles that mitigation banks and in lieu fee programs may play.
11. Reinforce the expectation that projects consider and appropriately address project-related indirect impacts to waters, such as the impacts of isolating existing wetlands landward of flood control or related infrastructure, and the cumulative impacts of regional shoreline hardening on the Bay subtidal and shoreline habitats and infrastructure.
12. Reference existing technical guidance on nature-based infrastructure, including "living shorelines," and reinforce the role that nature-based infrastructure can play in avoiding and reducing impacts.