

Executive Summary

The San Francisco Bay Regional Water Quality Control Board (Regional Water Board) proposes to develop an amendment to the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) to address the threats posed by climate change to water quality and beneficial uses. The Regional Water Board is proposing to amend the Basin Plan because it is critical that our policies and decisions influence climate change adaptation projects to improve beneficial uses of the San Francisco Bay (Bay). The proposed Basin Plan Amendment (BPA) will use the latest science to maximize the use of nature-based solutions (often called “green infrastructure”) to protect vulnerable shorelines from sea level rise.

Motivation

Increasing concentrations of greenhouse gases and resultant climate changes are driving rising sea levels within the San Francisco Bay region. The region will likely experience an acceleration in the rate of relative sea level rise (SLR); increases in the frequency, intensity, and duration of storms; shifts in the seasonal timing and volume of rainfall; changes in Delta outflows; and impacts to the physical and ecological conditions and processes that support the diversity and resilience of shoreline habitats.

The Bay’s tidal marshes and flats (mudflats), which are critical to water quality and the health of the Bay, are especially threatened by SLR and decreases in suspended sediment entering the Bay from creeks, streams, and rivers, which drain to the Bay. Modeling demonstrates that these factors could drown most of the Bay’s tidal marshes by 2100, convert vast areas of mudflats to open water, and make it more challenging, if not impossible, to achieve habitat restoration goals. Furthermore, these large-scale changes will permanently impact beneficial uses of the Bay, such as wildlife habitat, preservation of rare and endangered species, fish migration and spawning, recreation, and commercial fishing.

Climate change and SLR threaten critical shoreline infrastructure and low-lying communities through increased risk of flooding and erosion. Where development has encroached upon natural shorelines, traditional solutions employed to control erosion and flooding have relied on levees, seawalls, and rock revetments (often called “grey infrastructure”). Grey infrastructure solutions provide minimal benefits to water quality and beneficial uses and often negatively impact natural Bay features, such as mudflats, wetlands, and beaches. In contrast, green infrastructure solutions rely on mudflats, wetlands, and beaches to reduce erosion and flooding risks by working with nature.

Our Role

The Regional Water Board is charged with protecting, enhancing, and restoring the beneficial uses in the Bay, its tributaries, and its nearshore environments. Our regulatory authority is derived from provisions of the federal Clean Water Act, the state Porter-Cologne Water Quality Control Act, and policies in the Basin Plan. Our authority extends to regulation of activities that might affect wetlands, such as wetland fill, dredging of navigation and flood control channels, and the beneficial reuse of dredged sediment by issuing permits for such activities. While our permitting decisions incorporate the California Wetlands Conservation Policy (commonly known

as “No Net Loss”), our Basin Plan currently does not consider the threats to the Bay’s wetlands and nearshore habitats by climate change and SLR. Additionally, the Basin Plan does not address how planning and permitting decisions can address these threats and support water quality and beneficial uses of the Bay in the long-term and at a regional scale.

The Basin Plan Amendment

A BPA to incorporate these recommendations and address climate change and wetland fill will likely include both non-regulatory and regulatory elements:

Non-Regulatory Elements

Non-regulatory elements of the proposed BPA will include:

- A narrative explaining the impacts to water quality and beneficial uses of the Bay associated with a changing climate and SLR.
- References to the 2015 Goals Report, the U.S. Fish and Wildlife Service’s *Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (USFWS 2013), *Rising Seas in California* (OPC 2017), and the *State of California Sea Level Rise Guidance* (OPC 2018).
- An updated list of tidal wetland restoration sites that are currently being restored, as well as those currently planned for restoration (e.g. South Bay and Napa-Sonoma salt ponds, Hamilton, Sears Point, etc.).
- Support for a regional approach to tidal wetland monitoring, such as the Wetland Regional Monitoring Program currently being developed by the Regional Water Board and its partners.

Regulatory Elements

Regulatory elements of the proposed BPA will include:

- Documentation of the threats that climate change poses to the Bay’s tidal wetlands and adjacent habitats, and their beneficial uses, including but not limited to threats from SLR, changes in freshwater inputs, and changes in regional sediment supplies.
- Identification of preferred strategies for climate change adaptation, emphasizing the roles that natural and nature-based processes can play while integrating feasible solutions that maximize Bay-wide water quality and related habitat benefits.
- Clarification of the regulatory framework to be considered for project that convert waters of the State from one type to another (e.g., seasonal wetland to tidal wetland).
- Clarification of how the “No Net Loss” policy will be applied to Bay margin wetland restoration projects, especially in consideration of losses in acreage, functions and values associated with SLR projections.
- Identification of instances where fill in waters of the State may be considered beneficial, or otherwise may not trigger a requirement for compensatory mitigation. Restoration elements to be considered could include:

- Horizontal/ecotone levees;
 - New/enhanced estuarine-terrestrial transition zones in baylands in places where they are currently absent or impacted by shoreline hardening, current or historic land uses, or other anthropogenic impacts;
 - Living shorelines, beaches, and hybrid coastal infrastructure; and
 - Strategic sediment placement to raise elevations in restoring and subsided bayland.
- Clarification 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 completed consistent with Clean Water Act Section 404(b)(1) guidelines, and identification of approaches for how projects should consider facilitating the upslope transgression of tidal wetlands as sea levels rise.
 - Identification of the benefits of “complete” tidal wetland systems consistent with the definition in the 2015 Baylands Goals update.
 - A framework for how the Regional Water Board will consider temporal tradeoffs and uncertainties in wetland restoration to avoid and minimize fill impacts in waters/wetlands.
 - A framework for evaluating mitigation on a regional, sub-regional (Suisun, North Bay, Central Bay, South Bay, Lower South Bay), or operational landscape unite (OLU) basis, rather than project-by-project, and clarifying expectations for the role mitigation banks may play.
 - Emphasis on the expectation that projects consider and appropriately address project-related indirect and cumulative impacts to waters.
 - References to existing technical guidance on natural and nature-based features, including “living shorelines,” and emphasis on the role that nature-based infrastructure can play in avoiding and reducing impacts.

Collaborative Approach

The Regional Water Board will develop the BPA through a collaborative public process and in coordination with our partner resource and regulatory agencies, many of which are implementing their own climate change-focused policy updates.

One venue for collaborating on policy development is the Bay Restoration Regional Integration Team (BRRIT). The BRRIT is a newly formed regulatory team that brings together staff from the Regional Water Board, U.S. Army Corps of Engineers, Bay Conservation and Development Commission (BCDC), National Marine Fisheries Service, U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife to streamline permitting for projects funded through the San Francisco Bay Restoration Authority. Regional Water Board staff will also continue to collaborate with BCDC staff on related initiatives including but not limited to BCDC’s new Bay Plan Amendment for Fill for Habitat Projects, which was approved by BCDC on October 3, 2019. Lastly, Regional Water Board staff will hold a series of public meetings to solicit input from interested parties.