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

STAFF SUMMARY REPORT: Christina Toms
MEETING DATE: June 12, 2024

ITEM: 6

Proposed Basin Plan Amendment on Climate Change and Aquatic Habitat Protection, Management, and Restoration – Hearing to Consider Adoption of Proposed Basin Plan Amendment

DISCUSSION:

The attached Tentative Resolution (Appendix A) would adopt an amendment (Appendix B) to the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan). The purpose of this hearing is to solicit public testimony on and consider adoption of the proposed Basin Plan amendment (BPA). The proposed BPA provides information related to the challenge of climate change in the region, including to its aquatic habitats, and the Regional Water Board's participation in various regional efforts to address climate change. The amendment also provides information to assist in the planning and development of climate adaptation and other shoreline projects, based on the Regional Water Board's review of the evolving climate change science and its knowledge and expertise in coastal and estuarine management and permitting. The BPA also updates references, corrects errors, and makes minor, non-substantive edits for clarity. The BPA is informational and contains no new regulations. The Staff Report supporting the BPA is in Appendix C.

In July 2022, the Regional Water Board unanimously adopted a previous version of the Basin Plan Amendment under Resolution 2022-0027. After adoption, Regional Water Board staff after consulting with State Water Resources Control Board staff, decided to revise the amendment to refine its language. The revisions do not substantively change the BPA from its previous version; instead, they provide further clarity on the amendment, including its non-regulatory nature. This Tentative Resolution, therefore, supersedes and rescinds Resolution 2022-0027.

BACKGROUND

Globally and in the San Francisco Bay Region, climate change is manifesting through a variety of mechanisms including but not limited to higher temperatures; rising sea and groundwater levels; changes in the timing, frequency, intensity, and duration of precipitation and runoff; more frequent and severe storm surges, floods, and droughts; drowning and downshifting of wetlands; and landscape aridity that desiccates streams and increases the risk of catastrophic wildfires. These changes are impacting the health, integrity, and resilience of the Region's built and natural communities in complex and interconnected ways, and they pose a special threat to the Region's waters, including wetlands. The threats are especially acute in and near the San Francisco Baylands and low-lying areas of the Pacific coast, where climate change impacts to watersheds are compounded by impacts from rising sea and groundwater levels.

Efforts to respond to and prepare for climate change through the construction of traditional "grey" infrastructure and armoring, such as levees, seawalls, engineered flood control channels, and rock revetments, can exacerbate harm to aquatic ecosystems and vulnerable shoreline communities. On the other hand, nature-based infrastructure, and hybrid measures that integrate nature with engineered structural approaches, can help create resilient shorelines that support co-benefits

such as recreation, water quality improvement, and habitat for native species. The Basin Plan is the Regional Water Board's master water quality control planning document. To assist in the planning and development of climate change adaptation and other shoreline projects, which generally involve dredge or fill activities, it is important that the Regional Water Board update the Basin Plan to provide information related to climate change and share the knowledge the Regional Water Board has acquired to protect the beneficial uses of waters in the face of climate change. The Basin Plan currently lacks any description of climate change and its relevance to the Regional Water Board's programs.

The proposed BPA therefore includes the following informational changes to the Basin Plan:

Chapter 1

Inserts a new Section 1.7 describing the effects of a changing climate on water quality and the need to address these effects on a landscape scale.

Chapter 2

Updates references to the California Department of Fish and Wildlife, Baylands Ecosystem Habitat Goals Report, and EcoAtlas.

Chapter 4

Updates references to tables and planning documents, corrects typographic errors, and includes information on the State Water Resources Control Board's Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State. Adds information noting the 2023 U.S. Supreme Court decision in *Sackett vs. U.S. EPA*, which held that waters of the U.S extends only to those wetlands with a continuous surface connection to other waters of the U,S.

Inserts a new Section 4.26.8 entitled "Climate Change and Aquatic Habitat Protection, Management, and Restoration," which:

- Acknowledges and describes how climate change can adversely impact aquatic habitats and their beneficial uses. Describes how certain climate adaptation projects can exacerbate impacts to aquatic systems. Describes efforts made to support the long-term resilience of aquatic habitats in the Region.
- Provides information to assist in the planning and development of climate change adaptation and other shoreline projects, which generally involve dredge or fill activities. This information is based on the Regional Water Board's review of the evolving climate change science, its knowledge and expertise in coastal and estuarine science, management, enhancement, restoration, and conservation, and its experience permitting dredge and fill projects along shorelines. The information addresses the following issues:
    - **Best available science.** The science of climate change, climate change adaptation, habitat restoration, and related fields is rapidly evolving. Therefore, utilizing the most up-to-date and relevant climate change science in project design and impact assessment is important. Climate adaptation projects that are based on the best available science are more likely to achieve their intended adaptation goals and objectives.
    - **Phased adaptation strategies.** Phased adaptation strategies are actions that provide flood protection at different climate change thresholds over time. Initial actions are

designed to provide flood protection in the near-term while allowing for a range of future actions to address uncertainty and allow flexibility over the long-term. Actions that maintain long-term lines of flood defense as far landward as practicable can help minimize the isolation of wetlands and waters behind flood management infrastructure, reduce the risk of flooding of low-lying areas by surface water or groundwater, and create space for the restoration of complete estuarine wetland systems and other nature-based adaptation measures.

- **Landscape-scale, cross-jurisdictional frameworks.** Since climate change operates at a landscape scale, strategies to address climate change are more likely to be successful in the long-term and avoid maladaptation if they are implemented at a landscape scale. Projects that consider current and anticipated future conditions at the landscape scale are likely to have fewer long-term direct, indirect, and cumulative impacts than projects that only address near-term, site-scale conditions. Operational landscape units, which are described in the San Francisco Bay Shoreline Adaptation Atlas (Adaptation Atlas), are an example of a landscape-scale, cross-jurisdictional framework. The Adaptation Atlas, which was funded by the Regional Water Board, proposes a science-based framework for identifying opportunities to deploy nature-based infrastructure along the Bay's shoreline.
- **Nature-based or hybrid projects.** When properly designed and sited, a project that incorporates natural and/or nature-based approaches, such as nearshore oyster reefs, beaches, wetlands, estuary-watershed reconnection, ecotone/treated-wastewater horizontal levees, and migration space preparation, is more likely to support beneficial uses now and in the future. The best available science indicates that these approaches – and those that combine nature-based features with more traditional grey infrastructure (sometimes called "hybrid" or "green-grey" projects) – are more likely to avoid or minimize direct, indirect, and cumulative impacts to aquatic resources, support more benefits (e.g., habitat, flood protection, recreation, etc.), and be more adaptable to a changing climate than approaches that rely solely on grey infrastructure. Nature-based climate change adaptation features, however, should be appropriate to the physical setting in which they are located.
- **Resilient landscapes.** Producing resilient landscapes is a primary goal of most climate adaptation projects. Identifying and understanding the interactions between climate change effects, proposed dredge or fill activities, and landscapes can help adaptation projects achieve this goal. For example, it can be helpful to understand the hydrologic, geomorphic, and ecological processes that are likely to impact the condition, location, and distribution of different habitat types at a project site now and in the future, and how proposed dredge or fill activities can influence those processes over space and time. Informational resources such as the California Ocean Protection Council's Sea Level Rise Guidance, Baylands Ecosystem Habitat Goals reports, Adaptation Atlas, their supporting scientific literature, and related documents/tools are helpful resources to support science-based decision-making. Creating more resilient landscapes may involve converting one type of water into another and the Regional Water Board has provided input on U.S. EPA's efforts to develop technical guidance to evaluate the impacts and benefits of such conversions.
- **Dredge and fill for coastal habitat.** Climate change and rising sea levels will result in the loss of coastal habitat through conversion of tidal wetlands, beaches, and mudflats to open water habitats. Dredge and fill activities, such as strategic sediment placement in intertidal areas, can help support the long-term diversity, resilience, and completeness of habitats by creating space to support physical and ecological

connectivity. These actions can help intertidal habitats, such as mudflats and marshes, keep pace with rising sea levels, reduce erosion along wave-exposed marsh edges, and reduce the likelihood of drowning (converting to open water) or downshifting (converting from high marsh to low marsh, or from low marsh to mudflat).

RESPONSE TO COMMENTS

The 45-day comment period for the proposed BPA closed on May 15, 2024. We received no comment letters.

APPENDICES:

A. Tentative Resolution Adopting the Revised Basin Plan Amendment
B. Basin Plan Amendment
C. Staff Report

APPENDIX A

Tentative Resolution Adopting the Revised Basin Plan Amendment

APPENDIX B

Basin Plan Amendment

APPENDIX C

Supporting Staff Report