Response to Comments: Proposed Basin Plan Amendment on Climate Change and Aquatic Habitat Protection, Management, and Restoration

This document is the Water Board's response to comments on a proposed Basin Plan Amendment (BPA) on Climate Change and Aquatic Habitat Protection, Management, and Restoration. It comprises:

PART I: STAFF RESPONSE TO COMMENTS ON THE STAFF REPORT AND PROPOSED BASIN PLAN AMENDMENT

We received nine comment letters during the public comment period, which closed April 22, 2022. Copies of letter are available by contacting Christina Toms at christina.toms@waterboards.ca.gov.

Comment letters received, in alphabetical order:

1. Alameda County Water District
2. Bay Area Clean Water Agencies
3. Bay Conservation and Development Commission
4. Bay Planning Coalition and allies
5. California State Coastal Conservancy
6. Citizens Committee to Complete the Refuge
7. Coast Action Group
8. Robert Raven
9. Santa Clara Valley Water District

We also heard public comments at a public hearing on this matter on April 13, 2022.

PART II: STAFF INITIATED CHANGES TO THE STAFF REPORT AND PROPOSED BASIN PLAN AMENDMENT.

PART I: STAFF RESPONSE TO COMMENTS ON THE STAFF REPORT AND PROPOSED BASIN PLAN AMENDMENT

Changes to the March 2022 Basin Plan Staff Report are shown in underline for additions and ~~strikeout~~ for deletions. Proposed changes to the Basin Plan amendment in response to comments are shown in double underline/~~double strikeout~~. Comments and staff responses are provided below. Comments are summarized and paraphrased for brevity. Verbatim comments are italicized. Please refer to the comment letters for the full comments, context, and tone.

(1) Alameda County Water District (ACWD)

ACWD Comment ACWD-1: The commenter suggests adding language to Section 1.7 of the proposed Basin Plan amendment that (1) highlights the risk that extreme weather events can pose to water supplies to communities, and (2) addresses how elevated temperatures in the Alameda Creek watershed will impact water quality and native fish.

Response to ACWD-1: The Water Board agrees with these suggestions and has revised the language in Section 1.7 as follows:

> Extreme weather events – such as drought, heat waves, and large storms – can increase the risk of catastrophic wildfires, decrease water supplies for communities/regions, and alter stream flows and sediment discharges. These changes in climate and weather impact aquatic systems through numerous mechanisms, including through increases in water temperatures, changes in streamflow and watershed sediment discharge that can impede drainage, increase flooding, mobilize contaminants, and desiccate headwater streams.

ACWD Comment ACWD-2: The commenter suggests the expanded use of reverse osmosis (RO) treatment to increase water resources available to support instream flows and nature-based climate change adaptation measures along shorelines.

Response to ACWD-2: The Water Board appreciates this feedback, and while adjustments to NPDES practices are outside the scope of this BPA, we look forward to further discussion of these ideas with ACWD.

ACWD Comment ACWD-3: The commenter suggests adding language under Question #3 in Section 4.27 of the proposed Basin Plan amendment about how cross-jurisdictional adaptation frameworks can help communities avoid maladaptation.

Response to ACWD-3: The beginning of Question #3 in Section 4.27 has been revised to state:

> Climate change operates on a landscape-scale. Therefore, strategies to address climate change are more likely to be successful in the long-term and avoid maladaptation if they are planned, designed, permitted, and implemented on a landscape-scale, and not limited by political boundaries.

(2) Bay Area Clean Water Agencies (BACWA)

BACWA Comment BACWA-1: The commenter requests the removal of language in the BPA and accompanying Staff Report that states that ecotone and treated wastewater "horizontal" levees are best suited for locations where they will be fronted by tidal wetlands.

> **Response to Comment BACWA-1:** The Water Board supports the use of ecotone/horizontal levees in locations where governing physical processes along the shoreline are most likely to support the long-term functioning and resilience of these features within the landscape. This is consistent with the 2015 Habitat Goals, Adaptation Atlas, and related technical literature. As the commenter notes, this language does not preclude siting these features in locations where they would not be fronted by tidal wetlands. We agree that horizontal levees may not be fronted by tidal wetlands. We note, however, that projects that propose ecotone/horizontal levees in locations where they would not be fronted by tidal wetlands usually incorporate nature-based strategies to avoid/minimize levee toe erosion (e.g., ongoing efforts at Sears Point).

BACWA Comment BACWA-2: The commenter requests that enhancing water quality be included as a regional goal that could support wetland type conversion under (5d)(iv) in Section 4.27. Treated-wastewater horizontal levees can remove nutrients and trace organic contaminants.

> **Response to Comment BACWA-2:** We agree and the text in (5d)(iv) in Section 4.27 has been revised as follows:
>
> > Is the proposed type conversion consistent with strategies developed by collaborations of stakeholders to achieve regional goals such as <u>enhancing water quality,</u> recovering rare and/or historic habitat types, improving landscape connectivity/complexity, and/or supporting long-term habitat resilience?

BACWA Comment BACWA-3: The commenter notes a typographic error on page 2-2 of the Staff Report that states that the Water Board identified climate change as a priority in its 2020 Triennial Review of the Basin Plan; this review actually occurred in 2021.

> **Response to Comment BACWA-3:** The text on page 2-2 of the Staff Report has been revised as follows:
>
> > The Water Board therefore identified a climate change amendment to the Water Quality Control Plan for the San Francisco Basin (Basin Plan) as a high priority in its 2015, 2018, and ~~2020~~<u>2021</u> Triennial Reviews of the Basin Plan.

BACWA Comment BACWA-4: The commenter requests a future Basin Plan amendment to facilitate NPDES permitting of wastewater discharges to nature-based infrastructure. Specifically, it requests modifications for exceptions to the Basin Plan Prohibition 1, which prohibits discharges to shallow waters except for in certain situations, including when it can be demonstrated that net environmental benefits will be derived as a result of the discharge. Climate change adaptation should be recognized as an environmental benefit.

Response to Comment BACWA-4: Comment noted. The requested BPA was included for consideration in the 2021 Triennial Review, but did not rank high enough to be included as a priority for the next three years. During the 2024 Triennial Review cycle, stakeholders including BACWA will have an opportunity to comment on planning priorities and future potential BPAs.

(3) Bay Conservation and Development Commission (BCDC)

BCDC Comment BCDC-1: The commenter expresses general support for the BPA, and states that the BPA aligns with BCDC plans and policies, and programs, including Bay Adapt.

Response to BCDC-1: Comment noted.

BCDC Comment BCDC-2: The commenter expresses appreciation for how the BPA highlights how groundwater rise could lead to contaminant mobilization in the region.

Response to BCDC-2: Comment noted.

BCDC Comment BCDC-3: The commenter expresses support for the inclusion of collaborative, cross-jurisdictional planning frameworks in the BPA.

Response to BCDC-3: Comment noted.

BCDC Comment BCDC-4: The commenter expresses appreciation for the Water Board's efforts to improve the EcoAtlas platform.

Response to BCDC-4: Comment noted.

BCDC Comment BCDC-5: The commenter expresses support for the BPA's references to nature-based/green infrastructure, which are consistent with BCDC's Fill for Habitat Bay Plan Amendment and Bay Adapt process.

Response to BCDC-5: Comment noted.

BCDC Comment BCDC-6: The commenter expresses support for the descriptions of nature-based features in the BPA, and notes that the inclusion of migration space preparation is consistent with regional priorities in the Bay Adapt platform.

Response to BCDC-6: Comment noted.

BCDC Comment BCDC-7: The commenter states that the phrase "strategic sediment placement" "*refers specifically to in-Bay placement of sediment to be washed ashore by the tides and currents*", and suggests more inclusive language to describe strategies to artificially supplement local sediment supplies to estuarine wetlands and mudflats.

Response to BCDC-7: The Water Board uses the phrase "strategic sediment placement" consistent with its use in the December 2017 draft framework report "Strategic Placement of Dredged Sediment to Naturally Accrete in Salt Marsh Systems" developed by Stantec and the San Francisco Estuary Institute for the US Army Corps of Engineers San Francisco District. This report broadly describes "strategic sediment placement" as encompassing a variety of strategies to increase sediment delivery to estuarine wetlands and mudflats,

including but not limited to shallow-water placement (placing erodible sediment in shallow-water locations near marshes), water-column seeding (pumping sediment into a marsh channel), and marsh spraying (spraying sediment directly onto the marsh surface).

BCDC Comment BCDC-8: The commenter suggests adding information to the Staff Report that notes that the sea level rise values in the Ocean Protection Council's 2018 State of California Sea-Level Rise Guidance are expected to be updated in 2023.

Response to BCDC-8: The Staff Report has been updated to include a footnote on page 3-10:

[5] The sea level rise values in this guidance are expected to be updated in 2023 in response to the Fifth National Climate Assessment (https://www.globalchange.gov/nca5) and California's Fifth Climate Assessment (in-progress).

(4) Bay Planning Coalition (BPC), Building Industry Association, Bay Area Council, North Bay Leadership Council, and San Mateo County Economic Development Association

BPC Comment BPC-1: The language found in the Staff Report highlights that the Basin Plan Amendment is regulatory. For example, it states:

> "To help inform the planning, permitting, and implementation of projects that will protect and restore the beneficial uses of the region's coastal waters, and *to help prevent projects* that will have long- term and/or cumulative negative impacts to these systems, it is important that the Water Board update the Basin Plan…." (Staff Report, p. 2-2; commenter's emphasis)

> "Provides questions and information related to climate change and adaption that may be relevant to Water Board permitting of dredge or fill activities in or near coastal waters. When permitting such activities, under existing laws and regulations, the Water Board is required to ensure that adverse impacts to waters of the state have been appropriately avoided, minimized, and compensated. Understanding the reasonably foreseeable influence of climate change is important to adequately assess the impacts of these activities to waters of the state." (Staff Report, p. 2-4)

By incorporating the proposed Basin Plan amendment and its components into the permitting process means the proposed amendment is regulatory in nature whether or it is phrased in language that is mandatory or discretionary. The Basin Plan language will be used by the Regional Water Board and staff when considering whether an applicant provided adequate information as part of its application, decisions to approve, deny, or impose conditions on a permit approval.

Response to Comment BPC-1: The proposed Basin Plan amendment does not add or alter any rule, regulation, order, or standard into the permitting process. It does not change the rights, obligations, and responsibilities of anyone, including the Water Board or its staff. It does not compel either a process for staff to follow or an outcome. The permitting process for dredge or fill activities in waters of the state is and will continue to be governed by the

State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures) and the Clean Water Act Section 404(b)(1) guidelines (40 CFR Part 230; Guidelines). Instead of amending or augmenting these regulations, the proposed amendment provides information and poses questions that may be relevant when permitting dredge or fill activities in the era of climate change, especially those activities associated with climate change adaptation projects and strategies. It includes general science-based observations for such projects and strategies to be successful, build resiliency, and minimize impacts to the aquatic ecosystem, consistent with the Procedures' and Guidelines' requirements that dredge or fill activities avoid, minimize, and compensate for impacts to the aquatic ecosystem. Impacts will occur in the context of climate change and the proposed Basin Plan amendment highlights this and provides some questions that may be helpful to reduce uncertainties related to climate change conditions and impact mechanisms. In short, the amendment is informational and does not change the way dredge or fill activities will be permitted. To underscore this, the following language has been added to page 8 of the amendment:

> Under existing law, ~~W~~when permitting dredge or fill activities in waters of the state, including wetlands, the Water Board must consider how numerous factors, including but not limited to climate change, influence the direct, indirect, and cumulative impacts of dredge or fill activities on ecosystem functions. The following questions may be relevant and can help the Water Board consider the reasonably foreseeable influence of climate change and related factors in project permitting and assess if the project's adverse impacts to waters of the state have been appropriately avoided, minimized, and compensated where required. The questions are meant to promote thought on both climate change and adaptation strategies for avoiding and minimizing adverse impacts to the aquatic ecosystem. The questions are not intended to and cannot be construed as modifying how dredge or fill activities are permitted under the State Water Resources Control Board's "Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State" and U.S. EPA's Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredge or Fill Material or augmenting the authority of the Water Board in permitting dredge or fill activities.

In addition, the language in the Staff Report has been revised as follows:

> To help inform the planning, permitting, and implementation of projects ~~that will protect and restore the beneficial uses of~~ in the region's coastal waters~~,~~ and to help avoid and minimize direct, indirect, and cumulative adverse ~~prevent projects that will have long-term and/or cumulative negative~~ impacts to these systems, it is important that the Water Board update the Basin Plan to provide information related to climate change and share the knowledge the Water Board has acquired to protect the beneficial uses of waters in the face of climate change. (Staff Report, p. 2-2)

The information and questions included in the proposed BPA may help permit applicants develop projects that first avoid and then minimize and mitigate impacts as required by the

Procedures and Guidelines. See Procedures, section IV.B.1, 40 CFR Part 230, Subparts B-J. For example, science shows that nature-based adaptation approaches are generally more effective than traditional grey engineered approaches at avoiding or minimizing impacts to hydrology, favoring habitat for native species, and supporting habitats with higher ecological values than existing habitats. The Basin Plan amendment provides this information in general terms (ultimately, it will depend on proper design and siting). Importantly, it does not require nature-based adaption approaches over grey infrastructure or the accommodation of migration space. The Procedures and Guidelines control whether they are considered, specifically as practicable alternatives, which takes into consideration cost, existing technology, and logistics in light of overall project purpose. See Procedures, section 230.10, subd. (a)(2); 40 CFR section 230.10. subd. (a)(2).

The information provided and questions posed are to promote compliance with existing requirements in the face of evolving climate change conditions, not to inject new procedures or requirements into the permitting process. In fact, where relevant, the questions in the new proposed section 4.27 of the Basin Plan are already permissible under the Procedures and Guidelines:

- Question 1 (Is the project design based on best available science?) may be asked under the Procedures and Guidelines because understanding the best available science is fundamental to assessing, minimizing, and mitigating dredge or fill material discharge impacts to the aquatic ecosystem, as well as evaluating practicable alternatives, all of which are required under the Procedures and Guidelines. See, e.g. Procedures, sections IV.B.1, 230.10; 40 CFR Part 230, Subparts B-J. For example, the Procedures and Guidelines require consideration of technology in assessing practicable alternatives, which cannot be done without understanding the best available science. See Procedures, section 230.3(q), Guidelines, section 230.3(q). Moreover, dredge or fill projects will occur in the context of climate change and understanding the best available science related to climate change conditions is necessary for the projects to avoid and minimize the indirect and cumulative impacts to the aquatic ecosystem, as required by the Procedures and Guidelines. See, e.g., Procedures, sections IV.B.1 and IV.B.3.a (project must be least environmentally damaging practicable alternative in light of all potential direct, secondary (indirect), and cumulative impacts on the aquatic ecosystem); 40 CFR section 230.11 subds. (g) and (h).
- Question 2 (Is the project part of a phased adaptation strategy?) may be asked under the Procedures and Guidelines because phased adaptation frameworks can help define an overall project purpose, which is required to be known because practicable alternatives are evaluated in light of the overall project purposes. See Procedures, section 230.10(a)(2);40 CFR section 230.10(a)(2).
- Question 3 (Is the project designed within a landscape-scale, cross-jurisdictional framework?) may be asked under the Procedures and Guidelines because information on whether a project was developed within a landscape or cross-jurisdictional framework may be relevant to assessing indirect and cumulative

impacts from the discharge of dredge or fill material. See, e.g., Procedures, sections IV.A.1.f, IV.B.1, and IV.B.3.a (project must be least environmentally damaging practicable alternative in light of all potential direct, secondary (indirect), and cumulative impacts on the aquatic ecosystem); 40 CFR section 230.11 subds. (g) and (h). Projects designed to consider the broader landscape within which they are located may have fewer adverse indirect and cumulative impacts compared to those with a narrower focus.

- Question 4 (Does the project utilize nature-based solutions?) may be asked under the Procedures and Guidelines because they require the consideration of practicable alternatives to the proposed discharge of fill or dredged material that would have less adverse impacts on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequence. Procedures, section 230.10 40 CFR section 230.10. In some circumstances, nature-based solutions have less adverse impacts on aquatic resources than traditionally engineered “grey” infrastructure and may be a practicable alternative to be considered under the Procedures and Guidelines.
- Question 5 (What are the impacts of the project when considering the reasonably foreseeable conditions from climate change?) may be asked under the Procedures and Guidelines because it is part of assessing the total impacts of a proposed dredge or fill discharge. Discharges occur within the context of climate change and understanding the reasonably foreseeable conditions from climate change is necessary to assess the direct, indirect, and cumulative impacts, as required under the Procedures and Guidelines. See, e.g., Procedures, sections IV.B.1 and IV.B.3.a (project must be least environmentally damaging practicable alternative in light of all potential direct, secondary (indirect), and cumulative impacts on the aquatic ecosystem);40 CFR section 230.11 subds. (g) and (h).

Because these questions may be asked under the Procedures and Guidelines, the Water Board already uses them where relevant. For example, the Pillar Point West Trail Living Shoreline Project, which was permitted by the Water Board in 2021, used the best available science in the State of California Sea-Level Rise Guidance (OPC 2018) to identify a practicable range of sea level rise scenarios for use in project design. The Water Board permitted the proposed alternative (placement of a coarse beach to armor the eroding shoreline trail) avoided and minimized impacts to the aquatic environment more than another practicable alternative (placement of rip-rap to armor the eroding shoreline trail). The Water Board made this determination even though the proposed beach had a larger footprint of direct impacts to waters of the state than the rip-rap alternative, because the rip-rap alternative had a much greater indirect and cumulative adverse impact to the aquatic environment.

BPC Comment BPC-2: The Staff Report establishes a new definition of Baylands to include areas that may be subject to future tidal action and asserts they are waters, thus expanding the Water Board’s jurisdiction. This emphasizes the proposed Basin Plan amendment is indeed regulatory. In addition, the inclusion of language and policies from the 2015 Baylands

Ecosystem Habitat Goals report into the Staff Report and Basin Plan amendment related to managed retreat, shoreline migration, land use, and the appropriateness of non-nature-based adaptation strategies is problematic. When the 2015 goals report was made public, the Bay Planning Coalition commented that only scientific information was considered when developing the "goals" and "recommendations" in the report, without considering other factors like costs, economic impacts, and other competing societal goals and interests, which limited the report's findings. Accordingly, the authors of the revised the "intended use" of the goals report to state that it is intended as a "resource in working with communities to develop regional and local strategies based on a wide range of criteria and concerns not fully addressed here, including economic constraints, landowner desires, land-use planning and regulation, and competing societal interests and priorities." It also states that "instead of set of prescriptions, [the] report outlines a broad suite of actions for evaluation that are intended to be implemented voluntarily, incrementally, and cautiously in the coming decades."

Response to Comment BPC-2: The Staff Report is a supporting document that is intended to provide background information in support of the BPA and has no regulatory consequences or effect. Whether the Water Board can regulate waste discharges into waters of the state is not dependent on how it defines "baylands" or "coastal waters" for purposes of the Staff Report. Rather, the definition of "waters of the state" is set forth in Water Code section 13050(e), which controls the extent of the Water Board's jurisdiction. In any case, we recognize the definition of "baylands" on page 2-2 of the Staff Report is causing misunderstandings and revised it to be consistent with how that term is used in Section 4.23.1 of the Basin Plan, as follows:

> Baylands: <u>The shallow water habitats around the San Francisco Bay between maximum and minimum elevations of the tides.</u> ~~The lands and shallow waters along San Francisco Bay that are or formerly were between the minimum and maximum boundaries of the Bay's tides. The baylands include multiple habitat types including but not limited to tidal and diked (non-tidal and muted tidal) wetlands, mudflats, ponds, pannes, channels, and beaches. For purposes of this report, the baylands include adjacent estuarine-terrestrial transition zones (including levees, hillslopes, and floodplains) that are likely to be within the range of future (with sea level rise) tidal influence.~~

The remainder of Comment BPC-2 takes issue with references to the 2015 Habitat Goals Report (Goals Report), which is a non-regulatory, technical document focused on strategies for baylands habitat recovery in a changing climate. Specifically, the commenter points to references to the Goals Report in the background section of the Staff Report, saying that it is problematic to incorporate language from the Goals Report when that report's goals and recommendations were developed without consideration of competing societal goals and interests such as costs and economic impacts. The Water Board is not incorporating the goals and recommendations of the Goals Report as requirements. Instead, the proposed Basin Plan amendment references and uses the Goals Report for its technical value related to sustaining resilient aquatic ecosystem habitats in the face of climate change. The permitting process for dredge or fill activities in waters of the state will continue to be governed by the Procedures and the Clean Water Act Section 404(b)(1) Guidelines, not by

whether the activity is consistent with the Goals Report's goals and recommendations. It is through the existing dredge and fill permitting process that some of the competing societal interests that the commenter refers to are considered in determining whether and how to permit a dredge or fill activity in waters of the state. Under the Procedures, the discharge of dredged or fill material is prohibited if there is a practicable alternative to the discharge that would have less adverse impacts on the aquatic ecosystem, provided the alternative does not have other significant adverse environmental consequences. (Procedures, Section 230.10.) A practicable alternative is one that considers cost, existing technology, and logistics in light of the overall project purpose. (*Id.*). For example, in 2018 the Water Board issued a permit to the California State Coastal Conservancy to construct a large flood control levee in diked baylands in Novato (Order No. R2-2018-0007). The levee was designed to protect residential, commercial, and industrial development in the Bel Marin Keys neighborhood and facilitate the eventual tidal restoration of state-owned diked baylands east of the levee. The levee could have been configured to facilitate a larger footprint of future tidal restoration; however, it would have been much larger and required significantly more fill, truck trips, and labor to construct. The Water Board considered the cost, technology, and logistics of building the levee in this larger configuration in light of the overall project purpose and found the larger levee to be impracticable because it was cost prohibitive and logistically infeasible. Accordingly, the Water Board approved the Conservancy's proposed approach to use a smaller levee as practicably avoiding and minimizing adverse impacts to waters of the state consistent with the Procedures.

Questions 2 through 4 of the BPA have been revised as follows to further clarify that the BPA is informational and not regulatory:

2. **Is the proposed project designed as part of a phased adaptation strategy that anticipates ~~potential future~~ reasonably foreseeable projects and accommodates these projects in a manner that protects future beneficial uses of the site and its landscape?** Phased adaptation strategies are actions to 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. ~~Preferable actions will~~ Actions that maintain long-term lines of flood defense ~~along San Francisco Bay and the Pacific Ocean~~ as far landward as practicable are more likely to avoid or minimize direct, indirect, and cumulative impacts to aquatic resources than actions that do not. This is because these actions can help ~~to~~ 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.

3. **Is the proposed project designed within a landscape-scale, cross-jurisdictional framework, such as an operational landscape unit?** Climate change operates on a landscape-scale. Therefore, strategies to

address climate change are more likely to be successful in the long-term and avoid maladaptation if they are planned, designed, permitted, and implemented on a landscape-scale, and not limited by political boundaries. Projects designed to consider current and anticipated future conditions not just at the project site, but also the broader landscape within which it is embedded are likely to have fewer long-term direct, indirect, and cumulative impacts than projects that only address near-term, site-specific conditions. In some cases, the least impacting project may be one that spans multiple jurisdictions, such as parcel or municipal boundaries. Projects that avoid or minimize direct impacts at the project site only to trigger indirect and/or cumulative impacts off-site ~~are not preferable~~ may have greater adverse impacts to aquatic resources.

4. **Does the proposed project utilize practicable natural and/or nature-based design features, or a combination of traditional and nature-based (hybrid) features?** Nature-based design features, often called "living shorelines" or "green infrastructure", facilitate and/or leverage natural physical and ecological forms and processes to achieve design goals. When, ~~P~~properly designed and sited, and developed within ~~projects that facilitate and/or leverage natural physical and ecological forms and processes in the~~ long-term, ~~and on a~~ landscape-scale frameworks, these types of approaches are more likely to avoid or minimize direct, indirect, and cumulative impacts to aquatic resources than traditionally engineered "grey" approaches. They are also more likely to support beneficial uses presently and in the future than designs that impede ~~those~~ natural processes. ~~Preferred n~~Nature-based design features include, but are not limited~~,~~ to, the following:

In addition, text on page 11 of the BPA at the conclusion of Question 4 has been revised to state:

> As a result, nature-based or hybrid features that combine nature-based measures will ~~are~~ generally ~~preferable to alternatives~~ result in fewer adverse impacts than alternatives that only include traditional shoreline hardening through grey infrastructure.

(5) California State Coastal Conservancy (SCC)

SCC Comment SCC-1: The comment expresses general support for the BPA.

Response to Comment SCC-1: Comment noted.

SCC Comment SCC-2: The comment asks what regulatory action is associated with the BPA.

Response to Comment SCC-2: As indicated in the BPA and supporting Staff Report, there is no regulatory action associated with the BPA. The amendment is informational and updates the Basin Plan with missing information about climate change and how it might affect the region's waters. It describes efforts made to support the long-term resilience of aquatic habitats in the region and provides references related to the protection and

improvement of beneficial uses. It includes a suite of questions and information that may be relevant when the Water Board permits dredge or fill activities, especially climate adaptation projects. It updates references, corrects errors, and makes minor, non-substantive edits for clarity. The Basin Plan amendment includes no mandatory actions or requirements for either the Water Board or the regulated community. Nor does it require the Water Board to exercise its permitting authority in any particular way or follow specific procedures.

SCC Comment SCC-3: The commenter expresses appreciation for the inclusion in the BPA of language that supports living shorelines pilot projects.

Response to Comment SCC-3: Comment noted.

SCC Comment SCC-4: The commenter suggests designating a beneficial use for shellfish restoration in the Basin Plan.

Response to Comment SCC-4: The proposed BPA does not propose new beneficial use designations, and doing so is outside the scope of this BPA. In addition, the estuarine habitat beneficial use supports shellfish restoration projects, so there is not currently a need for a specific beneficial use focused on shellfish restoration.

SCC Comment SCC-5: The comment suggests inclusion of the Subtidal Habitat Goals Report (2010) as an informational reference in the BPA.

Response to Comment SCC-5: We agree that the Subtidal Habitat Goals Report is a helpful reference, especially for projects that conserve, enhance, create, and restore subtidal habitats (see 4(a) in Section 4.27 of the amendment). We have therefore added it to the list of useful technical documents in Section 4.27 (BPA, p. 8):

> To help assess these risks and support the long-term resilience and beneficial uses of aquatic habitats in the region, the Water Board has participated in the development of multiple collaborative regional science and guidance documents, including the 1999 and 2015 Baylands Goals reports (see Section 4.23.1), the San Francisco Bay Subtidal Habitat Goals Report, and the San Francisco Bay Shoreline Adaptation Atlas.

SCC Comment SCC-6: The commenter suggests including additional language re: hybrid adaptation approaches under Question #4 in Section 4.27.

Response to Comment SCC-6: We agree that this is a clarifying edit, and have revised Question #4 in Section 4.27 to state:

> Does the proposed project utilize practicable natural and/or nature-based design features, or a combination of traditional and nature-based (hybrid) features?

SCC Comment SCC-7: The commenter suggests including a new section under Question #4 in Section 4.27 that describes potential strategies, such as living seawalls, to retrofit urban infrastructure.

Response to Comment SCC-7: While the Water Board recognizes the potential for these approaches to improve the ecological values associated with grey infrastructure, currently

there is no clear technical guidance that describes how to effectively apply these approaches in the region. The Water Board is committed to working with the Coastal Conservancy and other partners to develop this guidance, and reference it in the Basin Plan once it's available.

SCC Comment SCC-8: The commenter suggests expanding the language about living shorelines under (4a) in Section 4.27 to include approaches other than oysters and submerged aquatic vegetation, such as beaches. It also recommends adding shoreline position and orientation to the list of criteria for living shoreline placement.

Response to Comment SCC-8: The requested changes are appropriate because they increase clarity by using terminology consistent with scientific guidance documents, such as the Subtidal Habitat Goals Report, and related efforts, such as the State Coastal Conservancy's San Francisco Bay Living Shorelines Project. Question #4 and (4a) have been revised as follows:

4. **Does the proposed project utilize practicable natural and/or nature-based design features, or a combination of traditional and nature-based (hybrid) features?** Nature-based design features, often called "living shorelines" or "green infrastructure," facilitate and/or leverage natural physical and ecological forms and processes to achieve design goals. When, ~~P~~properly designed and sited, and developed within ~~projects that facilitate and/or leverage natural physical and ecological forms and processes in the~~ long-term, ~~and on a~~ landscape-scale frameworks, these types of approaches are more likely to avoid or minimize direct, indirect, and cumulative impacts to aquatic resources than traditionally engineered "grey" approaches. They are also more likely to support beneficial uses presently and in the future than designs that impede ~~those~~ natural processes. ~~Preferred n~~Nature-based design features include, but are not limited~~,~~ to, the following:
    a. **Projects that conserve, enhance, create, and restore subtidal habitats, ~~Living shorelines,~~** ~~which in the Region typically include shallow subtidal elements,~~ such as nearshore oyster reefs, beds of submerged aquatic vegetation, and combinations thereof that attenuate wave energy along shorelines, help stabilize nearshore sediment, provide valuable subtidal nursery habitat for estuarine fish and invertebrates, and support pelagic food webs. ~~Living shorelines~~ These approaches are best suited for areas of San Francisco Bay, ~~and~~ Tomales Bay, and similar embayments with appropriate depths, salinities, substrates, and turbidity to support target species ~~(e.g.,~~including but not limited to native oysters (*Ostrea lurida*), eelgrass (*Zostera marina*), sago pondweed (*Stuckenia pectinata*), and widgeongrass (*Ruppia maritima*)~~)~~.

SCC Comment SCC-9: The commenter suggests including additional language about coarse sediment placement under (4b) or (4e) in Section 4.27.

Response to Comment SCC-9: The requested change is appropriate because the suggested habitat conversion is consistent with permitted habitat enhancement and climate change adaptation projects and programs, such as the Ocean Beach Nourishment Projects. Item (4e) in Section 4.27 has therefore been revised as follows:

> Strategic sediment placement that helps estuarine and coastal wetlands, ~~and~~ mudflats, and beaches keep pace with rising sea levels by artificially supplementing the volume of sediment available to support accretion, and/or providing coarse sediment to support habitat features such as beaches. These approaches can be especially useful in locations with limited estuarine and/or watershed sediment supplies, and where mudflats, ~~and~~ wetlands, and beaches at risk of drowning provide critical ecosystem services.

SCC Comment SCC-10: The commenter suggests adding an example of mudflat habitat conversion to (5d) in Section 4.27.

Response to Comment SCC-10: The requested change is appropriate because the suggested habitat conversion is consistent with permitted habitat enhancement and climate change adaptation projects and programs, such as the SF Bay Living Shorelines Project. Item (5d) under Section 4.27 has therefore been revised as follows:

> Type conversions: Some dredge or fill activities may convert one type of water of the state to another (e.g., salt pond to tidal flat/tidal wetland), or convert one component of the estuarine wetland ecosystem to another (e.g., tidal wetland to estuarine-terrestrial zone, tidal wetland to high tide refugia, ~~or~~ tidal wetland to tidal channel, or mudflat to oyster reef or sandflat). The overall impacts of proposed wetland type conversions can be assessed using technical guidance such as the Aquatic Resource Type Conversion Evaluation Framework.

(6) Citizens Committee to Complete the Refuge (CCCR)

CCCR Comment CCCR-1: The commenter requests additional language in the Basin Plan that acknowledges how rising sea levels threaten to drown the region's tidal wetlands, and the multiple strategies that can support water quality and beneficial uses in these systems.

Response to Comment CCCR-1: The BPA proposes a new section, 4.27, that discusses how climate change impacts the region's aquatic habitats and their beneficial uses. This section discusses how rising sea levels can drive wetland drowning and downshifting, and highlights nature-based strategies for climate adaptation including but not limited to connecting tidal wetlands to estuarine and watershed sediment sources as well as terrestrial-estuarine transition zones. In addition, proposed revisions to Section 4.23.1 highlight "the importance of establishing complete tidal wetland systems with robust physical and ecological connections between the Bay, tidal wetlands, estuarine-terrestrial transition zones (often called ecotones), and watersheds to sustain healthy, resilient habitats in the face of climate change." However, language addressing the threat of wetland drowning is absent from Section 1.7, so it has been revised as follows:

Rising sea levels are increasing the risk of coastal flooding and erosion, especially where critical shoreline infrastructure and low-lying communities rely on tidal wetlands and mudflats to help protect them from the rising seas. Rising sea levels increase the risk of drowning coastal habitats, such as tidal wetlands and mudflats, especially where habitats cannot migrate upland/inland, and/or where there are inadequate sediment supplies to support accretion.

CCCR Comment CCCR-2: The commenter requests the addition of two references to Section 2.2.3 that are referenced in the Procedures as sources of information that can help support wetland delineation:

- U.S. Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers 89 Wetland Delineation Manual: Arid West Region (Version 2.0). ed. J. S. Wakeley, R. W. 90 Lichvar, and C. V. Noble. ERDC/EL TR-08-28. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers 93 Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). 94 ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. 95 Army Engineer Research and Development Center.

Response to Comment CCCR-2: Since these references are already included in the Procedures, and we reference the Procedures in the Basin Plan amendment, it is not necessary to list them out separately in the Basin Plan.

CCCR Comment CCCR-3: The commenter suggests the following edit to the first paragraph in Section 4.27:

Climate change adversely impacts aquatic habitats within the San Francisco Bay Region and their beneficial uses through multiple mechanisms including rising sea and groundwater levels, changes in watershed flows of freshwater and sediment, more frequent and severe storm surges, floods, and droughts, and wetland drowning and downshifting. Efforts to prevent or minimize these impacts to the natural and built environment with traditional, static armoring and infrastructure such as levees, seawalls, and rock revetments (collectively referred to as “grey” infrastructure) can in some circumstances exacerbate erosion, flooding, and habitat loss. These risks are especially acute in and near the baylands and low-lying areas of the Pacific Ocean shoreline, where climate change impacts to watersheds are likely to be compounded by impacts from rising sea and groundwater levels.

Response to Comment CCCR-3: The suggested revision is appropriate for clarity and has been made.

CCCR Comment CCCR-4: The commenter suggests the following edit to the “Ecotone and treated wastewater “horizontal” levees” bullet point on page 3-33 of the Staff Report:

- *Ecotone and treated wastewater "horizontal" levees.* These are flood control levees with gradually-sloped (typically 15:1 horizontal:vertical or greater) bayward sides that can increase the footprint and functions of the estuarine-terrestrial transition zone at the landward edge of tidal wetlands. When designed to include subsurface seepage of treated wastewater, they are often called "horizontal" levees. Ecotone levees can create estuarine-terrestrial transition zones and attenuate wave energy; horizontal levees can perform these functions as well as remove pollutants, such as nutrients, metals, and contaminants of emerging concern, from treated wastewater, and restore freshwater-brackish-saline wetland gradients that have largely been lost throughout the region. Ecotone and horizontal levees are best-suited for locations where they will be fronted by tidal wetlands, both to improve landscape-scale ecological functions and to reduce the risk of erosion of the levee toe. They typically require considerable volumes of material to construct, and therefore should be built as far landward as feasible to minimize settling. ~~and~~ maximize the footprint of in-estuary habitat restoration. and avoid or minimize impacts to tidal wetlands bayward of the proposed ecotone levee. Both levee types are relatively newer design approaches that should be carefully monitored and, if needed, adaptively managed to ensure their long-term resilience and functionality. Examples of ecotone levees can be found at the Sears Point Tidal Wetland Restoration Project and Hamilton Wetlands Restoration Project. A pilot-scale horizontal levee is in operation at the Oro Loma Sanitary District plant in San Lorenzo; full-scale projects are currently planned for the Oro Loma facility as well as at the Palo Alto Regional Water Quality Control Plant. Design guidance for horizontal levees is currently being developed by the San Francisco Estuary Partnership's Transforming Shorelines Project.

Response to Comment CCCR-4: See response to comment BACWA-1. The suggested revision has been made because it makes the language in the BPA more consistent with the Procedures. Again, the inclusion of this language does not preclude siting these features in locations where they would not be fronted by tidal wetlands; however, projects that propose ecotone/horizontal levees in locations where they would not be fronted by tidal wetlands usually incorporate nature-based strategies to avoid/minimize levee toe erosion (e.g., ongoing efforts at Sears Point).

CCCR Comment CCCR-5: The commenter expresses concerns that the Aquatic Resource Type Conversion Framework referenced in Section 4.27 of the BPA may emphasize biodiversity and the provision of habitat for rare/special-status species at the expense of habitat that supports suites of species, such as resident and migratory waterbirds dependent on salt ponds that may not have those designations.

Response to Comment CCCR-5: The Aquatic Resource Type Conversion Framework is included in the BPA as an example of a method that can help assess potential trade-offs between different types of habitats; its application is not mandatory to permitting decisions. The framework emphasizes biodiversity, and proposed projects that would support mosaics of habitat types and dependent species (special-status or not) would score highly. The framework also emphasizes collaborative restoration visions, such as those developed for the region's salt pond restoration projects that attempt to balance the competing habitats

needs of resident and migratory shorebirds and waterfowl with those of tidal wetland fish and wildlife.

(7) Coast Action Group (CAG)

CAG Comment CAG-1: The commenter suggests adding language to the BPA on the role of climate change in driving changes in water temperature regimes, and the regulatory mechanisms to address these changes.

Response to CAG-1: See Response to ACWD-1. Regulatory mechanisms to address the effect of climate change on water temperature regimes is outside the scope of this BPA.

CAG Comment CAG-2: The commenter suggests including stronger language about how climate impacts occur across the state's different Regional Water Quality Control Board boundaries.

Response to CAG-2: While a worthwhile concern, addressing conditions outside the boundary of the San Francisco Bay Region is beyond the authority of the San Francisco Bay Regional Water Quality Control Board and accordingly, is outside the scope of this BPA.

(8) Robert Raven

Comment RR-1: The commenter expresses concern about runoff from ranching operations in Point Reyes and elsewhere in the Bay Area, the impact of dredging in the Petaluma River, and keeping garbage out of the region's rivers and creeks.

Response to Comment RR-1: The Water Board appreciates the commentor's concerns, but they are outside the scope of the BPA.

(9) Santa Clara Valley Water District (Valley Water)

Valley Water Comment VW-1: The commenter recommends that the BPA include full citations and links to resources and tools such as the SF Bay Shoreline Adaptation Atlas, and *"a glossary of key terms such as 'operational landscape unit', 'landscape-scale' and 'nearshore'."*

Response to Comment VW-1: We agree that including a link to the Adaptation Atlas in the Basin Plan would provide a helpful resource for applicants and Water Board staff, and is consistent with the inclusion of links in the Basin Plan to related resources such as the Baylands Ecosystem Habitat Goals reports. We have therefore revised the text in Section 4.27 to include a link to the Adaptation Atlas. The Basin Plan does not include a glossary of key terms, and we do not believe it is necessary to define these terms, which are well-established in literature such as the Adaptation Atlas and related technical documents.

Valley Water Comment VW-2: The commenter recommends that the BPA include "examples of available references and tools to support acceptable levels of analyses, such as how the technical references listed in the Staff Report should be used to determine appropriate mitigation for impacts to waters of the state."

Response to Comment VW-2: See response to Comment VW-3, below.

Valley Water Comment VW-3: The commenter requests that the Water Board develop additional, non-regulatory, technical guidance to guide interpretation of the information contained in the BPA within the permitting process, specifically:

1) How to assess potential trade-offs between near-term impacts to waters of the state (from dredging/fill actions) and future functions/values;
2) How wetland type conversion can benefit waters of the state, offset impacts to waters of the state, and meet the requirements of the Basin Plan, California Wetlands Conservation Policy, Procedures, and Clean Water Act Section 404(b)(1) guidelines;
3) The circumstances under which climate adaptation strategies such as ecotone/horizontal levees may be consistent with the California Wetlands Conservation Policy
4) Definitions/guidance on what it means for actions to be "practicable" and/or "appropriately protective."

Response to Comment VW-3: The Water Board agrees and plans to work on additional non-regulatory technical FAQs on climate change considerations within permitting processes that could be helpful to permit applicants and Water Board staff. This could include examples of how available references and tools such as the SF Bay Shoreline Adaptation Atlas and Wetland Type Conversion Framework could be used in actual and/or hypothetical permitting scenarios (see Comment VW-2). The Water Board has received similar requests from participants in the Bay Restoration Regulatory Integration Team (BRRIT), which includes the Water Board and its partner regulatory agencies (US Army Corps of Engineers, US Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Wildlife, SF Bay Conservation and Development Commission).

PART II: STAFF-INITIATED CHANGES TO THE STAFF REPORT AND PROPOSED BASIN PLAN AMENDMENT.

The following staff-initiated changes are made to the Staff Report and proposed Basin Plan amendment for additional clarity and are consistent with the overall purpose of the amendment:

1. Page 6-46 of the Staff Report is revised to clarify that even though the proposed Basin Plan is not a project under CEQA because it will not cause a direct physical change in the environment (or a reasonably foreseeable indirect change), a substitute environmental document was nevertheless prepared, as follows:

> The Regional Water Board's water quality control planning program is a certified regulatory program <u>(Cal. Code Regs., tit. 14, section 15251, subd. (g).). The proposed Basin Plan amendment, however, is not a "project" within the meaning of CEQA because it will neither cause a direct physical change in the environment, or a reasonably foreseeable indirect change. (See Pub. Resources Code, Section 21065; Cal. Code Regs., tit. 14, Section 15378.) As a result, the proposed amendment is not subject to CEQA.</u> ~~and, thus, this staff report has been prepared in lieu of an EIR or negative declaration. (Cal. Code Regs., tit. 14, section 15251, subd. (g).)~~ <u>Nevertheless,</u> ~~This~~ <u>this</u> staff report and its appendices

have been prepared and serve as the substitute environment document ~~required for Basin Plan amendments~~. ~~(Cal. Code Regs., tit. 23, section 3777.)~~

2. Question 2 on page 9 of the proposed Basin Plan amendment has been revised to clarify that reasonably foreseeable projects (not all potential projects) may be considered within the context of a phased adaptation strategy:

> Is the proposed project designed as part of a phased adaptation strategy that anticipates ~~potential future~~ reasonably foreseeable projects and accommodates these projects in a manner that protects future beneficial uses of the site and its landscape?